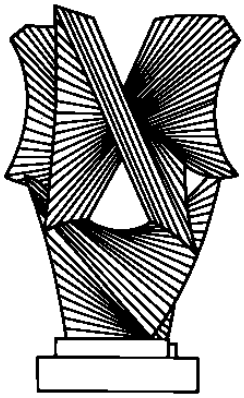
2002

Charismatic Code, Social Norms, and the Emergence of Cooperation on the File-Swapping Networks

Lior Strahilevitz

CHICAGO

JOHN M. OLIN LAW & ECONOMICS WORKING PAPER NO. 162
(2D SERIES)



Charismatic Code, Social Norms, and the Emergence of Cooperation on the File-Swapping Networks

Lior Jacob Strahilevitz

THE LAW SCHOOL
THE UNIVERSITY OF CHICAGO

Charismatic Code, Social Norms, and the Emergence of Cooperation on the File-Swapping Networks

by Lior Jacob Strahilevitz*

*Assistant Professor, University of Chicago Law School. Thanks are owed to Michael Abramowicz, Anne Alstott, Theodore Angelis, Robert Ellickson, Jack Goldsmith, Dan Kahan, Doug Lichtman, Leslie Pollner, Eric Posner, and Eric Shumsky for their helpful comments and criticisms on earlier drafts, and Colin McNary for his valuable research assistance. In addition, conversations with Amy Adler, Vicki Been, Richard Brooks, Karol Brown, Leandra Lederman, Mark Lemley, Lawrence Lessig, Saul Levmore, Tracey Meares, Peter Menell, Tony Miles, Kimberly Mills, Bill Stuntz, and Tamara Watts were instrumental in improving the article. Finally, thanks to workshop participants at the University of Chicago, Yale, Stanford, Berkeley, NYU, Northwestern, Hastings, George Mason, and UCLA.

Introduction

Three years ago, nobody had ever heard of Napster or Gnutella. Within the past few years, however, Napster and Gnutella, along with their subsequent imitators, have grown into arguably the largest international networks of illegality in human history. At its peak, Napster had 70 million users,[1] the overwhelming majority of whom used the service to obtain unlicensed copies of copyrighted sound recordings.[2] Although adverse court decisions eventually brought Napster to its knees, file-swapping users have simply taken their "business" elsewhere, and a plethora of file-swapping networks, including Gnutella, have taken Napster's place. By November of 2001, another of these peer-to-peer networks, the MusicCity / KaZaA network, claimed more simultaneous users than Napster ever had.[3] According to a recent estimate, as many as 40 million Americans use a peer-to-peer network to obtain copyrighted content every week.[4]

There is something else happening with these networks besides the widespread copyright infringement they encourage, and it may be even more interesting. After all, there is little mystery as to why tens of millions of individuals have chosen to use these networks to *download* free, high-quality, sound recordings. The more puzzling question is why tense of millions of individuals have chosen to *upload* free, high-quality sound recordings to their fellow anonymous users. Downloading content from a peer-to-peer network depends entirely on another user's willingness to upload such content. While users of these networks have been free to download as much content as they want without ever having to share their content with other users, substantial numbers of them still elect

[1]Matt Richtel, *With Napster Down, Its Audience Fans Out*, N.Y. TIMES, July 20, 2001, at A1.

[2]*A & M Records, Inc. v. Napster, Inc.*, 114 F. Supp.2d 896, 902-03 (N.D. Cal. 2000) ("The evidence shows that virtually all Napster users download or upload copyrighted files and that the vast majority of the music available on Napster is copyrighted.").

[3]*Webnoize Estimates Nearly Two Billion Files Downloaded Using the Kazaa, MusicCity and Grokster File-Sharing Applications in October*, Nov. 5, 2001, available in <http://webnoize.com/items.rs?ID=14652> (visited Dec. 2, 2001).

[4]Doug Bedell, *Pay to Play? No Way: New Legislation, Record Labels Are Going After File-Sharing Networks*, SAN DIEGO UNION TRIBUNE, July 29, 2002, at E3 (citing a recent study by Odyssey Research).

to share. Seen in this light, the file-swapping networks are a triumph of cooperation and a shining beacon of kindness to strangers.

In this article, I will provide an explanation for why tens of millions of Internet users make their unlicensed copies of copyrighted content available to perfect strangers despite the absence of obvious incentives for doing so. Drawing on the social psychological literature that explores cooperation and altruism in the face of anonymity, I propose that file-swappers share their content with anonymous strangers mainly because charismatic technologies make the community of file-swappers appear to its users far more cooperative than it really is. In so doing, the networks tap into deeply held social norms of reciprocity that people develop offline and bring with them to cyberspace. I will then use the file-swapping network as a case study for analyzing how cooperation and social norms emerge in an environment characterized by anonymity and a lack of repeat-player interactions. In short, I will present a hypothesis to explain the emergence of social norms in a "loose-knit" environment.[5]

As this account suggests, robust, cooperation-encouraging social norms can emerge where anonymity is widespread, provided the environment in which those anonymous individuals interact is properly structured. I will propose that in this instance, the ingenious structure of the file-swapping networks solidifies a norm of sharing, and that this norm of sharing is reinforced by users' mistaken but predictable notions of reciprocity. If my account is correct, it suggests that the copyright industries' efforts to control copyright infringement on peer-to-peer networks have been wrongheaded. Rather than moving sequentially against the various post-Napster networks, the copyright industries might have adopted various strategies to create a norm of free-riding, thereby cutting off the cooperative uploading on which these networks rely. I will consider those strategies in the final pages of the article.

Part I of this article provides a technical, historical, and legal introduction to the world of file-swapping on the Internet. This section provides context so that the uninitiated may better understand the nature of the social phenomenon that is being characterized in the remainder of the article. It then explores the ways in which users of these networks cooperate despite the apparent absence of incentives to do so, and the limitations on cooperation that the networks' designers have had to attempt to overcome.

---

[5]Close-knit environments are those in which repeat players can identify each other. *See also* ROBERT C. ELLICKSON, ORDER WITHOUT LAW 177-78 (1991) ("A group is close-knit when informal power is broadly distributed among group members and the information pertinent to informal controls circulates easily among them."). Loose-knit groups, by contrast, are clusters of individuals who are unlikely to be repeat players or are otherwise unlikely to be able identify each other in repeat interactions. While the legal literature on close-knit groups is well-developed, legal scholars have only begun to turn their attention to understanding loose-knit groups. *See generally* Lior Jacob Strahilevitz, *Social Norms from Close-Knit Groups to Loose-Knit Groups*, 70 U. CHI. L. REV. ___ (forthcoming 2003).

Parts II and III examine the emergence of two kinds of social norms that govern human behavior with respect to file-swapping activities. The first of these, discussed in Part II, is the norm that renders downloading behavior permissible, regardless of what the copyright laws might say. The emergence of that norm can be explained plausibly through a standard economic analysis supplemented by a traditional account of norm creation.

Part III discusses a second norm—one that cannot be explained through the existing tool set that social norms scholars have developed to analyze close-knit groups. That norm holds that those who download content from peer-to-peer networks should also make content available to other users. The article argues that this norm's emergence and survival can be best explained with reference to the social psychological literature that examines why people generally cooperate with or behave altruistically toward strangers. It suggests that even in loose-knit environments, individuals can be persuaded to cooperate if they view others as cooperating. It further suggests that the file-swapping networks have been so successful in large part because they have created an online environment in which sharing appears to be far more prevalent than it really is. This phenomenon is emblematic of what I call "charismatic code"—a technology that magnifies cooperative behavior and masks uncooperative behavior.

Part IV applies some of the lessons gleaned from the foregoing discussion to the policy choices that courts, legislatures, and private actors must confront in regulating file-swapping on the Internet. It suggests that courts and copyright holders have largely botched their initial efforts to respond to the challenge posed by the file-swapping networks. The Part then examines alternative strategies that copyright holders may employ to weaken these networks: self-help and pricing mechanisms that raise the cost of user cooperation. It turns out that an understanding of how social norms arise and thrive in loose-knit environments suggests surprising strategies for undermining arguably pernicious cooperation by file swappers. To illustrate, I suggest that the copyright industries may be able to undermine the success of file-swapping networks by releasing their own file-swapping programs that allow people to exchange files, but that make uploading appear to be far less prevalent than it really is—thereby undermining the norm of sharing. Alternatively, I argue that the record industry's apparent strategy of uploading flawed MP3 files onto the peer-to-peer networks is much more likely to succeed if done surreptitiously, so that the users will begin blaming each other for the presence of these files, prompting them to eschew future cooperation. Insights about charismatic code thus can be useful to those wishing to control copyright infringement, but they might also be useful to those who wish to strengthen the networks further. To that end, Part IV suggests ways in which the networks could boost the already impressive levels of cooperation that exist therein. A brief conclusion follows in Part V.

I. An Introduction to Napster, Gnutella, and the File-Swapping Hybrids

The term "killer app" is lingo in the software industry for a must-have application that profoundly alters the experience of using a computer.[6] The explosive growth of the computer software industry during the 1980s and 1990s was sparked by such killer apps as *Lotus 1,2,3* (a spreadsheet program), *WordPerfect* (a word processor program), and *Netscape* (an Internet browser). It is safe to say that during the year 2000 Napster became the killer app du jour.[7]

A. Napster

1. Napster in Brief

Napster was a file-swapping program invented in 1999 by Shawn Fanning, a Northeastern University undergraduate who wanted to create a network that would allow him to trade MP3 music files[8] with his friends over the Internet.[9] Napster integrated two basic functionalities: It compiled a searchable directory that allows users to locate desired content on other users' machines and combined that directory with a file transfer protocol which allowed that content to be copied from one computer to another.[10]

Using Napster to exchange music files was very straight-forward. A user directed his Internet browser to visit the Napster.com web site and download Napster's MusicShare software.[11] That software catalogued the music files in designated drives on a user's computer and stored this catalog on Napster's central servers. The software then permitted the user to search through the catalog of MP3 files available on other users' computers, and download the desired files. These files were then transferred from the

---

[6]Clay Shirky, *Listening to Napster*, *in* PEER-TO-PEER: HARNESSING THE BENEFITS OF A DISRUPTIVE TECHNOLOGY, at 21, 26 (Andy Oram ed. 2001) ("Whatever one thinks of Napster's probable longevity, Napster is the killer app for this revolution.").

[7]Karl Taro Greenfeld, *Meet the Napster*, TIME, Oct. 2, 2000, at 60 ("[Napster] already ranks among the greatest Internet applications ever, up there with e-mail and instant messaging. In terms of users, the Napster site is the fastest growing in history."); *see also Napster*, 114 F. Supp.2d at 927 (finding that Napster "has contributed to illegal copying on a scale that is without precedent").

[8]MP3s are a form of compressed music files that produce near-CD quality sound at a tenth the size of a .WAV file, which was the prior software format for representing music. Robert T. Baker, *Finding a Winning Strategy Against the MP3 Invasion: Supplemental Measures the Recording Industry Must Take to Curb Online Piracy*, 8 UCLA ENT. L. REV. 1, 6 (2000).

[9]Damien Riehl, *Peer-to-Peer Distribution Systems: Will Napster, Gnutella, and Freenet Create a Copyright Nirvana or Gehenna?*, 27 WM. MITCHELL L. REV. 1761, 1766 (2001).

[10] Expert Report of Professor Lawrence Lessig Pursuant to Federal Rule of Civil Procedure 26(a)(2)(B) ¶48, *A & M Records, Inc. v. Napster, Inc.*, C 99-5183 MHP (ADR) (N.D. Cal.).

[11]Riehl, *supra* note 9, at 1767.

host user's computer to the requester's computer via a peer-to-peer connection over the Internet.[12]

Once a user logged in to the Napster network, there were a couple of ways in which she could locate files for downloading. Napster provides a search function whereby a user could locate files in fellow user's directories after searching by artist name or song name. She could then see not only which users have the files on their directories, but how fast their Internet connections are. After conducting an initial search, the user had several search options. She could search for another artist or song. Or she could examine the file directory of a particular user who showed files satisfying the first search criteria to see what other files that user had made available for downloading. For example, a user interested in expanding her jazz horizons might have searched for files containing music by a well-known artist such as Miles Davis or Louis Armstrong and subsequently looked at the directories belonging to users who have extensive collections of Davis or Armstrong recordings. In that way, users found high-quality music made by an artist of whom they had never previously heard.

Napster users occasionally engaged in virtual conversations with the users who were supplying them with music files. For example, a user looking for music by a relatively obscure artist could find another user with a substantial collection of that artist's works. The user began to download the music and, at the same time, paged the uploading user to see if he was interested in exchanging instant messages about the artist. Napster also hosted chat rooms that involved many users simultaneously.[13] Napster thereby permitted music lovers to share information and conversation with others who had similar tastes.

2. Napster's Growth

A firm that monitors Internet usage reported that Napster was the fastest-spreading application ever tracked on the Net.[14] By the summer of 2000, less than one year after the program's launch, *Napster* use was widespread. Thirty-seven percent of Internet users in the United States had listened to or downloaded music off the Internet. Of these, 54% had used *Napster* to download music.[15] A little more than half of Napster's 70 million users were in the United States, but significant user populations existed in Canada, Australia, Brazil, Germany, and the United Kingdom.[16]

---

[12] *Id*.

[13] *Napster*, 114 F. Supp.2d at 907.

[14] Amanda Lenhart & Susannah Fox, *Downloading Free Music: Internet Music Lovers Don't Think It's Stealing*, Pew Internet & American Life Project's Online Music Report, at 4 (Sep. 28, 2000).

[15] *Id*. at 7, 11.

[16] *Jupiter Media Metrix Reports Multi-Country Napster Usage Statistics for February 2001*, LEXIS PR Newswire, Apr. 5, 2001.

Napster fueled a surge in music downloading off the Internet. Between July of 2000 and February 2001, the number of Americans who had downloaded music off the Internet increased by more than 40%.[17] The majority of those Americans between the ages of 12 to 29 who have Internet access had downloaded music files via the Net.[18] Napster users began amassing increasingly large collections of MP3 files. In April of 2000, the average uploading Napster user had approximately 100 MP3 files available for sharing.[19]

3. The *Napster* Litigation and Its Fallout

On December 6, 1999, a group of several record labels sued Napster for contributory and vicarious[20] copyright infringement.[21] The district court denied Napster's motion for summary judgment on May 5, 2000, rejecting the company's claims that its service fell within the safe harbor provisions of the Digital Millennium Copyright Act, 17 U.S.C.A. § 512(a).[22] On July 26, 2000, the district court essentially sided with the recording industry on the merits, granting its motion for a preliminary injunction to prevent Napster from engaging in contributory and vicarious infringement of the recording industry's copyrights.[23] The district court enjoined Napster from "engaging in, or facilitating others in copying, downloading, uploading, transmitting, or distributing plaintiffs' copyrighted musical compositions and sound recordings . . . without express permission of the rights owner."[24] The court placed the burden of removing access to copyrighted works on Napster, but ordered the plaintiffs to assist Napster by identifying the works in which they own copyrights.[25] Shortly before the injunction was to become effective, the Ninth Circuit granted Napster's application for a stay pending appeal.[26] While the case was awaiting the Ninth Circuit's review, the free publicity that Napster

---

[17]Mike Graziano & Lee Rainie, *The Music Downloading Deluge: 37 Million American Adults and Youth Have Retrieved Music Files on the Internet*, Pew Internet & American Life Project's Online Music Report, at 2 (April 24, 2001).

[18]*Id*.

[19]*Id*. at 3.

[20]One who, with knowledge of the infringing activity, induces, causes, or otherwise materially contributes to the infringing conduct of another is potentially liable for contributory copyright infringement. Vicarious liability arises when one party has direct control over an infringer and benefit's from that infringer's unlawful activities.

[21]A & M Records, Inc. v. Napster, Inc., No. C 99-05183 MPH, 2000 U.S. Dist. LEXIS 6243, at *1 (N.D. Cal. May 5, 2000).

[22]*Id*. at *29-30.

[23]*Napster*, 114 F. Supp.2d at 918-22.

[24]*Id*. at 927.

[25]*Id*.

[26]*Id*. at 927 n.32.

garnered through coverage of the litigation helped Napster's user base grow dramatically.[27]

On February 12, 2001, the Ninth Circuit affirmed the district court's determination that Napster had likely engaged in contributory and vicarious copyright infringement.[28] The court did alter the district court's injunction somewhat, finding that the injunctive order was overbroad to the extent that it placed upon Napster the primary onus to ensure that its network was free of copyrighted content.[29] The court thought it more appropriate to "place the burden on plaintiffs to provide notice to Napster of copyrighted works and files containing such works available on the Napster system before Napster has the duty to disable access to the offending content."[30]

Three weeks later, the district court modified its injunction on remand.[31] The court required the plaintiffs to provide Napster with a list of songs and artist names whose copyrighted content was being traded on Napster.[32] The court further ordered Napster to be diligent in preventing circumvention of the spirit of the court's injunction through "variations of the filename(s), or of the spelling of the titles or artists' names, of the works identified by the plaintiffs."[33] Under the court's order, Napster would have three days to prevent a copyrighted file that plaintiffs' identified from being swapped via the network.[34] In order to comply with the injunction, Napster installed "filtering" software on its servers that would prevent certain copyrighted files from appearing when one user searched another user's directory. Moreover, Napster's search function was rigged so that when a user types in a search query such as "Rolling Stones," the network immediately returned the response "No files found." This injunction essentially killed Napster, such that by September of 2002, Napster was no longer operating, had laid off virtually all its employees, and appeared headed for liquidation.[35]

B. Gnutella

Approximately one year after Napster's creation, Gnutella, a new file-swapping program, was released over the Internet.[36] Presently, there are several different Gnutella applications, all of which use the same basic network and file-swapping technologies.

---

[27]JOHN ALDERMAN, SONIC BOOM: NAPSTER, MP3, AND THE NEW PIONEERS OF MUSIC 143 (2001).

[28]A & M Records, Inc. v. Napster, Inc., 239 F.3d 1004,1020, 1024 (9th Cir. 2001).

[29]*Id*. at 1028.

[30]*Id*.

[31]A & M Records, Inc. v. Napster, Inc., No. C 99-05183 MHP, 2001 U.S. Dist. LEXIS 2186 (N.D. Cal. Mar 5, 2001).

[32]*Id*. at *4.

[33]*Id*. at *5.

[34]*Id*. at *7.

[35]Matt Richtel, *Napster Says It Is Likely to Be Liquidated*, N.Y. TIMES, Sep. 4, 2002, at C2.

[36]Gene Kan, *Gnutella and GoneSilent.com*, *in* PEER-TO-PEER, *supra* note 6, at 94, 95; Riehl, *supra* note 9, at 1774.

The most popular Gnutella applications are currently BearShare, Limewire, Qtraxmax, XoloX, and Gnucleus.[37] Although their interfaces and features vary somewhat, all these applications share the same network, meaning that a BearShare user can exchange files with a Limewire user without difficulty.

1. Gnutella's Structure

Gnutella's network is more versatile than Napster's was in that it allows users to exchange software files in any format, rather than just MP3 files.[38] Scanned photographs, text files, and motion pictures can therefore be exchanged over the Gnutella network. Not surprisingly, the Gnutella network has become quite popular among users wishing to exchange copies of movies and pornographic images.

A user searching for software files on Gnutella does so in a manner somewhat similar to a Napster search.[39] After logging into the Gnutella network, his computer will connect to a number of other computers running a Gnutella application. That user may then type any search phrase into the software, be it an artist's name, album title, song name, or some combination thereof. His computer then asks the other computers to which it is connected whether they contain files that match the search description. These computers will in turn query the computers to which they are connected, and so on and so on.[40] Eventually, many of the computers connected to a particular network (a maximum of 10,000 machines[41]) will be asked whether they have files that match the search query, and will return any affirmative responses to the requesting computer.[42] The user is then able to sort the affirmative responses by variables such as Internet connection speed or file size. Once the user requests to download a particular file from a particular user, a peer-to-peer connection between their computers is established via the Internet and the file is copied from the uploader to the downloader.

Until recently, Gnutella did not permit users to scan the directories of a particular user to see what other files they have available. In place of that handy Napster function, however, Gnutella offers a fascinating voyeurism tool entitled "Monitor." A Gnutella user can observe, at any given time, a scrolling list of queries that other users have

---

[37] *Most Popular Downloads*, available in <http://download.com.com/3150-2166-0-1-4.html?> (visited August 5, 2002).

[38] For an excellent, detailed overview of how Gnutella works, see Kan, *supra* note 36, at 94-122.

[39] The text that follows is based on a description of BearShare, currently the most popular application for searching the Gnutella network. The user experience varies slightly on LimeWire, Gnotella, and other Gnutella applications.

[40] Expert Report of Lawrence Lessig, *supra* note 10, at ¶¶ 50-51.

[41] Kan, *supra* note 36, at 110; *What Is Gnutella?*, available in <http:/www.gnutellanews.com/information/what_is_gnutella.shtml> (visited July 1, 2001).

[42] <http:/www.gnutellanews.com/information/what_is_gnutella.shtml> (visited July 1, 2001).

recently entered into their Gnutella search engines. Such searches reveal the eclectic tastes of Gnutella's users[43] and often inspire users to duplicate a particular search.

Unlike Napster's software, the Gnutella network does not rely on any central server to store a directory of the files available on users' systems. Rather, all the computers plugged into the network function as mini-servers. In an era when lawsuits and injunctions are the primary tool for preventing copyright infringement on the Internet, this decentralized structure makes it relatively difficult to police (and ultimately shut down) Gnutella.[44] Indeed, Gnutella's creators bill their program and network as one that is impervious to legal control.

> Gnutella can withstand a band of hungry lawyers. How many realtime search technologies can claim that? Not Napster, that's for sure. Just to emphasize how revolutionary this is: hungry lawyers are probably more destructive than nuclear weapons. There are a few things that will prevent Gnutella from being stopped by lawyers, FBI, etc. First, Gnutella is nothing but a protocol. It's just freely accessible information. There is no company to sue. No one entity is really responsible for Gnutella. Second, Gnutella is not there to promote the piracy of music. It's a *technology*, not a music-piracy tool. The important thing is that Gnutella will be here tomorrow. It's reliable, it's sharing terabytes of data, and it is absolutely unstoppable.[45]

This rhetoric may be overblown and unsophisticated, but neither lawyers nor server failures have been able to bring down Gnutella since its birth.[46] Faced with the unattractive prospect of filing individual lawsuits against the many copyright-infringing users on Gnutella's networks, the music and motion picture industries have so far held

---

[43]For example, a random search conducted on August 4, 2001, revealed that users were searching for popular music ("matchbox 20," "Michael Jackson," "Cypress Hill," and "Classic Rock"), motion pictures ("Top Gun," "The Exorcist," "Sleepy Hollow," "Enemy at the Gates"), computer software applications ("Easy CD Creator 5"), and pornography ("Kiddie mpg," "Girls Gone Wild," and "Barely Legal 6").

[44]Robert E. Litan, *Law and Policy in the Age of the Internet*, 50 DUKE L.J. 1045, 1068-69 (2001).

[45]*What Is Gnutella?*, *supra* note 41.

[46]As Damien Riehl explains, "Traditionally, copyright holders have been able to sue questionably infringing sites because the companies are identifiable, have a physical presence in a jurisdiction, and can be found on a machine in a specific geographic location. . . . Those considering legal action against Gnutella, however, would not have the luxury of an easy target to sue, since the infringers and their computers may be located around the world and could number in the millions. Since there is no one company behind Gnutella, but it is only a loose-knit group of individuals who often participate in non-commercial file exchanges, copyright holders are left without any significant coffers to sue and some nearly insurmountable jurisdictional hurdles to overcome. Furthermore, any attempt by entertainment industry copyright holders would likely be a legal and public relations nightmare. The minimal damages that could be recovered from infringing users would not justify the cost and time involved in attempting to assert jurisdiction against millions of individuals in a myriad of jurisdictions." Riehl, *supra* note 9, at 1778-79; *see also* Jon Healy, *Gnutella Targeted for Piracy Control: Unlike Napster, the Decentralized Network Cannot Be Sued by Record Labels*, L.A. TIMES, Mar. 29, 2001 (discussing the legal difficulties faced by the RIAA if it wishes to shut down Gnutella).

their fire against Gnutella's developers and users.[47] Not surprisingly, Gnutella's creators have exhibited a general disdain for capitalism in general and intellectual property rights in particular.[48]

2. Gnutella's Growth

In part because it was initially less user-friendly and efficient than Napster, in part because of Napster's first mover advantage in the marketplace, and in part because of less aggressive marketing, Gnutella's file-swapping network did not catch on nearly as quickly as Napster's. Gnutella usage received a major boost, however, after the Ninth Circuit ordered Napster to start complying with copyright laws. Indeed, Internet watchers reported a 17 percent increase in Gnutella usage on the day after the *Napster* decision was handed down, relative to the previous day.[49] That trend continued as Napster began making it more difficult for users to access copyrighted MP3 files.[50] As Napster users began to anticipate the eventual demise of Napster-as-they-knew-it, they and new file-swappers increasingly began using Gnutella as a Napster substitute.[51]

C. File-Swapping Hybrids

In the past year, a number of hybrid software programs, such as MusicCity's Morpheus, KaZaA, and Audiogalaxy Satellite, have been distributed over the Internet. These programs combine Napster's efficient downloading with Gnutella's decentralized structure and support of many different file formats. Several of these networks, such as the one that serves KaZaA and Grokster[52] were created by companies based outside the

---

[47]John Borland, *RIAA: Gnutella not yet a Threat*, ZDNet News, Mar. 29, 2001, *available in* <http://www.zdnet.com/zdnn/stories/news/0,4586,5080393,00.html> (visited July 1, 2001).

[48]ALDERMAN, *supra* note 27, at 148.

[49]*Id*. (quoting Kelly Truelove, CEO of Clip2.com); *see also* Janelle Brown, *The Music Revolution Will not Be Digitized*, Salon.com, June 1, 2001, available in <http://www.salon.com/tech/feature/2001/06/01/digital_music/print.html> (visited June 1, 2001) (discussing the spike in Gnutella usage after the *Napster* decision); Lee Gomes, *Renegade Gnutella May Become a Web Standard*, WALL ST. J., May 29, 2001.

[50]Richtel, *supra* note 1, at A1 ("Figures to be released today show that a precipitous drop in Napster's traffic over the last several weeks has been paralleled by marked growth in more than half a dozen less centralized services."); *Napster: Company Is Not Dead*, May 13, 2001, available at <http://news.findlaw.com/ap_stories/high_tech/1700/5-3-2001/20010503072217100.html> (visited May 13, 2001); Ron Harris, *Napster Use Slumps as Screening Technology Takes Hold*, Salon.com, Mar. 16, 2001, available in <http://www.salon.com/tech/wire/2001/03/16/napster/index.html> (visited Mar. 16, 2001).

[51]Baker, *supra* note 8, at 17; Elaine O'Connor, *Who Needs Napster? Peer-to-Peer Sharing Thrives: Record Companies Have Shut Down the Best-Known Site, but Music 'Sharing' Continues to Grow*, OTTAWA CITIZEN, Aug. 17, 2002, at J1.

[52]In February of 2002, Morpheus switched over from this network to the Gnutella network. Farhad Manjoo, *Sour Notes*, July 30, 2002, available in <http://www.salon.com/tech/feature/2002/07/30/file_trading/> (visited July 30, 2002).

United States. The file-swapping hybrids generally "scale" better than Gnutella does, which means that when a user logs into the network, he is able to access the content hosted by a larger number of users and, accordingly, has a larger library of files from which to choose.[53] Moreover, whereas Gnutella servers use every computer on the network as a mini-server to facilitate searching, hybrid applications automatically locate the most powerful computers on the network with the highest speed connections, and use only those computers as mini-servers. The result is a noticeably faster network and a more efficient process for searching.[54]

While the Gnutella network has gained significant traffic in the wake of Napster's downfall, the file-swapping hybrids have been the primary beneficiaries.[55] During a single week in August of 2001, 2.8 million people downloaded the three most popular hybrid applications. During the first week of August, 2002, almost 3.7 million people downloaded the three most popular file-swapping applications. Although it is difficult to gauge the precise number of users on these networks, the largest two, KaZaA and MusicCity Morpheus, have been downloaded more than 200 million times between them, and the next three most popular, Audiogalaxy Satellite, BearShare, and Limewire, account for an additional 60 million downloads.[56] These numbers are rendered particularly important by the network externalities that exist on the file-swapping networks: The more users a network has, the more content generally will be available, and, as a result, the more attractive the network will become to new members.[57] Nevertheless, the music and motion picture industries have recently begun to pursue legal actions against the creators of these hybrid sites.[58] Some of these actions have been

---

[53]MICHAEL MILLER, DISCOVERING P2P 165 (2001); FAQ, available in <http://www.musiccity.com> (visited Aug. 15, 2001). For further discussions of scalability, see <http://www.webreview.com/mmedia/2001/03_02_01.shtml> (visited August 9, 2002) (discussing Gnutella), and <http://zdnet.com.com/2100-1107-861914.html> (visited August 9, 2002) (discussing hybrids).

[54]*Id*.

[55]Farhad Majoo, *Gnutella Bandwidth Bandits*, Aug. 8, 2002, available in <http://www.salon.com/tech/feature/2002/08/08/gnutella_developers/index.html> (visited Aug. 8, 2002); Mark Lewis, *Does Morpheus' Architecture Save MusicCity from Legal Liability*, Aug. 23, 2001, available in <http://news.webnoize.com/item.rs?ID=13863> (visited Aug. 26, 2001) (noting that use of the combined Morpheus / KaZaA networks grew by 89% in June, and that by August there were more than 700,000 users on the network simultaneously).

[56]According to download.com, as of August 8, 2002, KaZaA had been downloaded 101,988,592 times; Morpheus 98,244,630 times; Audiogalaxy 31,101,312 times; Bearshare 17,392,192 times; and Limewire 13,794,741 times. <http://download.com.com/3120-2001-0-1-4.html?qt=napster&ca=2001> (visited August 8, 2002). There is certainly overlap among downloaders, since some users may have experimented with several different applications. Some users may have downloaded the same applications more than once because of installation difficulties. Still, a very conservative estimate extrapolating from this data suggests that at least 100 million computer users have experimented with file-swapping applications.

[57]Mark A. Lemley, *The Law and Economics of Internet Norms*, 73 CHI.-KENT L. REV. 1257, 1281-84 (1998).

[58]Business Week, *Napster's Sons: Singing a Different Tune?*, Feb. 21, 2002, available in <http://www.businessweek.com/bwdaily/dnflash/feb2002/nf20020221_6377.htm> (visited Aug. 8, 2002).

successful, such as the RIAA's copyright infringement lawsuit against AudioGalaxy and the subsequent settlement that required AudioGalaxy to block users from swapping the vast majority of the songs that would otherwise be available over the network.[59]

D. Cooperative Behavior on Napster, Gnutella, and the Hybrids

In order to describe user conduct on the peer-to-peer networks precisely, it will be necessary to deviate somewhat from the vocabulary used by the creators of those networks. Members of the networks themselves refer to participation in the networks as "file-sharing" or "file-swapping." The two phrases are used interchangeably. In this article, I use the phrases to mean different things, and these divergent meanings will become quite important in the text that follows. I refer to "*file sharing*" as making one's files available for others to download (i.e., making at least some of the media files on one's hard drive available to members of the network). By contrast, I use "*file swapping*" to refer to general participation in the network, whether as a downloader, an uploader, or both.[60]

In the few years since the file-swapping applications were created, several behavioral trends have remained constant. These trends have been observable on Napster, Gnutella, and the hybrids. First, file-sharing, although *entirely optional*, is sufficiently common to cause the network to function efficiently.[61] Second, the material available for downloading is generally of high quality and accurately labeled. Third, transmission disruptions are relatively common. Each phenomenon is worthy of further attention.

---

[59]Eliot Van Buskirk, *File Sharing After Audiogalaxy*, June 21, 2002, available in <http://electronics.cnet.com/electronics/0-3219397-8-20067407-1.html> (visited August 8, 2002).

[60]Thus, based on the definitions above, someone who downloads files from others but does not upload any files is a file swapper *but not* a file sharer. Someone who both uploads and downloads files is a file swapper *and* a file sharer.

[61]It is surprising that all of the major file-swapping networks have relied on norms to encourage uploading rather than enforcing hard and fast rules requiring uploading. More precisely, it would be possible for programmers to design a file-swapping network that allowed users to download ten files for free and subsequently required users to upload one file for every five files they downloaded. Why has no successful system adopted this strategy? Part of the explanation may be that tracking individual users' uploading to downloading ratios requires storage of such information, and storage of such information potentially makes it available to subpoena by copyright holders, which could then target the most active uploaders for legal action. By the same token, requiring their users to upload might make the peer-to-peer networks more plainly guilty of vicarious copyright infringement for all member uploads, since having control over an infringers' actions is an element in vicarious copyright infringement. Finally, recall that the peer-to-peer networks compete with each other for "market share." The network creators may have decided that instituting any impediments to downloading would have placed them at a competitive disadvantage visa vi other networks that had no such impediments. Thus, even though file-sharers would prefer to upload files to other file-sharers, they might also prefer a system where they did not have to monitor their own upload/download ratios in order to acquire content.

1. Files Are Shared in Sufficient Quantities

The file-swapping networks do not require those users who wish to download files to make their own files available for others to download. There are few reliable statistics on the extent of file-sharing on Napster and Gnutella. The only comprehensive study, by Adar and Huberman, looked at the prevalence of file-sharing on the Gnutella network during a single 24-hour period in August of 2000.[62] According to that study, approximately 66% of those users who were logged into the network shared no files and 73% of users shared ten files or less.[63] The authors also concluded that bandwidth (the speed of an uploader's Internet connection) did not affect file-sharing significantly.[64]

In describing the implications of their data, Adar and Huberman predicted that if no more than one-third of all file-swappers continued to make their files available for others to download, the Gnutella network could be destroyed through what they call the "tragedy of the digital commons."[65] In the authors' words:

> If distributed systems such as Gnutella rely on voluntary cooperation, rampant free riding may eventually render them useless, as few individuals will contribute anything that is new and high quality. Thus, the current debate over copyright might become a non-issue when compared to the possible collapse of such systems.[66]

Adar and Huberman thus predict the potential downfall of file-sharing on Gnutella. As users become decreasingly willing to upload files to others, less content is available on the network and downloaders find that there is increased competition to obtain the content that is available—the uploaders can establish viable peer-to-peer connections with only so many downloaders at a time, after all.

---

[62]Eytan Adar & Bernardo A. Huberman, *Free Riding on Gnutella*, FIRST MONDAY at 7 (Oct. 2000), available in <http://www.firstmonday.org/issues/isse5_10/adar/index.html> (visited Aug. 6, 2002).

[63]*Id*. at 8-9.

[64]*Id*. at 11-12. *But see* Chakotay@voyager.student.utwente.nl, *Distributed File Sharing System Problematics*, Oct. 23, 2000, available in <http://www.kuro5hin.org/story/2000/10/23/3027/2141> (visited Aug. 20, 2001) (providing anecdotal evidence that free-riding on Napster is largely a function of users' connection speeds). If no one chose to download songs from those with slower-speed connections, then there would be nothing surprising about the lack of differential in sharing rates. The architecture of the networks indicates, however, that dial-up uploaders do not get a free pass. The recent versions of peer-to-peer software permit users to "swarm download", i.e., download different identical files from several machines simultaneously to speed up the transfer time. The peer-to-peer applications thus encourage users to download portions of the same file from several other users at a time, meaning that a single download will burden both the slower and faster machines serving a particular file. As a result of this innovation, those with slower Internet connections now serve more uploads than they used to when users were only able to download a file from one machine at a time. Moreover, my own experience with searching for relatively obscure sound recordings on the networks reveals that a server with a modem connection is often the only source for a particular file on the Gnutella network. This trend is particularly pronounced for music by non-Western artists. In such instances, where a modem user is the only provider of particular content, she can expect that downloads will absorb significant quantities of her bandwidth.

[65]Adar & Huberman, *supra* note 62, at 16.

[66]*Id*.

Adar and Huberman's pessimistic characterization of file-sharing on the Gnutella network mostly misses the mark. While they observe that only a third of Gnutella users make content available for downloading and predict the collapse of the system as a result, they fail to recognize that this third collectively makes more than enough content available for the network to function effectively.[67] In the words of Clay Shirky, "as long as even a small portion of the users [file-share], the system will grow, bringing in more users, who bring in more songs."[68] Moreover, rather than focusing on why two-thirds of all users download from the Gnutella network but do not upload to the network, a more pertinent inquiry might ask why fully one-third of all Gnutella users upload despite the practical absence of any incentive to do so. A more accurate picture of the file-swapping networks emphasizes that the glass is not two-thirds empty, but rather one-third full.[69]

Gnutella's vulnerability stems not from the absence of sharing, but from the relatively small number of users who create the new content.[70] In order for a file to appear on the network, someone must go through the trouble of converting media to digital format. In the case of MP3 files "ripped" from existing CDs, this is easily accomplished with widely available software. In the case of recently released motion pictures, it requires some level of industriousness. In any event, once this relatively small number of users release popular new content on the network, they can count on the one-third of users who file-share to spread the new file.

While Adar and Huberman's data is interesting and useful, the lack of follow-up work and peer review has been frustrating, particularly given the idiosyncratic nature of the early Gnutella applications.[71] Free-riding appears to be more prevalent on early Gnutella than on other file-swapping networks. The default user settings on Napster, as

---

[67]The 33,335 hosts sampled by the Adar and Huberman study were sharing some 3,100,464 files. *Id*. at 8. Data obtained one year later revealed that more users were logging into the network, but that the average user was sharing a bit less. At <http://www.Clip2.com>, it used to be possible to view a daily assessment of the extent of file-swapping on the Gnutella network. On August 4, 2001, 42,572 users were using a portion of the public Gnutella network simultaneously (as opposed to the 33,335 hosts Adar and Huberman observed over the course of a 24-hour period). Those users were sharing 2,345,850 files containing 53,432 gigabytes of data. Thus, even with a majority of Gnutella users free-riding, the mean Gnutella user was sharing more than a gigabyte of data contained in just over 51 files.

[68]Shirky, *supra* note 6, at 33.

[69]The appropriate analogy for file-sharing may be to a professional baseball player whose batting average is .333, which is considered to be very high, even though it means that he gets a hit in far less than half his at bats. In some other instances, 33% noncooperation would prove entirely unviable in maintaining a system. For example, if even a third of all beach-goers littered indiscriminately, the beach would quickly become spoiled and lose much of its appeal. Cristina Bicchieri, *Norms of Cooperation*, 100 ETHICS 838, 845 (1990).

[70]Healy, *supra* note 46.

[71]Finney.org, *Incentives for Sharing in P2P Networks*, June 13, 2001, available in <http://www.geocrawler.com/archives/3/5025/2001/6/50/5957312> (visited Aug. 20, 2001) (arguing that free loading is less common where a file-swapping network's default configuration is to allow sharing of all downloaded files, and that many Gnutella applications that were popular at the time of the Adar and Huberman study did not permit users to share files).

well as on hybrid programs and more recent Gnutella applications,[72] provided that after a user has downloaded a file, his copy of that file would be available for other users to download from him.[73] (In other words, the user's download directory would, by default, be treated as a "shared" directory from which other users on the network could download.) Similarly, Napster and Morpheus both contained a default setting whereby uploading was enabled whenever the computer on which it was installed was activated.[74] A user with Napster installed therefore could be uploading copyrighted material obliviously while she was writing a term paper using Microsoft *Word*. As a result of these default settings, the onus was on the free-riding user to opt out of the file-sharing system. Opting out usually required a user to select the application's "Options" button and then check an easily visible box containing text stating that the user was disabling sharing with other users. The cost of locating and checking this box, though minimal, prompted lazy, unsophisticated, or ambivalent network users to make their files available for others to download.[75] As a result, some users abide by the default choice regardless of whether that choice is pro-sharing or anti-sharing.[76] Early Gnutella applications, by contrast, sometimes required users to opt-in to file-sharing. Adar and Huberman were thus studying a very early version of the Gnutella network, a network that was used by a relatively small population of users, and one in which cooperation was relatively difficult.

In November of 2001, I conducted a follow-up study of the MusicCity / KaZaA network, which was more popular, had many more users, and was easier to study than Gnutella. Data from that study revealed that 68% of music file-swappers shared at least one file, and 53% shared more than ten files.[77] The median network user was sharing 18

---

[72]Earlier versions of Gnutella applications did not default into any particular uploading arrangement. The user was asked what he wanted to share and selected the appropriate directories on his hard drive.

[73]Kelly Truelove & Andrew Chasin, *Morpheus Out of the Underworld*, July 2, 2001, *available in* <http://www.openp2p.com/pub/a/p2p/2001/07/02/morpheus.html> (visited August 4, 2001).

[74]*Id*.

[75]Philippe Golle et al., *Incentives for Sharing in Peer-to-Peer Networks*, 2001, at 7, available in <http://crypto.stanford.edu/~pgolle/papers/peer.pdf> (visited August 17, 2001).

[76]*Cf*. Richard H. Thaler, *Psychology and Savings Policies*, 84 AM. ECON. REV. 186, 191 (1994) (noting that inertia, loss aversion, and transaction costs cause employees to accept the default options connected to their employers' 401(k) plans).

[77]The sample size for my study consisted of 208 unique users who downloaded MP3 files from my hard drive during several sessions in November. For the purposes of my study, I compiled a shared directory containing a broadly representative sample of music files—some new, some old, some desirable, some evidently not so desirable. For each download I recorded the downloader's user name, the file being downloaded, the number of files being shared in his or her directory, whether the user was sharing files that were identified as pornography or child pornography, and whether the file downloaded appeared in the downloader's own shared directory at the conclusion of the file transfer. There are several potential sources of bias resulting from my methodology. First, the sample missed those users who are pure passive uploaders—those who constantly upload but never download content from others. This group is evidently small but not nonexistent. *Cf*. *infra* note 92. On the other hand, it is worth noting that this group will only be somewhat underrepresented in my sample because even passive uploaders need to acquire content in order to share content, and downloading such content from others will usually be less cumbersome than creating it anew. Second, the sample missed those who are interested in obtaining non-music content, such as DVD movies and pornographic images. Because of legal, logistical, and moral constraints, I did not

songs, the equivalent of less than two typical music CDs. Just 20% of all users shared more than 100 files each. Yet, according to a survey conducted by Edison Media Research, 43% of file-swappers admitted downloading 100 or more files.[78] So a majority of file-swappers with large collections were evidently choosing to share only portions of those collections. Cooperation, albeit small-scale cooperation, was therefore the norm on MusicCity. At least part of this increased sharing, relative to Gnutella, surely stemmed from the defaults built into these systems. That said, much of the sharing appears to be motivated by other factors. That is because a majority of sharers evidently shared content in a manner inconsistent with the defaults built into the MusicCity and KaZaA applications.[79] Users of MusicCity, like early users of Gnutella, therefore made *conscious decisions* about *whether* to contribute content to anonymous others, and about the *extent* of those contributions. In short, millions of users of Napster, Gnutella, Morpheus, and other file-swapping networks made files available for download by total strangers, notwithstanding their lack of an obvious incentive for doing so.

2. Files Are Usually Accurately Labeled and of High Quality

It was exceptionally rare for files to be misidentified on Napster, Gnutella, and the other file-swapping networks. A user who downloaded a file entitled "Thelonius Monk—Straight, No Chaser," would almost certainly obtain that tune performed by that artist. In a few instances, musical compositions were misidentified, but without any apparent malicious motive. For example, there was widespread confusion among users of the file-swapping networks as to who composed "The Flight of the Bumble Bee."[80] Other than

include those files in my sample directory. Third, to the extent that my music sample was unrepresentative of the music content sought on the network, there may be a further source of bias. All three sources introduce the potential for slight sample bias into the study, and further research will help clarify the extent of those biases.

[78]Edison Media Research, The National Record Buyers Study II § 1(2002), available in <http://www.edisonresearch.com/R&RRecordBuyersII.htm> (visited August 3, 2002). Edison's data is based on a survey conducted in May of 2002, approximately six months after I collected my data. *See also* Bill Husted, *Music Downloads Are Going Strong Despite Napster's Setback*, ATLANTA J.-CONST., Jan 20, 2002, at 1P (providing anecdotal evidence suggesting that some users have enormous music collections—numbering in the "thousands, if not tens of thousands, of songs").

[79]Thirty-two percent of users elected not to share any files, contrary to MusicCity's defaults. Twenty-two percent of sharers opted not to pass along files they had just downloaded, behaving in a manner that is inconsistent with the software defaults and technically difficult. Finally, it appears, based on Edison Media Research's survey, that at least half of the remaining sharers elected to share only a portion of their MP3 collections, which is not only inconsistent with the software's defaults but also somewhat cumbersome. (It is evidently common for users to move files from their shared directories to non-shared directories from time to time, then allow increased sharing as the size of their shared directories grow with subsequent downloads. It would have been much simpler for users to opt not to share any files, yet relatively few chose that option.)

[80]A Gnutella search reveals that approximately an equal number of "Flight of the Bumble Bee" files identify its composer as Beethoven and Rimsky Korsakov. Rachmaninoff is the next most popular answer, followed by Tchaikovsky, and even Mozart.

that, the overwhelming majority of music files available on Napster, Gnutella, and hybrid systems were accurately identified in terms of content.[81]

Given the amount of mischief that generally pervades the Internet,[82] it is surprising that extensive downloading revealed almost no evidence of song misidentification on the file-swapping networks. Recall that a small percentage of the user population is responsible for creating the files that hundreds of other users exchange on the Internet. Further, because of the technological defaults built into the software, many users of the hybrids automatically made available for downloading any file they had just downloaded. My MusicCity sample revealed that 78% of sharers automatically shared a file they have just downloaded. It follows from these premises that a small but energetic band of downloaders could rapidly spread large numbers of maliciously misidentified files through the Internet.

The primary organized effort to misidentify files available on file-swapping networks has involved child pornography. The trading of child pornography on the Internet, and especially on Gnutella, is rampant.[83] One organization that was concerned about Gnutella's use by child pornographers adopted the file misidentification strategy, albeit with a shame sanctions twist.[84] The proprietors of the web site Zeropaid.com posted a number of phony child pornography files on Gnutella, then recorded the IP addresses of those who downloaded them, and posted those addresses on their web site's "Wall of Shame."[85] While Zeropaid.com did not take the next step of tracing those IP addresses to particular individuals, computer users with moderate sophistication could have done so. According to the Zeropaid.com web site, the Wall of Shame's creators hoped to frighten and shame those who traffic in child pornography into leaving the

[81]From March to August 2001, I downloaded a large sample size of MP3 files from Napster, Gnutella (using BearShare), and MusicCity's Morpheus. As best I can determine, less than one-half of one percent of these files were substantially mislabeled as to artist or title. One mild form of misidentification is common. Pornographic files are often labeled using obvious pornographic terms, in addition to the name of a popular artist. For example, a search for "Christina Aguilera" on Gnutella will turn up hundreds of MP3 files by that artist and a few hardcore pornographic files in which the word Aguilera is surrounded by sexually explicit words. This method is apparently used by pornography lovers as a way of exposing their pornographic content to a large group of potential downloaders. Of course, no one who downloads such a file would entertain the notion that the file has even the most remote connection to Christina Aguilera. This mislabeling therefore has little effect on trust among members.

[82]*See, e.g.*, David Anderson, *SETI@home*, *in* PEER-TO-PEER, *supra* note 6, at 67, 72 (discussing the SETI@home application, which allows computer users to donate their excess processing capacity to the analysis of radio waves pursuant to the search for extraterrestrial life, and noting that a number of participants "doctored their result files, making it appear that their computers had found a strong signal").

[83]John Schwartz, *File Swapping Is New Route for Pornography on Internet*, N.Y. TIMES, July 28, 2001, at A1; Bob Sullivan, *Gnutella Ignites Porn, Pirate Worries*, April 13, 2000, available in <http://www.zdnet.com.com/2100-11-519879.html> (visited August 9, 2002).

[84]On shame sanctions, see generally ERIC A. POSNER, LAW AND SOCIAL NORMS 88-111 (2000); Dan M. Kahan, *What Do Alternative Sanctions Mean?*, 63 U. CHI. LAW. REV. 591 (1996); and James Q. Whitman, *What Is Wrong with Shame Sanctions?*, 107 YALE L.J. 1056 (1998).

[85]Kan, *supra* note 36, at 118-19; Bob Sullivan, *Gnutella Porn Surfers Exposed*, May 4, 2000, available in <http://www.zdnet.com/2100-11-520437.html> (visited August 9, 2002).

Gnutella network. To that end, Zeropaid's creators also distributed a program called "Fakeroo" that would permit individual Internet users to create their own walls of shame.[86] Following Zeropaid's lead, several other Gnutella users have discussed intentionally mislabeling content so as to confuse and harass those using the network to traffic in child pornography.[87] Zeropaid.com's efforts prompted a great deal of criticism from file-swappers, both from those who believe that intentional deception is wrong even if the goals are noble and from those who defend child pornography on the "merits."[88] Indeed, opponents of the Wall of Shame successfully ended Zeropaid.com's experiment with it in rather short order, as the late Gene Kan noted:

> The Wall of Shame met a rapid demise in a rather curious and very Internet way. Once news of its existence circulated on the IRC [an Internet chatting network], Gnutella users with disruptive senses of humor flooded the network with suggestive searches in their attempts to get their IP addresses on the Wall of Shame.[89]

Zeropaid.com was therefore forced to "tear down that wall" after a brief run, although it did leave archived versions of the Wall on its page for more than a year.

While not as rare as song misidentifications, faulty recordings also have been an infrequent nuisance on the file-swapping networks. Some MP3 files contain incomplete versions of songs; some MP3s are low-quality recordings; and some MP3s contain mysterious screeches and pops that sound quite unpleasant when reproduced by computer speakers.[90] Because these flaws in MP3 files are more difficult to detect than mislabeling,[91] the existence of large numbers of flawed copies would quickly erode the trust that has developed on the file-swapping networks.

---

[86]Fakeroo, available in <http:/www.zeropaid.com/busted/fake.php> (visited Aug. 8, 2001).

[87]For an extended discussion, see http://www.gnutellaforums.com/showthread.php?s=18602f5a72f0507e902dc801c84ba751&threadid=1988 (visited August 1, 2001).

[88]*See generally* Zeropaid.com User Forum, available in <http://www.zeropaid.com/cgi-bin/ub/UltraBoard.pl?Action=ShowBoard&Board=TheWall&Idle=&Sort=&Order=&Session=> (visited Aug. 6, 2001).

[89]Kan, *supra* note 36, at 119.

[90]Approximately one and a half percent of the MP3 files in the sample I downloaded were significantly flawed. Most of these songs were incomplete, and a few songs contained harsh and mysterious noises.

[91]Mislabeling could ordinarily be detected within a note or two, so a user who played a song on his computer before burning it onto his CD would likely delete the mislabeled version and try to find a properly labeled version. By contrast, a degraded version of a song that skips or cuts off early might not be detected by a user until it is burned onto a CD and listened to in its entirety. At that point, the user generally will not be able to erase the flawed file, and will need to endure the imperfect version or burn a new CD.

3. A Failure of Cooperation: Transmission Disruptions Are Frequent

Obtaining files via a file-swapping network is necessarily a two-way street. Thus, every file I download is being supplied by another user somewhere. The nature of the transaction is such that it can be terminated by either user. It appears that a few file-swappers leave their computers running file-swapping software indefinitely, either by default or intentionally, and allow others to download their files twenty-four hours a day.[92] But most users make their files available for downloading only while they themselves are searching for new files. If these users behave self-interestedly, one would expect that they would regularly log off their networks regardless of whether anyone is in the midst of a lengthy download. As it happens, download cutoffs were one of the more vexing problems on the Napster and Gnutella networks.[93] A user downloading a large file —such as a DVD movie or a complete album fused into a single MP3 file—had no better than a 50% chance of succeeding if the download would require more than a few hours. Some portion of these interruptions could be attributed to network errors or failures, but a significant number can be attributed to users shutting down their computers while an upload is in progress.[94]

There was an aspirational norm[95] on the Napster and Gnutella networks holding that it is improper to log off the system while someone else is downloading a file from you. This rule was announced both through the software itself, which discourages such behavior with various warnings and beeps, and through general discussions of Napster and Gnutella netiquette.[96] Some users apparently felt pangs of guilt when they logged off the network while a download was in progress.[97]

Efforts to secure widespread compliance with the aspirational anti-termination norm on Gnutella faced a particular disadvantage: the low likelihood of repeat-player situations. Gnutella's public network consists of a series of networks. Each time a user accesses Gnutella, he likely connects to a different segment of the network and is linked with completely different users. Indeed, two computers connecting to the Internet from

---

[92]Bearshare, a Gnutella program, permits users to examine how long users who have made files available have been logged into the system. (Note, however, that this data is provided only with respect to about half of all users.) It generally shows that the majority of users have been logged onto the network for less than a few hours, but that a not insignificant minority have been logged on for days at a time.

[93]*High-Speed Hookup Could Let You Download Napster Better*, HOUSTON CHRON., May 12, 2000, at 4; Kelly Truelove, *Gnutella: Alive, Well, and Changing Fast*, Jan. 25, 2001, available in <http://www.openp2p.com/lpt/a//p2p/2001/01/25/truelove0101.html> (visited Aug. 26, 2001).

[94]*Id*.

[95]For a discussion of aspirational norms that are not strongly adhered to, see Lior Jacob Strahilevitz, *How Changes in Property Regimes Influence Social Norms: Commodifying California's Carpool Lanes*, 75 IND. L.J. 1231, 1240-41 (2000).

[96]*See generally* http://www.gnutellaforums.com/showthread.php?s=18602f5a72f0507e902dc801c84ba751&threadid=1988 (posted June 27, 2001) (discussing the netiquette of signing off the Gnutella network while another's download is in progress).

[97]*Id*.

the same residence will probably log into different, essentially unlinked parts of the Gnutella network. In a close-knit group it would be relatively easy for a user to retaliate against one who had terminated in the midst of a transmission by doing the same to him—the venerable tit-for-tat strategy.[98] In an environment characterized by anonymity and a lack of opportunities for repeat playing, chances for payback against a user who has just logged off will be rare.[99]

The prevalence of transmission terminations suggests that the Napster and Gnutella networks' ability to foster trust and benevolence among users ran up against certain limits. While a user may have believed it was "wrong" to shut down his computer while someone else was downloading a large file, he did so anyway if the alternative was to keep his computer running unnecessarily overnight. Download terminations were particularly irritating to three groups: (1) those who had slow Internet connections; (2) those who downloaded large files; and (3) those who were in the process of downloading difficult-to-find files that cannot be downloaded readily from other users. In short, the aspirational anti-termination norm turned out to be largely ignored in practice.

As a result of the inability of informal norms to solve the termination problem, computer programmers turned to a technological fix. The new Gnutella and hybrid file-swapping programs contain features designed to minimize the termination problem by permitting simultaneous downloads of the same file from different users. Assuming that all users remain connected throughout the download, the software will download a portion of the file from each. If one user disconnects during the download, the other uploaders will automatically pick up the slack. Moreover, the hybrids generally permit users to continue aborted downloads in progress. Thus, technology created a safety net when uncooperative behavior was too prevalent on the networks.

II. File-Swapping Norms

Widespread copyright infringement is nothing new. For years, users of copyrighted software have exchanged unlicensed copies with family members and colleagues. Audio cassettes have long been used to make copies of entire music CDs, which have been distributed among friends. Choirs copy sheet music and perform songs without ever thinking about obtaining public performance rights through legitimate channels. As these behaviors suggest, copyright laws were frequently ignored among members of close-knit groups. While making a copy of an album or reading available to a friend may have been unlawful, there was no social norm constraining such *de minimis*

[98] *See* Robert Axelrod, *The Emergence of Cooperation among Egoists*, 75 AM. POL. SCI. REV. 306, 308-316 (1981).

[99] For discussions of anonymity on the Internet and its influence on social norms, see LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE 30-34 (1999); and April Mara Major, *Norm Origin and Development in Cyberspace: Models of Cybernorm Evolution*, 78 WASH. U. L.Q. 59, 95-102 (2000).

infringement behavior. As a result, the copyright laws were largely irrelevant, at least among certain close-knit groups of individual actors.

Napster and its successors advanced a new norm. Napster empowered the individual computer users to obtain sound recordings, not only from friends, family members, and co-workers, but from anonymous individuals who they had never met and never would meet. It facilitated peer-to-peer file transfers among computer users on different continents. The relevant universe of potential transaction partners for copyright infringers was expanded to unprecedented levels.[100] An individual, aided by this technology, could easily engage in *de maximus* copyright infringement without ever leaving his home.

Whereas popular norms during the 1980s likely would have tolerated an individual's making a copy of the *Pacman* game for a trusted acquaintance, they would not have tolerated that same individual's making hundreds of unauthorized copies of *Pacman* and distributing them to strangers across the globe.[101] Yet that is precisely what a Gnutella user does by making such files available for others to download. The transition from *de minimis* to *de maximus* file-sharing has significantly weakened reverence for intellectual property rights, even relative to where it stood a decade or two ago.[102] The

---

[100]Before Internet access became widespread, computer Bulletin Board Services (BBS) made hacked copies of computer games and other software available to their members, often for free. That said, the universe of members was ordinarily constrained geographically by those for whom dialing into the BBS would be a local call. (Given the slowness of downloads on the modems of the day, very few individuals would find it worth their while to pay long distance telephone rates in order to access a remote BBS.) Moreover, BBS system operators (sysops) who made copyrighted content available numbered in the thousands domestically. Sysops were an odd bunch —I know, as I used to be one during my teenaged years—and very dissimilar from society as a whole. For more on Sysop culture, see Jonathan Marshall, *Boom in Computer Bulletin Boards*, S.F. CHRONICLE, Dec. 5, 1994, at A1. Once Napster brought in tens of millions of domestic file-swappers, it began dealing with a user population that was much more reflective of society as a whole and its values.

[101]Peter K. Schalestock, *Panel One: The Road to Napster: Internet Technology & Digital Content*, 50 AM. U. L. REV. 363, 381 (2000).

[102]One needs to be cautious about making statements that popular attitudes have shifted in response to technological change. Not surprisingly, Gallup never thought to ask the people it polled in the early 1980s whether it would be morally wrong to obtain free sound recordings from strangers over computer networks—existing technologies simply did not make such behavior possible, and so it never occurred to anyone to ask about it. What we can do is compare the survey responses of Americans socialized during the pre-Internet era to those of Americans who grew up in the last decade to see whether they view file-swapping differently. If so, that suggests that we may be in the midst of a shift in norms, with older Americans adhering to the norms they acquired during their formative years and younger Americans embracing a new norm. It turns out that different age groups view the morality of file-swapping quite differently.

According to a Pew poll taken shortly before the *Napster* decision, 64% of those between the ages of 18 and 29 believe that there is nothing wrong with downloading music for free off the Internet. Lenhart & Fox, *supra* note 14, at 6. By contrast, 43% of those aged 30 to 49 and 28% of 50-64 year-olds believed that there was nothing wrong with such downloading. *Id*. Fifty-one percent of Internet users aged 18 to 29 had downloaded music by February 2001, compared to only 23% of those aged 30-49, and 15% of those Internet users aged 50 or older. Graziano & Rainie, *supra* note 17, at 4. Edison Media Research asked respondents whether they agreed with the following statement: "There is nothing morally wrong about downloading music for free from the Internet." Seventy-four percent of those aged 12 to 17 agreed with the

file-swapping networks therefore represent a particularly brazen and successful attack on intellectual property rights.

The simple account of how the types of transactions that Napster facilitated became socially acceptable attributes it entirely to the emergence of the new technology. On this account, the absence of an anti-de minimis-infringement norm was a function of transaction costs. Small-scale infringement was relatively inexpensive for the individual infringer, and evidently did little to harm copyright holders' bottom lines. Indeed, under certain conditions, sharing among members of a close-knit group may have increased copyright holders' profits.[103] Large scale infringement was different in two ways. First, it required significant investments in technology for duplicating digital media. Second, and relatedly, it had the potential to adversely effect copyright holders' profits in obvious ways. Thus, a large-scale infringer was someone who had invested a not-insignificant amount of resources in expanding his capacity to infringe, presumably in order to recover not-insignificant amounts of revenue at the copyright holders' expense. Napster dramatically lowered the transaction costs of becoming a large-scale infringer and removed the necessary implication that a large-scale infringer was trying to profit personally from her activities.[104] In short, large-scale Napster sharers looked more like altruists than thieves, and no longer deserved the scorn that had previously been reserved for those who sold knock-off CDs on street corners. In my view, though, this technological shift was a necessary but not a sufficient condition for the norm shift that followed. A complete explanation requires at least some examination of the role played by the media and other opinion leaders in promoting Napster.

A. The Social Norms Framework: The Emergence of Norms

Social norms are patterns of behavior that are widely adhered to by some group of individuals, at least in part because of social pressures to conform to that norm.[105] In close-knit settings, this social pressure may take the form of ostracism or the loss of esteem for those who violate existing social norms and increased esteem for those who

---

statement, as did 59% of those aged 18-24. Yet only 45% of those aged 25 to 34 and 39% of those aged 35 to 44 agreed with the statement. Edison Media Research, *supra* note 78, at § 1. While a change in norms is the most plausible account for these differential polling results, it is also conceivable that older respondents are naturally more skeptical of technologies that challenge existing property regimes or that older respondents have a more informed understanding of the justification for providing record labels with a revenue stream through album sales. The passage of time will resolve this question, as pollsters will have an opportunity to examine whether today's youthful cohorts carry their pro-file-swapping views with them into middle age.

[103]Yannis Bakos, Eric Brynjolfsson & Douglas Lichtman, *Shared Information Goods*, 42 J.L. & ECON. 117, 123 (1999).

[104]Napster also flourished at a time when CD burning technology was becoming inexpensive. Raymond Shih Ray Ku, *The Creative Destruction of Copyright: Napster and the New Economics of Digital Technology*, 69 U.CHI. L. REV. 263, 273-74 (2002).

[105]Strahilevitz, *supra* note 95, at 1234 n.11.

enforce or abide by these norms (the Richard McAdams theory), or a desire to obtain the economic rewards that are conferred upon those who signal their suitability for cooperative exchanges by enforcing or abiding by existing norms (the Eric Posner theory).[106] Alternatively, as I will argue in Section III.C.5, the social pressure engendering norm enforcement can be self-imposed: An individual may conform to a norm because her self esteem depends on her compliance with it. Regardless of how they arise, social norms often will have two components: moral (how people ought to behave) and descriptive (how people do behave).[107]

Three related insights are foundational in the social norms literature. First, people's behavior often conforms more closely with social norms regarding how people should behave than with laws that instruct people how to behave.[108] Second, because of the power of social norms, those laws that parallel social norms will be adhered to most widely and enforced most easily.[109] Third, under certain conditions, government laws and policies can alter social norms.[110]

B. How the Pro-File-Swapping Norms Emerged

1. Norm Entrepreneurs

In the case of Napster and Gnutella, norm entrepreneurs played an important role in fostering the emerging pro-file-swapping norms. Napster's norm entrepreneurs were the handful of programmers who created the new network and the people who uploaded the initial copyrighted content, many of whom were friends or acquaintances of Napster's primary programmer.[111] This group consisted of slightly more than 30 people.[112] Yet

---

[106]McAdams posits that norms are enforced and effective because individuals value esteem among their peers, and compliance with and enforcement of existing norms are ways of obtaining esteem from peers. *See* Richard H. McAdams, *The Origin, Development, and Regulation of Norms*, 96 MICH. L. REV. 338, 356-72 (1997); *see also* Robert Sugden, *Spontaneous Order*, 3 J. OF ECON. PERSPECTIVES 85, 95-97 (1989) (articulating a similar theory). Posner, by contrast, argues that norms are enforced and adhered to because compliance with norms is a means by which a member of society signals to his peers that he is an individual with a low discount rate, and hence someone who would be a good partner for future cooperative relationships and transactions. POSNER, *supra note* 84, at 18-27.

[107]Strahilevitz, *supra* note 95, at 1234 n.11.

[108]Neal Kumar Katyal, *Criminal Law in Cyberspace*, 149 U. PA. L. REV. 1003, 1009 (2001); Tom R. Tyler, *Trust and Law Abidingness: A Proactive Model of Social Regulation*, 81 B.U. L. REV. 361, 398-99 (2001).

[109]Dan M. Kahan, *Gentle Nudges v. Hard Shoves: Solving the Sticky Norms Problem*, 67 U. CHI. L. REV. 607, 607-09 (2000); Saul Levmore, *Norms as Supplements*, 86 VA. L. REV. 1989, 1998-99, 2006-08 (2000); Tyler, *supra* note 108, at 402.

[110]LESSIG, *supra* note 99, at 92-93; Robert D. Cooter, *Decentralized Law for a Complex Economy: The Structural Approach to Adjudicating the New Law Merchant*, 144 U. PA. L. REV. 1643, 1694 (1996); Cass R. Sunstein, *Social Norms and Social Roles*, 96 COLUM. L. REV. 903, 910 (1996).

[111]Spencer E. Ante, *Inside Napster*, BUSINESS WEEK, Aug. 14, 2000, at 112. It is worth noting here that Napster's programmers did not create their new network out of whole cloth. Rather, the Napster network was made possible by a number of technological innovations during previous years, including development

within a matter of days, the on-line word-of-mouth had spread news of the new application, and Napster was downloaded by 3,000 to 4,000 people.[113]

Napster's primary creator evidently did not give any thought to whether his network would be unlawful before he launched it.[114] Yet he plainly intended to deprive the recording industry of its control over access to and distribution of sound recordings.[115] The words and actions of these norm entrepreneurs were suggesting that it was acceptable for computer users to exchange copyrighted sound recordings in the MP3 format over the Internet. One message communicated by these actions was that copyright laws should have no application on the Internet. A second message implied that regardless of what the copyright laws said, technological imperatives and consumer demand would trump legal niceties.

2. Opinion Leaders

During Napster's first year of existence, a year in which its user base expanded from 30 to more than 25 million,[116] Napster received surprisingly little attention from mainstream media opinion leaders. Napster's test version was launched on June 1, 1999, and by October of that year, Napster traffic was accounting for 20 to 30% of the bandwidth usage at major universities,[117] yet during the remainder of the calendar year it was virtually ignored by mainstream media. A two-sentence blurb in the *Newsbytes* wire service appeared on July 23, 1999, touting Napster as a useful new application for obtaining MP3 files.[118] Radio silence persisted again until November 2, 2000, when the

---

of various file transfer protocols, the spread of high-speed Internet access, and the creation of the MP3 format for compressing sound recordings. Baker, *supra* note 8, at 6; Sheldon W. Halpern, *The Digital Threat to the Normative Role of Copyright Law*, 62 OHIO ST. L.J. 569, 569 (2001). Another factor that helped make Napster possible was the proliferation of the "Netscape" business model, whereby software creators obtained venture capital financing that would allow them to give away their software applications to end users. *See generally* David R. Johnson & David Post, *Law and Borders—The Rise of Law in Cyberspace*, 48 STAN. L. REV. 1367, 1384-85 (1996) ("One such strategy has already begun to emerge: giving away information at no charge - -what might be called the 'Netscape strategy'—as a means of building up reputational capital that can be subsequently be converted into income (for example, by means of the sale of services)."). The theory behind this business model was that giving away content would allow applications to gain market share and that this market share could later be exploited to generate revenue through advertising, sales of upgrades, and the like. Napster followed the Netscape model.

[112]Ante, *supra* note 111, at 112.

[113]*Id*.

[114]Ann Bartow, *Panel Three: New Business Models, Regulatory Options and the Future of Copyright on the Internet*, 50 AM. U. L. REV. 425, 442 (2000); Greenfeld, *supra note* 7, at 60. Evidently, his uncle, an important business strategist for the start-up, did give the legality of Napster a great deal of thought, and consulted with legal counsel rather early on during the company's existence. Ante, *supra* note 111, at 112.

[115]*Napster*, 114 F. Supp.2d at 903; Shirky, *supra* note 6, at 28.

[116]*Id*.

[117]Ante, *supra* note 111, at 112.

[118]Martyn Williams, *Internet Update*, NEWSBYTES, July 23, 1999, available in lexis-nexis wire services file.

Israeli newspaper *Ha'Aretz* featured a brief description of the Napster service.[119] It was not until the Recording Industry Association of American ("RIAA") sued Napster that the major media outlets began to take notice of the growing phenomenon. *Salon.com* appears to have scooped the news regarding the impending lawsuit on November 17, 1999,[120] and within a few weeks the *Wall Street Journal* began to cover the story.[121] Over the next year, Napster became the subject of thousands of mainstream news articles.

During these first few months, when Napster went from being a college student's idea to a copyright-infringement juggernaut, there was a dearth of commentary from opinion leaders[122] on the phenomenon. It is unclear why Napster received so little coverage during its infancy. Major media outlets may have made a conscious decision not to encourage the popularity of the service by reporting on it. More likely, however, the major media simply missed the story.

If the mainstream media abdicated their role as opinion leaders, who stepped into the opinion vacuum? In this instance, the primary answer appears to be mostly anonymous Internet users who felt the need to spread the gospel of Napster. For example, computer programmer David de Groot claims to have been the original uploader of Napster to download.com, which is the Internet's premier source of downloadable software applications.[123] Download.com contains a system of "user ratings" whereby those who download an application rank it according to various criteria, provide a narrative discussing what they like or do not like about the application, and provide an overall "thumbs up" or "thumbs down" assessment of the new product. Napster immediately received enthusiastic responses from those who had downloaded it, and this positive word of mouth spurred a cascade of further downloading. In the absence of commentary from trusted opinion leaders, these untrusted opinion leaders were able to embrace and spread the emerging norm. Other venues, such as college dormitories[124] and Internet chat rooms provided alternative channels for enthusiastic Napster users to spread their message.

That is not to say that mainstream opinion leaders played no role in the growth of the file-swapping norm. When the major media finally began reporting on the story,

---

[119]Zvika Alberger, *Cutting the Chords: MP3 Has Replaced Sex as the Biggest Thing on the Internet*, HA'ARETZ, Nov. 2, 1999.

[120]Janelle Brown, *MP3 Crackdown*, Nov. 17, 1999, available in <http://www.salon.com/tech/log/1999/11/17/riaa/index.html> (visited August 19, 2001).

[121]Don Clark, *Recording Industry Sues Napster, Alleging Copyright Infringement*, WALL STREET J., Dec. 9, 1999, at B18.

[122]For a discussion of the role that opinion leaders generally play in transforming norms, see Robert C. Ellickson, *The Market for Social Norms*, 3 AM. L & ECON. REV. 1, 16 (2001).

[123] David de Groot, *Napster: A History*, Dec. 21, 2000, available in <http://epinions.com/cmd-review-38E8-2919A149-3A426109-prod2?sp=ink> (visited August 3, 2001).

[124]*Napster Users Majority on Campus*, May 15, 2000, available in <http:/www.wired.com/news/culture/0,1284,36354,00.html> (visited May 13, 2001).

many gave credence to Napster's argument that the legality of the file-swapping service was a "gray area" of the law.[125] By repeating the tenuous proposition that Napster (and, by extension, its users) were not guilty of copyright infringement, these opinion leaders emboldened users who were tempted to use the new application. If the program provided a user-friendly way to access an enormous library of free sound recordings, if its legality was unclear, and if copyright holders were unable to convince the public that downloading copyrighted content for free was wrong, then why should any computer user decide not to use the application?

In the months following the Ninth Circuit's ruling in *Napster*, opinion leaders showed little sign of changing their tune in an effort to undermine file-swapping. Perhaps the most telling sign of the emerging consensus appeared in a front-page *New York Times* article on July 20, 2001.[126] The subject matter of the article was rather unremarkable, in that it reported on the phenomenon whereby users had moved from Napster to Gnutella and the hybrids in the wake of the court-imposed restrictions on Napster. The surprising aspect of the article was the rather detailed instructions it contained explaining how to obtain these file-swapping programs.[127] Thus, the most respected newspaper in the United States, owned by a corporation whose profits are largely derived from its copyrighted content, had essentially concluded that the public had a right to know how to obtain unauthorized copies of copyrighted sound recordings and motion pictures. Months after the Ninth Circuit's *Napster* decision, when the legality of such downloading was no longer subject to serious dispute, the *New York Times* implicitly acknowledged that unlawful downloading would remain alive and well. Within a week, other major newspapers were following suit, with the *Orlando Sentinel* publishing a lengthy review of the various Napster alternatives and comparing the advantages and disadvantages of each one.[128]

3. Polling data

The *Napster* district court concluded that Napster's exploits had "contributed to a *new attitude* that digitally-downloaded songs ought to be free."[129] In order to test that

---

[125]Clark, *supra* note 121, at B18; *see also* Ante, *supra* note 111, at 112 ("In an email obtained by Business Week, John Fanning even suggests that there is only a 10% chance that Napster could lose a court case"); Greenfeld, *supra* note 7, at 60 (quoting the assertion of Napster attorney David Boies that the company had a 50-50 chance of prevailing in the *RIAA* suit); Eric Boehlert, *The Great MP3 Love Fest*, Aug. 1, 2000, available in <http:www.salon.com/business/feature/2000/08/01/napsterpress/index2.html> (visited Dec. 24, 2001). *But see* Brown, *supra* note 120, ("While ripping yourself an MP3 copy of a CD you've purchased for personal use is perfectly legal, it *is* illegal to share that file with anyone else.").

[126]Richtel, *supra* note 1, at A1.

[127]*Id*.

[128]Ron Harris, *Testdrive: File Sharing Applications*, ORLANDO SENTINEL, July 27, 2001.

[129]114 F. Supp.2d at 910 (emphasis added).

conclusion, it is necessary to look at the polling that has been done with respect to the perceived morality of Napster's services. A number of public opinion polls have gauged Americans' views toward the unauthorized downloading of copyrighted sound recordings. The most rigorous and informative of these polls have been conducted by the Pew Internet and American Life Project. According to a Pew poll taken during mid-2000, 78% of those Internet users who had downloaded music from the Internet stated that they did not consider themselves to be "stealing" the music.[130] Among all Americans, however, 40% stated that those who downloaded music off the Internet for free were doing nothing wrong; 35% believed that the practice amounted to stealing; and 30% would not address the propriety of such activities or gave inconsistent answers.[131]

The Pew Internet project has not released any follow-up polling data to test the influence that the Ninth Circuit's *Napster* decision has had on public attitudes. A public opinion poll conducted in the summer of 2002, however, more than one year after the *Napster* decision was handed down, revealed an evenly divided populace, with 52% of those polled agreeing that "there is nothing morally wrong about downloading music for free from the Internet" and 48% disagreeing with the statement.[132]

As these numbers indicate, a significant portion of the American public believes that those users who download copyrighted content without paying for it are behaving immorally. Yet these individuals do not perceive themselves as having any personal stake in enforcing the norm. Those who feel file-swapping is immoral are unlikely to be

---

[130]Lenhart & Fox, *supra* note 14, at 5. As with any poll, the way the question is posed alters the results somewhat. When specifically asked about copyright infringement, a larger minority of Internet users expressed concerns about the morality of their activity. Sixty-one percent of downloaders stated that they don't care whether the music they downloaded is copyrighted, whereas 31% stated that the music's copyrighted status was something that concerned them.

[131]*Id*. Another poll of home Internet users conducted during the summer of 2000 revealed similar results. Just 23.4% of those polled agreed with the statement "Downloading music without paying for it is a form of piracy and should be illegal," whereas 46.3% disagreed. A mere 15.6% favored shutting down services such as Napster, and Gnutella, whereas 45.1% disagreed. Finally 55.9% of those polled agrees with the statement that "downloading music over the Internet is simply a harmless way of allowing free exchange of music," whereas 17% disagreed. *Poll Suggests Home PC Users Favor Napster's Arguments*, Tech Law Journal, July 27, 2000, available at <http://www.techlawjournal.com/intelpro/20000727.asp>. The wording of the Tech Law Journal questions was somewhat problematic (for example, everyone ought to agree that downloading public domain music without paying for it should not be illegal, but the poll did not distinguish between authorized and unauthorized downloading of free music). These concerns aside, the results of that poll generally comport with those of the Pew Center's more reliable poll. A similar poll conducted at approximately the same time, revealed similar results. *Majority of Americans Agree that Downloading Free Music from the Internet Will Increase*, Feb. 22, 2001, available at <http://www.intersearch.tnsofres.com/press/releases/violations.htm> (visited on Aug. 8, 2002) (noting that 18% of Internet users said downloading music from the Internet without paying is wrong and that they wouldn't do it; that 11% of users said it is wrong, but everyone else does it, so they'd probably do it too; and that 59% said it's not wrong and they'd probably do it).

[132]Edison Media Research, *supra* note 78, at § 1. Edison Media also asked those who had downloaded music off the Internet in the past whether they had reservations about doing so in the future. Thirty-eight percent said they had no reservations about doing so; 54% said they had some reservations about doing so; and 5% stated that they would not download in the future. *Id*.

exposed to the activities of file-swappers, since much of this activity occurs in the privacy of file-swappers' homes. Moreover, it is not at all clear that those who believe file-swapping is immoral feel strongly enough about the issue to impose social sanctions on file-swappers.

a. Norm Enforcement—Anti-File-Swapping

While almost half of the American public believes that downloading copyrighted sound recordings from Napster, Gnutella, or the hybrids is morally wrong, there has been virtually no effort to use that sentiment to enforce laws against unauthorized downloading. Members of the public have been unwilling to do anything to combat the problem, notwithstanding their view that it amounts to theft. Nor has any noticeable social disapproval been directed at the millions of "thieves" who are stealing copyrighted content. File-swapping may well be like speeding on the freeway, a widely tolerated, technical violation of a rule that invokes virtually no moral outrage when done in moderation.[133]

Young people lend homemade CDs containing illicitly copied MP3 files to friends. Known downloaders are not shunned, blackballed, or otherwise subjected to any kind of social sanction. While individuals who download child pornography off Gnutella have been subjected to minor shame sanctions,[134] no one has ever thought to do the same to the millions of individuals who are downloading copyrighted content off the same network. It is widely believed that the public could not stomach widespread prosecutions of individual computer users who had illicitly downloaded copyrighted content.[135] As Robert Litan concludes, "it is highly doubtful that Americans would tolerate for very long, if at all, the police raiding homes and arresting teenagers for copying music or movies."[136] Although a large segment of society may believe that unauthorized downloading of copyrighted content is immoral, virtually no one in society believes in these principles strongly enough to enforce an anti-file-swapping norm. The only Americans who appear to have particularly strong feelings about the morality of file-swapping are the file-swappers themselves and the creators of copyrighted content.

---

[133]Strahilevitz, *supra* note 95, at 1242 n.53.

[134]*See supra* notes 83-88.

[135]Melanie Warner, *The New Napsters*, FORTUNE, Aug. 12, 2002, at 115 ("The RIAA is considering a far riskier strategy—suing individuals who share large numbers of files on Kazaa, Grokster, or Morpheus. It's a tactic guaranteed to infuriate and alienate music fans, and it underscores the awful bind record labels are in.").

[136]Litan, *supra* note 44, at 1070; *see also* Deborah Tussey, *From Fan Sites to Filesharing: Personal Use in Cyberspace*, 35 GA. L. REV. 1129, 1158-59 (2001) (same); Aaron M. Bailey, Comment, *A Nation of Felons?: Napster, the Net Act, and the Criminal Prosecution of File-Sharing*, 50 AM. U. L. REV. 473, 514 (2000) (discussing the factors that prevent prosecutions of individual file-swappers).

Because there are a great number of the former and very few of the latter, informal enforcement of the private property norm has been almost nonexistent.

b. Norm Enforcement—Pro-File-Swapping

Norm enforcement among the pro-file-swapping portion of society is easier to detect. Among those Americans who have never downloaded music from the Internet, there are virtually no signs of pro-file-swapping norm enforcement activities. The most significant exception is the celebrity status that has been conferred upon Napster's founder, Shawn Fanning. As one author noted, using only a bit of hyperbole, "Fanning had been on more magazine covers than anyone since John F. Kennedy."[137] A gushing *Time Magazine* profile of Fanning summarized his status thusly:

> As the creator of Napster, Fanning has reached a level of fame unprecedented for a 19-year-old who is neither a sports hero nor a pop star. He's been on the cover of *Fortune*, *BusinessWeek*, *Forbes*, and the *Industry Standard* and has been profiled just about everywhere else. His name and his face—those piercing blue eyes, wide cheeks and stolid expression under the ever present University of Michigan baseball cap—have become synonymous with the promise of the Internet to empower computer users and the possibility that some kiddie-punk programmer will destroy entire industries. Strangers pick him out at the mall buying a burrito or watching a San Francisco Giants game or just driving around in his newly customized Mazda RX-7. He introduced Britney Spears at the MTV Video Music Awards. Nike has offered him a shoe deal.[138]

Fanning has garnered enormous social benefits as a result of his change agent activities. By valorizing him, the public encouraged the millions of teenagers who follow in his (Nike-imprinted) footsteps and contribute content to his network.

The creators of the Gnutella network have not achieved the same level of fame as Fanning. That is not to say that their acts have gone unrewarded in terms of social benefits. Those programmers who created successful peer-to-peer networks or who solved technical problems that arose on the existing networks obtained the significant esteem of their peers. As Stephen McJohn has noted in the context of open source[139] programmers:

---

[137] ALDERMAN, *supra* note 27, at 163.

[138] Greenfeld, *supra* note 7, at 60.

[139] Most of the Gnutella applications are open source applications, meaning that the code is made public, so any programmer is licensed to alter and distribute applications that contain elements of the original open source program, provided she in turn makes her own applications available to the public.

> Many open source authors are spurred to create code by incentives other than copyright: the love of elegant problem solving (a.k.a. hacking), status among peers, the wish to further computer science and make things better generally, and even animosity toward software developers. . . . Looking only to material considerations, open source developers might appear to be acting contrary to rational economic incentives, by giving away software. However, when one considers the return in terms of increased status among software developing peers (i.e., showing off technical prowess, or receiving approval for participating in the open source movement, or building relationships in the development process), ample incentives become apparent.[140]

It is this desire for the support of one's peers that is particularly important in helping to craft subgroup norms.[141]

In order to understand the widespread popularity of downloading music files, one needs to understand both the ways in which Napster lowered the transaction costs of copyright infringement and the reasons why copyright laws had created strong anti-infringement norms among members of the public. It is now appropriate to turn to the much more interesting half of the file-swapping equation: uploading.

III. Charismatic Code and Cooperative Norms in Loose-Knit Groups

So far, my account of the file-swapping networks has focused predominantly on the downloading aspect of the file-swapping transactions. It has explained how downloading files from these networks became socially acceptable, and why a downloader of unlicensed copies of copyrighted content was likely to encounter few if any social sanctions from those individuals who were exposed to the real-world manifestations of this online behavior.

Although this account talks of norm transformations in society at large, the social norms theories built upon discussions of how norms emerge and evolve within close-knit groups are still pertinent. Hence potential file-swappers respond to behavioral environments in their dormitories, high school cafeterias, workplaces, and living rooms, and those environments partially reflect the norms that are conveyed through the mass media. Societal norms may be the mere aggregation of the norms that emerge from a multitude of overlapping close-knit groups.

---

[140] *See* Stephen M. McJohn, *The Paradoxes of Free Software*, 9 GEO. MASON L. REV. 25, 42 (2000). For a balanced and insightful account of the open source programmers' incentives and motivations, see generally David McGowan, *Legal Implications of Open-Source Software*, 2001 U. ILL. L. REV. 241 (2001). For discussions of social norms among computer hackers, with whom Gnutella creators may also identify, see LESSIG, *supra* note 99, at 194; Major, *supra* note 99, at 77-78.

[141] Major, *supra* note 99, at 76.

Where downloading from the network is easy, and provides significant benefits at low costs, little need be done to convince people to use these networks to download content. All that is required are relatively weak norms against those who acquire copyrighted content through unlawful channels, and the attractions of participating in the network will convince many users to ignore copyright law. The fact that file-swapping change agents such as Shawn Fanning and Justin Frankel are valorized adds fuel to the fire. Downloading is attractive; downloading is acceptable within the relevant peer groups; and downloading is cool. So what if it's illegal? Such thinking has driven one-half of the file-swapping revolution.

A robust account of these networks also requires one to consider the more interesting half of the equation—the puzzle of why so many of the networks' users choose to share their content with others despite the absence of obvious incentives for doing so. After all, if no one—or very few people—contributed content to the networks, then the networks would become an unattractive source for copyrighted content and they would lose much of their usership base.

A. Charismatic Code Defined

Virtually everyone who participates in one of the file-swapping networks is breaking the law in the process. Ordinarily, people are unlikely to trust law-breakers, especially anonymous lawbreakers. Yet a remarkable sense of trust permeates these networks. As was suggested in Part I, it is possible to observe significant levels of cooperative behavior, very little by way of destructive behavior, and substantial trust among the anonymous users of these networks. Furthermore, the networks have survived and thrived largely because of their users' dogged willingness to engage in unlawful activities. While the cost of sharing is quite low for those sharing music files via high-speed Internet connections, the cost is much higher for their modem-using brethren. Yet those with slower connections appear to share content at substantially the same (relatively high) rates.[142] Moreover, thousands incur a serious risk of severe criminal penalties by uploading pornography (including child pornography) to strangers.[143] What on earth causes people to behave in such a manner?

I will argue that the primary answer to that question is "charismatic code," a technology that presents each member of a community with a distorted picture of his fellow community members by magnifying cooperative behavior and masking uncooperative behavior. I will then suggest that charismatic code is particularly potent in this case because it successfully taps into internalized and nearly universal norms of

[142] *See supra* note 64 and accompanying text.

[143] *See, e.g.*, 18 U.S.C. § 2252 (criminalizing the uploading of visual depictions of actual minors engaging in sexually explicit conduct).

reciprocity.[144] The various applications are all cleverly designed to encourage cooperation by as many users as possible. In one sense, the applications harness the actual members of the community to become actors and enforcers for norm enforcement purposes, magnifying the actions of those who cooperate and masking the actions of those who do not. In another sense, the applications "substitute" for the community of actors and enforcers, inculcating in their users those norms most likely to lead to the success and expansion of the networks. Finally, the applications' architecture underscores the reciprocity on which the success of the file-swapping networks depend.

B. The Distorted Image

I earlier mentioned that only about one-third of all users of the Gnutella network apparently make any of their content available for downloading by others. The creators of the Gnutella network know this, and yet they say it isn't so. One of the first images a new Gnutella user was likely to encounter upon installing the software for the first time and learning how it works is a screen entitled "*What Is Gnutella?*" That screen *falsely* told users: "The other half of Gnutella is giving back. Almost everyone on GnutellaNet *shares* their stuff."[145] Now, there is nothing terribly persuasive about telling a lie per se, but the genius of Gnutella is the way in which it makes that lie look like a reality to its users. As we shall see, if that lie is made persuasive enough, it can develop into a self-fulfilling prophecy.

Gnutella's creators have attempted to situate its users in an environment that makes it appear as if there really is a norm of sharing and cooperation on the network. Charismatic code is the primary tool in that effort. Because of the way the networks are structured, the actions of those who share content are quite visible[146] while the actions of

---

[144]This discussion is foreshadowed in Lemley, *supra* note 57, at 1287 ("Code can also serve to enforce social norms. Rules of behavior can be designed into the architecture of the Net itself, or written into software that is used in particular cases. . . . If the code is written with Net norms in mind, it can reinforce those norms."). My discussion is complementary to the approach expressed in LESSIG, *supra* note 99. Lessig identifies four "regulators" in cyberspace: law, markets, norms, and architecture. *Id*. at 88. In Lessig's view, architecture, or code, is the most powerful of these regulators in Cyberspace. *Id*. at 86. Lessig sees code as rules that are built into the architecture of the Internet and software applications. *See, e.g.*, Lawrence Lessig, *Reading the Constitution in Cyberspace*, 45 EMORY L.J. 869, 896 (1996) ("These are constraints, just as law and social norms are constraints, but they are not constraints that one chooses to follow or not. One cannot flout the password requirement."). The example of the file-swapping networks demonstrates that code itself can significantly influence social norms and user behavior.

[145]*What Is Gnutella?*, *supra* note 41.

[146]Of course, like many acts on the Internet, file-sharing is quite visible in cyberspace, but virtually invisible in real space. In real space, file-sharing consists mostly of an individual using his home computer to run a file-swapping application. Few of the file-sharer's neighbors are likely to learn of the copyright infringement that is occurring in such close proximity to them. Yet to fellow file-swappers in cyberspace, the transaction will be quite visible, even if the parties' true identities are not. *Cf*. Tussey, *supra* note 136, at 1160 (noting that downloading copyrighted materials off the Internet, "while accomplished in private surroundings, is essentially a public transaction"). In this sense, file-swapping networks, which broadcast

those who do not share content are virtually invisible.[147] Particularly if a user is searching for content by a particularly popular artist, she will have no trouble locating scores of other users who have made that artist's work available. Users who share no files, on the other hand, do not appear in response to user searches, so other users generally will have a very difficult time perceiving their participation in the networks. The architecture of the networks is such that although many users on the networks do not share, the networks create an appearance that sharing is the norm. This dynamic—the magnified visibility of sharers and the invisibility of non-sharers—exists on virtually every successful file-swapping application.

Some of the networks are careful to present data that reinforces this image of widespread file sharing. For example, the MusicCity Morpheus application displays in a prominent location the total number of users logged into the network at a given time and the aggregate number of files being shared.[148] These statistics not only punctuate the ubiquity of usership, but they also imply the widespread prevalence of file-sharing, since the mean number of files shared per user consistently exceeds one hundred while the median number of files shared is less than twenty. By providing only the raw data used to calculate the mean, the network masks the fact that a fifth of all users are providing the vast majority of the content that is available for downloading.[149]

The applications provide information not only about the prevalence of file-swappers, but also reveal some useful information about their users' preferences. The file-swapping networks bring together file-swappers with similar tastes in copyrighted content, thereby convincing new users that people just like them are members of the file-swapping community. The software is designed to underscore affinities among uploaders and downloaders, and to create empathy among anonymous users. So while users exchanging files on the file-swapping networks are anonymous, their preferences are not. When I search for music by the Cameroonian vocalist Henri Dikongue, I am necessarily searching for users who, like me, enjoy that artist's work. While these commonalities may be more meaningful to users who are interested in relatively obscure artists like

---

the extent of criminal behavior, are different from other forms of criminality on the Internet. *See generally* Katyal, *supra* note 108, at 1109 ("[U]nlike crimes in realspace, those in cyberspace are almost always invisible. There are no bars on the windows to glimpse and no loiterers and panhandlers to avoid."). The important exception arises in college dormitories, where students have little privacy and so file-sharing may be quite visible, even in real space.

[147]Gnutella applications do not allow a user to locate non-sharers on the network—they are essentially invisible. On MusicCity / KaZaA, non-sharers are exceedingly well camouflaged. In order to locate non-sharers on these networks, a user has to make content available for downloading, wait for users to download his content, and then peek at the downloaders' shared directories during the transfer of shortly thereafter to determine whether that user is sharing any files. That is the methodology I have employed in my study of the MusicCity network, and I can testify to its cumbersome and tedious nature.

[148]This statistic apparently includes the number of non-unique files being shared. So a thousand identical copies of *Piano Man* would be counted as a thousand files being shared, not one file being shared.

[149]MILLER, *supra* note 53, at 77.

Dikongue, this affinity effect cannot be discounted in building trust within a community of anonymous users.[150] By the same token, these affinities normalize file-swapping: Members of the file-swapping networks stop being identified as "rogue software pirates" and start being identified as "people who, like me, have excellent musical taste."

As it happens, the file-swapping networks also provide avenues for those particularly committed to the community of file-swappers to express themselves and their views. The file-swapping networks generally contain fora and "Frequently Asked Questions" postings that provide the curious user with assistance in optimizing his use of the network. A survey of postings in the fora reveals that the individuals who respond to user queries in these discussion groups tend to be those who are most committed to the success of the network and, not coincidentally, tend to be the most dogmatic supporters of file-swapping norms. In these fora, there is a significant disconnect between those most likely to post questions and those most likely to answer those questions. The questioners will by and large be new users who have not figured out how to optimize their use of the file-swapping networks. The answerers will be those repeat players who have successfully figured out these problems and care enough about the newer users to take the time to read and respond to their postings. The question and answer forums therefore provide an excellent avenue for the old-timers (i.e., those most committed to the norm of sharing) to inculcate their norms in the newest users.

It is worth noting further that these file-swapping network forums contain very little by way of dissent with respect to either the propriety of file-swapping or the necessity of file-sharing. While the file-swapping networks all contain chat rooms and discussion fora, the number of people who join MusicCity for the chat rooms and discussion fora is approximately equal to the number who read *The Economist* for the photographs. Quite simply, only people looking for copyrighted content will go through the trouble of running a MusicCity host. Because of this homogeneity, dissenting views regarding the propriety of their collective activity are almost never voiced.[151] Despite the

---

[150] *See* Peter J.D. Carnevale, Dean G. Pruitt & Patricia I. Carrington, *Effects of Future Dependence, Liking, and Repeated Requests for Help on Helping Behavior*, 45 SOC. PSYCH. Q. 9, 12 (1982) (introducing empirical research to suggest that even among individuals who have known each other for only a few minutes, individuals were far more likely to help those who they liked than those who they did not like); Jane Allyn Piliavin & Hong-Wen Charng, *Altruism: A Review of Recent Theory and Research*, 16 AM. REV. SOCIOLOGY 27, 36, 47, 50 (1990) (presenting empirical evidence that affinity and empathy between the donor and the donees engender increased helping behavior); Jane Sell, W.I. Griffith & Rick K. Wilson, *Are Women More Cooperative than Men in Social Dilemmas?*, 56 SOC. PSYCH. Q. 211, 214, 219 (1993) ("Literature concerning one type of social dilemma—resource replenishment—suggests that in-group identity helps to build cooperation."); *cf.* Jerome Rabow et al., *Altruism in Drunk Driving Situations: Personal and Situational Factors in Intervention*, 53 SOC. PSYCH. Q. 199, 210 (1990) (discussing the importance of affinities among intoxicated individuals and observers in prompting observers to intervene to prevent intoxicated persons from driving vehicles).

[151] For a discussion of the consequences of increased homogeneity in subgroups on the Internet, see ROBERT D. PUTNAM, BOWLING ALONE: THE COLLAPSE AND REVIVAL OF AMERICAN COMMUNITY 177-79 (2000). For an examination of how limited exposure to dissenting views can cause members of a group to

fact that anyone can log onto the networks, and that free speech is generally encouraged, opinions expressed in the chat groups and fora associated with file-swapping applications reveal almost total adherence to the "information wants to be free" orthodoxy. Similarly, "Frequently Asked Questions" postings, which are written by the programmers who created the networks, predictably implore users to share as many files as possible.

C. Reinforcing Reciprocity

Technologies that magnify cooperative behavior and mask uncooperative behavior can succeed by tapping into deeply held social norms. In this instance, the file-swapping networks have been so successful in large part because they have managed to tap into internalized norms of reciprocity. Recall the passage from *What Is Gnutella?* quoted above: "The other half of Gnutella is giving back. Almost everyone on GnutellaNet *shares* their stuff." In the previous section, I focused on the second sentence of that excerpt, but the first sentence is also important. The other half of Gnutella is giving back. The networks' creators are drawing upon reciprocal intuitions that their users are likely to possess. Once again, the software is designed to exploit those intuitions.

Because of the peer-to-peer nature of file-swapping transactions, it should be reasonably clear to most users of the networks that their ability to obtain content depends on other users' willingness to make their content available for downloading. Nevertheless, the file-swapping applications make this relationship particularly explicit. Several applications display a user's downloads and uploads from a given session on the same screen, usually with two adjacent windows.[152] This juxtaposition of downloads and uploads on the same screen cannot be altered by the user.[153] Thus, to the extent that a user downloads much more than she uploads on a given day, the application will remind her of that imbalance visibly. This image and the running tallies that accompany it strongly suggest that a downloader has some obligation to give something back to the networks' members. In that subtle way, the file-swapping applications tap further into norms of reciprocity that users bring with them to these networks.[154]

---

adopt increasingly extreme viewpoints, see Cass R. Sunstein, *Deliberative Trouble? Why Groups Go to Extremes*, 110 YALE L.J. 71, 89 (2000).

[152]Gnutella applications are the exception to this rule. There, different tabs denote uploads and downloads, so that a user may elect to look only at his download screen without ever looking at his upload statistics.

[153]A user on MusicCity Morpheus or KaZaA can increase or reduce the size of the windows during a particular session, but these modifications cannot be saved. So, a user might shrink his upload screen into oblivion. The next time he logs into the network, however, he will again see two adjacent screens of equal size: one for uploads and the other for downloads.

[154]Earlier networks for trading copyrighted content built reciprocity rules into their architecture, and publicized reciprocity data as a means of encouraging cooperative behavior. Roger Dingledine, Michael J.

During 2001, several Gnutella applications introduced a new feature that is a testament to the force behind the impulse to reciprocate. That feature allows users to choose to share their files only with fellow users who are in turn sharing their files. It also allows the user to specify the number of files that another user must be sharing in order to gain access to the files in one's shared directory. Thus, a user can elect to share his own files only with those users who have at least one hundred files in their respective shared directories. This innovation has the potential to constrain the network's growth since it means that brand new users (who will likely have few or no files available for sharing) could have a much harder time locating desirable content. Its introduction also implicitly concedes that not everyone on GnutellaNet *really is* sharing their stuff, thereby potentially weakening the charismatic nature of Gnutella's code. In order to justify introducing this option, the network's creators must have been motivated by powerful countervailing intuitions: (1) the instinct that users do care with whom they are sharing their files; and (2) the insight that making this option available is likely to convince many of the network's free riders to begin sharing their files. In short, Gnutella programmers may have looked at the Adar and Huberman study and concluded that norms and charismatic code were producing a suboptimal level of cooperation on Gnutella, and that an appeal to self-interest would bring enough free-riders into the uploading fold to justify the real costs of introducing this innovation. It is so far difficult to gauge what effect this innovation is having on the Gnutella network, but my analysis predicts that the option of sharing only with other sharers will prove to be a popular one.

Rhetoric matters too. Although the file-swapping networks encourage unlawful copyright infringement, the networks by no means cede the moral high ground. In the parlance of the file-swapping networks, those who infringe copyrights employ the language of reciprocity. "Freeloaders" are not those who download copyrighted content without paying for it, but those who download content without uploading content to other users.[155] Behaviors such as making content that one has downloaded available to other downloaders and labeling content accurately are consistent with a broader societal norm

---

Freedman & David Molnar, *Accountability*, *in* PEER-TO-PEER, *supra* note 6, at 271, 307 ("In the bulletin board systems of the 1980s and early 1990s, one of the more important pieces of data about a particular user was her upload/download ratio. Users with particularly low ratios were derided as 'leeches,' because they consumed scarce system resources (remember, when one user was on via a phone line, no one else could log in) without giving anything in return."). Some bulletin board systems required users to maintain a set ratio of uploads to downloads if they wished to continue to enjoy the "privilege" of downloading.

[155] *See, e.g.*, *Options for Freeloading Prevention?*, available in <http:/www.gnutellaforums.com/showthreat.php?threaded=12038> (visited Aug. 8, 2002); *Stop Freeloading*, available in <http:/www.gnutellaforums.com/showthreat.php?threaded=9558> (visited Aug. 8, 2002). Those who favor strong intellectual property protections are more likely to use such a term to refer to those users who are distributing content for which they have not paid. *See, e.g.*, Trotter Hardy, *Property (and Copyright) in Cyberspace*, 1996 U. CHI. LEGAL F. 217, 220 (1996).

of reciprocity—the golden rule.[156] As I will argue below, because reciprocity is so strongly inculcated in most members of society, file-sharing norms can piggyback on that meta-norm.[157]

The file-swapping networks therefore are designed to reinforce the two messages conveyed in the *What Is Gnutella?* excerpt: "The other half of Gnutella is giving back. Almost everyone on GnutellaNet shares their stuff." Translation: Those who download should also upload; and virtually everyone on the networks uploads. The surprisingly high levels of sharing observed on these networks is a testament to the subtle ways in which these online spaces have been designed to reinforce that message. Relatively large numbers of file-swappers, and in some instances a majority, have been persuaded that they ought to make some of their content available to strangers. Yet so far an important premise has gone unstated. There is an intuitive connection between the two sentences quoted above. If everyone else is sharing, and if I am benefiting from their sharing, then refusing to share does seem particularly problematic. But in an environment where an individual will suffer no external sanctions if she chooses not to share and can fully harness the benefit of others' cooperation without sharing, how come that connection arises? Put another way, the file-swapping networks' charismatic code is working, but why?[158]

D. The Norm of Reciprocity in Loose-Knit Groups

The existing literature on social norms does a fine job of explaining the emergence of social norms among close-knit groups. Close-knit groups analysis sheds light on the process by which file-swapping's visible manifestations are becoming socially acceptable, and we can tell a plausible story about how social pressures might spur file-swapping behaviors using either Richard McAdams's esteem theory or Eric

---

[156]Shirky, *supra* note 6, at 33 ("As long as Napster users are able to find the songs they want, they will continue to participate in the system, even if the people who download songs from them are not the same people they download songs from.").

[157]*See infra* Section III.C.5.; *see generally* Lemley, *supra* note 57, at 1273 (arguing that norms based on intuitively reciprocal behaviors are likely to be particularly effective); Major, *supra* note 99, at 83 ("Many non-digital social norms have greatly influenced the evolution of social behavior in cyberspace."); Sugden, *supra* note 106, at 93 ("If it is a matter of common knowledge that a particular convention is followed in one situation, then that convention acquires prominence for other, analogous situations.").

[158]Charismatic code may play an important role in creating and internalizing social norms among people in the other loose-knit environment I have studied in detail. Just as Napster's charismatic code masked the uncooperative behavior of freeloaders, San Diego's FasTrak program masked the behavior of drivers who were using toll/carpool lanes without authorization by making it more difficult to determine whether a solo driver was using a carpool lane unlawfully. Strahilevitz, *supra* note 95, at 1259-60. FasTrak also (unintentionally) utilized drivers who were participating in the program to enforce the program's norms. *Id*. at 1257–58. Charismatic technologies that mask uncooperative behavior and magnify cooperative behavior may therefore help enforce social norms in varied loose-knit environments.

Posner's signaling theory.[159] Thus, there is little mystery about how the mass media's glorification of Shawn Fanning might be related to the social acceptability of college students trading homemade CDs consisting of unlicensed sound recordings or co-workers discussing the songs they have acquired via Gnutella. Social norms therefore provide satisfactory tools to explain the apparent growing acceptability of file-swapping's manifestations in real space.[160]

Social norms theory, so useful in real space, encounters difficulties in cyberspace, however. Neither McAdams's nor Posner's theory can adequately explain the emergence of cooperation among the loose-knit community of users on the file-swapping networks.[161] Specifically, none of these theories can explain why almost everyone on the

---

[159]*See supra* note 106. McAdams would argue that by amassing large collections of music and letting their real-world neighbors know they acquired them, file-swappers demonstrate that they are (1) cultured (or at least in tune with pop culture); (2) industrious; (3) on the cutting edge of technology; (4) appropriately frugal; and/or (5) willing to embrace a counterculture. Regardless of which of these social meanings is transmitted by file-swapping, the relevant social meaning is perceived as socially beneficial, and so the underlying behavior is sanctioned or even encouraged by a file-swapper's peers, neighbors, or co-workers. File-swappers therefore gain esteem as a result of their file-swapping behavior—at least from its visible manifestations—and the potential to earn these rewards attracts more file-swappers.

Posner would assert that by engaging in file-swapping, an individual signals to others his discount rate and his suitability for future cooperative transactions. So, for example, an employee who divulges his file-swapping activities to his co-worker signals his resourcefulness, technological prowess, or knowledge of popular music. When that co-worker subsequently seeks out the file-swapper to discuss music, hire him as a disc jockey, or provide advice about new speakers available at a computer store, the file-swapper's activities are reinforced.

[160]That is not to say that they provide the only satisfactory tool for explaining such behaviors. It may be the case that the theory of loose-knit groups' social norms articulated here provides a robust explanation for human behavior in certain close-knit groups as well. So members of close-knit groups might adhere to close-knit groups not because of concerns about being held in high esteem or enticing others to engage in cooperative relations with ones' self, but because of internal guilt about violating a rule to which everyone else appears to be adhering. The best test cases for such a theory are those instances in which it is in the interest of a close-knit group's individual member to violate a norm, and that member knows she can do so with zero risk of being detected. In such situations, traditional accounts of social norm conformity would have trouble explaining an individual's compliance with a norm, but theories that focus on internalized feelings of guilty do not. In that sense, then, the norm violation might not be detected by a third party, but it is detected by the violator herself, and that detection confers disutility on the violator. I intend to take up that issue in subsequent writings. *See generally* Paul R. Amato, *Urban-Rural Differences in Helping Friends and Family Members*, 56 SOC. PSYCH. Q. 249, 261 (1993) (arguing that norms of reciprocity in rendering assistance may be more strongly adhered to in larger urban areas than in close-knit rural communities). For the time being, I adhere to the plausible accounts put forth by Ellickson, Posner, and McAdams.

[161]Traditionally, social norms scholarship has focused on norms arising among close-knit groups, such as cattle ranchers in a rural county or merchants who can expect to deal with each other in the future. *See, e.g.*, ELLICKSON, *supra* note 5; Lisa Bernstein, *Merchant Law in a Merchant Court: Rethinking the Code's Search for Immanent Business Norms*, 144 U. PA. L. REV. 1765, 1788 (1996). An objective of my previous scholarship, and of this article in particular, is to understand the development and enforcement of social norms in loose-knit environments. *See also* Strahilevitz, *supra* note 5, at ; Strahilevitz, *supra* note 95, at 1273 & n.216.

Such analyses of social norms in loose-knit communities present daunting challenges, and highlight the limitations of the existing scholarship regarding the development of social norms. In response, it might be tempting for scholars to deem Napster, Gnutella, urban freeways and other loose-knit communities

networks doesn't choose to free-ride. Although the cost of sharing music is in some instances high, sharing is never costless, and a user can download as much free music as she wants without sharing, sharing behavior still emerges among a significant portion of the network's users. Moreover, even where the cost of sharing is relatively high—for example among users who have slow Internet connections or those users who share pornographic content—file-sharing levels remain impressive. In an environment characterized by user anonymity and a low likelihood of repeat-player interactions, neither esteem theory nor signaling can explain this behavioral regularity.[162] Classical economics is also at a loss.[163]

---

environments in which social norms as such do not arise. *See, e.g.*, Jon Elster, *Social Norms and Economic Theory*, 4 J. ECON. PERSPECTIVES 99, 100 (1989) ("[S]ocial norms differ from private norms, the self-imposed rules that people construct to overcome weakness of will. Private norms, like social norms, are non-outcome-oriented and sustained by feelings of anxiety and guilt. They are not, however, sustained by the approval and disapproval of others since they are not, or not necessarily, shared with others."). I disagree with such a characterization. My argument is that members of the loose-knit file-swapping networks cooperate with each other largely because the networks' creators give their users a distorted picture of the community, and present their community in a manner likely to harness deeply engrained norms of reciprocity. Those norms are private in the sense that they are internally enforced—through file-swappers' desire to avoid feelings of guilt and selfishness and to experience the warm glow associated with group solidarity. While these norms are enforced and internalized differently from social norms in close-knit groups, they are no less powerful, and they are by no means non-social.

[162]Indeed, one study of the prevalence of altruistic acts found that in the pre-Napster world, helping strangers was the exception, rather than the rule. Paul R. Amato, *Personality and Social Network Involvement as Predictors of Helping Behavior in Everyday Life*, 53 SOC. PSYCH. Q. 31, 34 (1990) ("Overall it is apparent that most of the helping was provided to familiar others; complete strangers accounted respectively for only 11 percent and 9 percent of the helping behaviors reported by students and nonstudents."). That was true even though the study included as "helping" such low-cost steps as opening a door for someone who has his hands full, giving the time of day to someone, or holding an elevator door open for someone who wanted to get inside it before the doors closed. *Id*. at 41-42. Social psychologists also argue that the motivations for and impediments to seeking help from strangers are quite different from those involved with seeking help from friends or family members. E. Gary Shapiro, *Is Seeking Help from a Friend Like Seeking Help from a Stranger?*, 43 SOC. PSYCH. Q. 259, 262 (1980).

[163]Robert Sugden, *Reciprocity: The Supply of Public Goods Through Voluntary Contributions*, 94 ECON. J. 772, 773-74 (1984). Richard Thaler's work in behavioral economics has focused on identifying situations in which people cooperate but lack an obvious self-interested reason for doing so. Thaler and Robyn Dawes identify several instances in which people behave altruistically even though their essential anonymity would allow them to free ride without suffering any social sanctions. "Public television successfully raises enough money from viewers to continue to broadcast. The United Way and other charities receive contributions from many if not most citizens. Even when dining at a restaurant away from home in a place never likely to be visited again, most patrons tip the server." Robyn M. Dawes & Richard H. Thaler, *Anomalies: Cooperation*, 2 J. OF ECON. PERSPECTIVES 187, 188 (1988). These instances are interesting, but the case of file-sharing is perhaps even more puzzling. After all, one common thread for PBS, the United Way, and restaurant waiters is that they *need* money, probably more than the donor needs money. PBS's annual struggle to meet its budget is well-documented in their pledge campaigns; the United Way provides funding to organizations who seek to accomplish good works and help those most in need; and waiters and waitresses are generally poorer than their customers, and it is widely understood that they "live off" their tips. Similarly, the recipients of blood donations all need blood. From these examples, sociologists have generalized that altruism is largely dependent on the recipient's need for assistance. *See generally* C. Daniel Batson, *Prosocial Motivations*: *Is It Ever Truly Altruistic?,* 20 ADVANCES IN EXPERIMENTAL PSYCH. 65 (1987); William Howard & William D. Crano, *Effects of Sex, Conversation, Location, and Size of Observer Group on Bystander Intervention in a High Risk Situation*, 37 SOCIOMETRY

In proposing that charismatic code accounts for the prevalence of file-sharing on the file-swapping networks, I attempt to provide an alternative explanation for the creation of norms in loose-knit communities. That explanation suggests that when users are presented with an image of a community in which cooperation is magnified and noncooperation is masked by charismatic code, users are more likely to cooperate. This "monkey-see, monkey-do" phenomenon has intuitive appeal.[164] But all that phrase does is describe a phenomenon; it cannot explain it. For the explanation, it is necessary to turn to the sociological and social psychology literature.

This literature discusses something called a "Norm of Reciprocity."[165] The idea is a simple one. Under a norm of reciprocity, when *A* helps *B, B* then feels obligated to return the favor, either by helping *A*, or by helping *C* (a third party, albeit one who shares at least some relevant characteristic with *A*).[166] The norm is by no means limited to three-

---

491, 504 (1974); *but cf*. R. Lance Shotland & Charles A. Stebbins, *Emergency and Cost as Determinants of Helping Behavior and the Slow Accumulation of Social Psychological Knowledge*, 46 SOC. PSYCH. Q. 36, 38 (1983) (finding that while the recipient's "need" for help did not affect a potential helper's propensity to render assistance, the potential helper was more likely to render assistance if he perceived the situation as an emergency). When a file-sharer makes a file available to everyone on the Gnutella network, he necessarily gives it away to both those starving students who cannot afford to purchase a licensed copy and those middle-aged yuppies who could easily afford to buy the album but prefer to get it for free. In short, a file-sharer's altruism is need-neutral. File-swapping is in that sense more akin to intentionally leaving a $20 bill on the sidewalk than to donating $20 to the Salvation Army. That said, even though the contribution is need-neutral, individual users may assume that the beneficiaries of their largesse are like themselves and, therefore, worthy of receiving free music. *See supra* text accompanying note 150 (discussing affinity effects). Indeed, where a recipient of altruistic assistance is completely anonymous, the donor may even be inclined to imagine the recipient as particularly needy, perhaps because doing so maximizes the psychic benefits associated with the altruistic act. J. Keith Murnighan, Jae Wook Kim & A. Richard Metzger, *The Volunteer Dilemma*, 38 ADMIN. SCI. Q. 515, 535 (1993).

[164]An example with which many will be familiar illustrates that the charismatic technologies I discuss in this article are not entirely new; they are just more sophisticated that previous versions. For example, during the 1970s, situation comedies typically introduced "laugh tracks" into the sound tracks of their television programs, cuing recorded laughter after every punch line. The theory was that viewers at home would be more likely to laugh if they heard others laughing along with them. These hackneyed technologies fell out of favor after listeners became able to discern the difference between laugh tracks and an actual studio audience. Today, many comedy programs pay audience members to show up and provide real laughter, albeit with much prodding from stage managers. Although the analogy is imperfect, we can conceptualize charismatic code as an extremely sophisticated laugh track that makes the program seem much funnier than it actually is.

[165]Alvin W. Goulder, *The Norm of Reciprocity: A Preliminary Statement*, 25 AM. SOCIOLOGICAL REV. 161 (1960), is generally regarded as having initiated this literature. Surveying the literature, Elinor Ostrom concludes "that humans [likely] inherit a strong capacity to learn reciprocity norms" and that "[r]eciprocity is a basic norm taught in all societies." Elinor Ostrom, *A Behavioral Approach to the Rational Choice Theory of Collective Action*, 92 AM. POL. SCI. REV. 1, 10 (1998).

[166]I borrow this definition, not from Goulder, but from Takahashi. Nobuyuki Takahashi, *The Emergence of Generalized Exchange*, 105 AM. J. SOCIOLOGY 1105, 1108 (2000) ("Once an actor receives resources, she is obligated to return to someone else in the future."). Takahashi has referred to the situation where *A* helps *B* and *B* helps *A* as "restricted exchange," and the situation where *A* helps *B* and *B* helps *C* as "generalized exchange." *Id*. at 1106; *see also* Martin A. Nowak & Karl Sigmund, *Evolution of Indirect Reciprocity by Image Scoring*, 393 Nature 573, 573 (1998) (presenting a model showing how generalized exchange, which they dub "indirect reciprocity," might arise through evolutionary processes); Theo Van

person interactions, as scholars have begun to realize its application to much larger groups of individuals, such as a nation's taxpayers.[167] As the authors of this literature have recognized, the norm of reciprocity is sufficiently powerful so that the founding members of a brand new community are likely to bring it with them into that community, and see it potentially flourish therein.[168] If the file-swapping example is illustrative, it may also be that these reciprocity norms can even help cause people to engage in cooperative behaviors of the illegal variety.

1. File-Sharing as Guilt Alleviation

Under the most plausible explanation for reciprocal exchange, file-swappers elect to make their own files available for others to download based on what Shumaker and Jackson have dubbed the "aversive effects of nonreciprocated benefits."[169] Drawing on a number of experimental studies, Shumaker and Jackson argue that when an individual receives a benefit that obviously results from the cooperation of others, she internalizes a feeling of indebtedness. "Reciprocation . . . serves as one method available to a recipient for alleviating the tension produced by the indebted state."[170] The best way to remove these feelings of guilt is for her to reciprocate directly. Failing that, however, Shumaker and Jackson found qualified support for the theory that someone "prevented from

---

Tilburg, Eric Van Sonderen & Johan Ormel, *The Measurement of Reciprocity in Ego-Centered Networks of Personal Relationships: A Comparison of Various Indices*, 54 SOC. PSYCH. Q. 54, 55 (1991) (discussing indirect reciprocity). File-swapping consists almost entirely of generalized exchange.

[167]Dan M. Kahan, *Trust, Collective Action, and Law*, 81 B.U. L. REV. 333, 340-44 (2001).

[168]Goulder, *supra* note 165, at 176 ("[T]he norm is not only in some sense a defense or stabilizing mechanism but is also what may be called a 'starting mechanism.' That is, it helps to initiate social interaction and is functional in the early phases of certain groups before they have developed a differentiated and customary set of status duties."); *supra* note 157; *see also* Michael W. Macy, *PAVLOV and the Evolution of Cooperation: An Experimental Test*, 58 SOC. PSYCH. Q. 74, 78 (1995) ("Norms of reciprocity and conformity pose a start-up problem: if contribution requires moral or social pressure, and if this pressure increases with the rate of contribution, what gets the system started? One possibility, Elster suggests, is the 'everyday Kantian' norm to act as you would have others act. This avoids the start-up problem because the obligation to cooperate does not depend on the extent of cooperation by others in the group."). Recent research suggests that when two players both cooperate in a prisoner's dilemma situation, portions of their brains associated with the production of pleasurable sensations are activated. Revealingly, some of the areas were not activated when the subjects were told they were cooperating with a computer in a prisoner's dilemma game. James K. Rilling et al., *A Neural Basis for Social Cooperation*, 35 NEURON 395, 395-403 (2002). Because all subjects in the research were adult females, the study does not resolve the question of whether these neurological benefits from cooperation are learned or innate. For an interesting discussion of that question, see Neven Sesardic, *Recent Work on Human Altruism and Evolution*, 106 ETHICS 128 (1995).

[169]Sally Ann Shumaker & James S. Jackson, *The Aversive Effects of Nonreciprocated Benefits*, 42 SOC. PSYCH. Q. 148 (1979).

[170]*Id*. at 149. Shumaker and Jackson's study casts doubt on an alternative explanation—that those who are helped experience improved moods as a result, and that being in a good mood makes one more likely to help others. *Id*. at 156.

reciprocating the donor will help a third person."[171] Conducting their own experiment, the researchers determined that while subjects who had been helped by others but were unable to reciprocate reported feeling guilty,[172] "those who were provided with an opportunity to benefit a third person did not report feelings of guilt or unease . . . These data are the first to support this study's hypothesis that reciprocating a third person may relieve at least some of the tensions produced by being placed in an aversive state."[173] Thus, the authors concluded, helping a third person may not alleviate guilt as much as direct reciprocation, but it is the next best thing.[174] Research by Shumaker and Jackson's peers has resulted in similar findings.[175] Indeed, the aversive affects of nonreciprocated benefits are likely to be particularly pronounced among anonymous strangers.[176] By offsetting the guilt that accompanies purely selfish downloading, file-sharing helps network members maintain a positive sense of self: They conceive of themselves as sharers, team players, members of a community of sorts, and cooperators.[177] They derive utility from maintaining these positive self images.[178]

---

[171] *Id*. at 149.

[172] *Id*. at 156.

[173] *Id*. A subsequent study provided further support for this conclusion. Amato, *supra* note 162, at 40 ("The finding that help received from friends and family was associated with spontaneous helping (mainly to strangers) is curious. It may reflect generalized reciprocity; that is, people who receive a good deal of help through their networks may feel a general obligation that can be discharged party by helping anyone—including strangers.") (citation omitted).

[174] Shumaker & Jackson, *supra* note 169, at 157.

[175] Daniel Bar-Tal et al., *Reciprocity Behavior in the Relationship Between Donor and Recipient and Between Harm-Doer and Victim*, 40 SOCIOMETRY 293, 298 (1977); Martin S. Greenberg & Solomon P. Shapiro, *Indebtedness: An Adverse Aspect of Asking for and Receiving Help*, 34 SOCIOMETRY 290, 290-300 (1971); Roberta Simmons, Mindy Schimmel & Victoria A. Butterworth, *The Self-Image of Unrelated Bone Marrow Donors*, 34 J. HEALTH & SOC. BEHAVIOR 285, 291 (1993) ("Donating bone marrow was seen as indirect reciprocation, a token of gratitude for their own good fortune."); *see also* Paula F. Levin & Alice M. Isen, *Further Studies on the Effect of Feeling Good on Helping*, 38 SOCIOMETRY 141 (proposing that people help strangers after receiving help from an anonymous stranger because receiving help put them in a good mood, but presenting data consistent with an aversive effects explanation for helping). The study of bone marrow donors presents one of the better case studies by researchers seeking to understand why people would help strangers. In the case of bone marrow donations, the costs of donating are relatively high, consisting of pain, recovery time, and the risk of complications from the procedure. Simmons, Schimmel & Butterworth, *supra* at 287. As a result, the population of bone marrow donors was unusually altruistic, and quite unlike a random sample of the population. *Id*. at 290. Like file-swappers, bone marrow donors made sacrifices (albeit much greater ones) to help people they had never met. Unlike in the file-swapping situation, however, bone marrow donors themselves were not anonymous, and might have anticipated the gratitude of recipients and the admiration of their peers. *Id*. at 291-93, 296-99. These donations therefore involved quite costly cooperation among strangers, but lacked both complete anonymity and the absence of repeat-player interactions.

[176] Bar-Tal et al., *supra* note 175, at 298 ("Individuals tend to feel most gratitude when they are helped by acquaintances or strangers and least gratitude when they are helped by parents or siblings."); Shapiro, *supra* note 162, at 262 ("[F]riends are relatively unaffected by temporary imbalances in their relationship since they have continuing exchanges and their past histories are generally equitable. Strangers, having no past histories nor expectations of future interaction, may find temporary imbalances much more disturbing.").

[177] It is unclear whether the brain registers the pleasure associated with the avoidance of guilt and the pleasure associated with feeling good about helping another differently. Rilling et al., *supra* note 168, at

Notably, reciprocation does not require a 1:1 relationship between the benefit received and the benefit conferred on another. Rather, smaller gestures may suffice to alleviate the aversive effects accompanying the receipt of valuable benefits from a stranger, and in some cases the reciprocation can take a different form from the receipt of the benefit.[179] So a user who reciprocates his 100 downloads by permitting 20 uploads may well extinguish the guilt that accompanied the act of downloading. Moreover, in many instances where a file-sharer has downloaded 100 files, but only made twenty available, reciprocity levels might well approach 1:1 in any event. That is because a user only need download a file once, but it can be downloaded from him ad infinitum once it is in his shared directory. A user who has made one-fifth of his collection available for downloading might then be engaged in 1:1 reciprocity if his shared songs are downloaded an average of five times each. An uploaded file can be the gift that keeps on giving.

The "aversive effects" model therefore provides one plausible explanation for why users of these networks make their files available despite the absence of an economic incentive to do so. Napster, Gnutella, and the other file-swapping networks all operate on the third-party helping model described in the Shumaker and Jackson study. Specifically, because a file transfer can only be initiated at the downloader's request, there are very limited opportunities to upload a file to someone from whom a file-swapper has just downloaded. File-swapping networks therefore provide their members with the opportunity to do the next best thing: make their files available for third parties to download. File-swappers need not upload as many files as they download. Instead, their reciprocal instincts will often be satisfied by engaging in minor-to-moderate file sharing with others.

It generally will not suffice for a user to make his files available to any third party. Under the guilt alleviation theory he will prefer to return the favor to someone who is similar in the relevant respect to the donor whose largess he earlier received. He knows that the donor has made his files available to others for downloading, so he will feel

---

400. I have characterized guilt avoidance as the primary mechanism motivating cooperation because that hypothesis seems to have the most support, but subsequent research might suggest that humans affirmatively enjoy cooperating more than they dislike non-cooperation. Latane & Dabbs considered both the guilt-avoidance and pleasure-seeking explanations for why people help strangers and concluded that the view "that people help others reluctantly in order to avoid feeling bad is probably the most popular in American social science today." Bibb Latane & James M. Dabbs, Jr., *Sex Group Size and Helping in Three Cities*, 38 SOCIOMETRY 180, 190 (1975); *Cf.* Dawes & Thaler, *supra* note 163, at 192 ("Another type of altruism that has been postulated to explain cooperation is that involved in the act of cooperating itself, as opposed to its results. 'Doing the right (good, honorable, . . .) thing' is clearly a motive for many people. Sometimes termed impure altruism, it generally is described as satisfaction of conscience, or of noninstrumental ethical mandates."); Piliavin & Charng, *supra* note 150, at 32 (discussing the important connection between altruism and individual's self-image).

[178]Simmons, Schimmel & Butterworth, *supra* note 175, at 287-97.

[179]Greenberg & Shapiro, *supra* note 175, at 300; *see also* Amato, *supra* note 160, at 254 (presenting the results of a study showing that people consistently overestimate the amount of help they have given others and underestimate the amount of help they have received from others).

better about his uploading if he believes that the recipient is also a file-sharer. If a user perceives that many of those taking files from him are not passing those files along to others, his desire to reciprocate will no longer be satisfied through participation in the network. As Thaler and Dawes hypothesize, "people have a tendency to cooperate until experience shows that those with whom they are interacting are taking advantage of them."[180] By magnifying the extent of file-sharing on the network and masking the prevalence of non-sharing, charismatic code attempts to persuade the individual file-sharer that the beneficiaries of his generosity are just as deserving as the people from whom he acquired his content. It therefore avoids the extinguishment of reciprocity obligations among its more cooperative users.[181]

These studies of cooperation among anonymous strangers provide a persuasive psychological account of what motivates users of peer-to-peer networks to allow uploading. Yet these experiments differ from the peer-to-peer situation in one important respect. While the participants in various experiments are anonymous, they are permitted face-to-face contact, which can establish greater empathy. The consensus among scholars who have studied the issue previously is that participants in a public good provision experiment are significantly more likely to cooperate if they are allowed face-to-face communication than if they are required to communicate with each other via computer terminals.[182] Seen in this light, the high levels of cooperation observed on MusicCity are even more startling. Whatever the experiments say, robust cooperation can emerge among anonymous members of a computer network in the real world.[183]

---

[180]Dawes & Thaler, *supra* note 163, at 191-92.

[181]It is possible that another guilt-alleviation story is working in the background. Perhaps some file-swappers feel somewhat guilty about violating copyright laws, but manage to eliminate those feelings of guilt by engaging in sharing. *See infra* note 132 (noting that 54% of downloaders have "some reservations" about obtaining free music off the Internet). That sharing compounds the illegality, to be sure, but because sharing and cooperation are generally seen as positive behaviors, such file-sharing might ameliorate the guilty pleasures associated with downloading. *Cf.* Scott Rosenberg, *But Isn't It Against the Law?*, Aug. 7, 2000, *available in* <http://www.salon.com/tech/col/rose/2000/08/07/breaking_law/print.html> (visited Dec. 20, 2001) ("People are giving stuff away—they're sharing files for free. That's one of the big reasons, I think, that millions of people don't see anything wrong with using Napster. It doesn't feel like theft; it feels like a great big communal swap meet.").

[182]Elinor Ostrom, *A Behavioral Approach to the Rational Choice Theory of Collective Action*, 92 AM. POL. SCI. REV. 1, 7 (1998) (reviewing the literature on these kinds of experiments).

[183]Why the divergence between the studies and the real world evidence? Two interesting possibilities spring to mind. The first is that charismatic code and the very large numbers of sharers visible on these networks overwhelms the users' reluctance to cooperate with unseen individuals. The second is that as users become increasingly familiar with the Internet and have their social experiences increasingly mediated through the Internet, they develop a greater sense of empathy with anonymous, out of sight, users. Thus, a user who has grown up participating in Internet chat rooms may feel just as much discomfort free-riding on the cooperation of other users as he would if he had to confront those users face to face. Under this hypothesis, if one tested MusicCity's users in a cooperation experiment, they would choose cooperative strategies more frequently than those members of the general population who formed the pool for the various cooperation experiments cited by Ostrom.

2. Reciprocity Cascades

Once the file-swapping networks succeed in tapping into the reciprocity norms that their users bring to cyberspace, they can rely on several factors to further solidify file-sharing behaviors. Cooperation tends to engender more cooperation,[184] although there are several complementary explanations for why that is so.

First, when a file-swapper is exposed to the widespread file-sharing of his fellow computer users, his own propensity to file-share will be reinforced. Imitation is not only the most sincere form of flattery, but it also validates and solidifies the behavior of the person who is being imitated.[185] The feedback effects sparked by multitudes of computer users imitating each other can spark a cascade of imitation that reinforces a behavioral norm even in the absence of social sanctions directed against nonconformists.[186] Relatedly, visible sharing can make sharers out of members who have just joined the network. Where individuals trying to decide how to behave in a new environment observe critical masses of others engaging in certain types of behaviors, they may well assume that those individuals must have some form of inside information prompting them to behave in that manner.[187] Rational actors therefore use others' visible behavior as a heuristic that helps guide their own decisions about how to behave.

Second, when users try to assess the levels of file-sharing that exist on the networks, they are likely to assume that the majority of network users behave as they do. Psychologists have observed that members of a network generally use their own level of cooperativeness as a measure by which to estimate the cooperativeness of others in that network.[188] Thus, file-sharers will tend to overestimate the extent of file-sharing on the network, and those who only download will tend to underestimate the extent of file-

[184]Robert Cooter, *Do Good Laws Make Good Citizens? An Economic Analysis of Internalized Norms*, 86 VA. L. REV. 1577, 1589-90 (2000); Sugden, *supra* note 163, at 774-75, 783.

[185]Michael C. Roberts, *On Being Imitated: Effects of Levels of Imitation and Imitator Competence*, 43 SOC. PSYCH. Q. 233, 233 (1980) ("[M]odels are attracted to an imitator and tend to subsequently imitate those people who first imitate them. . . . [I]mitation is a form of behavioral similarity which provides consensual validation and thus decreases uncertainty and unpredictability in the model. This then makes the model more confident of an attitude or behavior.").

[186]*Id*. at 239; *see also* Piliavin & Charng, *supra* note 150, at 41 ("Experimental studies have consistently shown that children display greater generosity when they are exposed to generous models than to selfish models.").

[187]*Cf*. POSNER, *supra note* 84, at 41 ("Behavioral regularities can arise . . . when people make inferences about the value of options from other people's actions, a phenomenon that may lead to 'herd behavior.' Suppose that everyone lines up to enter a fashionable restaurant . . . The herd behavior explanation holds that people have only partial information about the quality of restaurants, and imitate other people in the expectation that inferences based on other people acting on *their* partial information reflect aggregation of information about the quality of restaurants. Thus the social norm—the behavioral regularity of patronizing a certain restaurant—arises as a result of people's incentives to avoid bad outcomes that would occur if they relied on their own partial information.").

[188]Tomonori Morikawa, John M. Orbell & Audun S. Runde, *The Advantage of Being Moderately Cooperative*, 89 AM. POL. SCI. REV. 601, 601 (1995); John Orbell & Robyn Dawes, 85 AM. POL. SCI. REV. 515 (1991); Takahashi, *supra* note 166, at 1130.

sharing on the network. By magnifying cooperation and masking noncooperation, the creators of the file-swapping networks attempt to confirm the hunch that solidifies reciprocal propensities among file sharers. The user is inclined to believe that most network members will share, he logs into the network and sees that quite a lot of members are sharing content,[189] and he feels that his initial intuition (and his behavior) was validated.[190]

Third, it is presumed that increased cooperation engenders increased benefits for the cooperators. This presumption is particularly true in the case of file-swapping, where more cooperators means more new content and more sources for obtaining that content. Therefore, as a file-swapping network comes to be characterized by increased levels of file-sharing, participation in the network becomes increasingly attractive for file-sharers (as well as free riders).[191] Success of a file-swapping network breeds more success, as file-swappers obtain more valuable benefits from participation and hence feel more need to reciprocate. Thus, reciprocity cascades engender material rewards in addition to psychic benefits.

There is, of course, a corollary to the notion of reciprocity cascades. Just as cooperation can engender more cooperation, noncooperation can snowball. Particularly where noncooperative behavior becomes malicious, and harms cooperators, those types of antisocial behaviors can reverberate throughout a network, punishing the innocent, and causing the innocent to punish the equally innocent.[192]

---

[189]The Gnutella networks arguably do a better job of exploiting bounded rationality to create an appearance of widespread sharing than networks such as Napster and Morpheus. When a user types in a search request to Gnutella, the search will keep running indefinitely, and the list of matching files will continue to scroll down the screen. Napster and Morpheus, by contrast, default to showed no more than 100 or so matching files.

[190]*Cf*. Ostrom, *supra* note 165, at 12 ("[R]eciprocators are likely to be more optimistic about finding others following the same norm and disproportionately enter more voluntary social dilemmas than nonreciprocators. Given both propensities, the feedback from such voluntary activities will generate confirmatory evidence that they have adopted a norm which serves them well over the long run."). There is anecdotal evidence to suggest that some community members are likely to cooperate when they see that no one else is cooperating and when they know that their own cooperative acts will engender significant benefits for the group or its members. This would help explain the existence of heroically cooperative acts, such as gentiles' harboring of Jews in Nazi-occupied Europe during the Second World War. *See* Kristen R. Monroe, Michael C. Barton & Ute Klingemann, *Altruism and the Theory of Rational Action: Rescuers of Jews in Nazi Europe*, 101 ETHICS 103, 112-13, 119 (1990). Even if that anecdotal evidence is indicative of a general trend, it is not inconsistent with the theory of cooperation relied upon herein. The propensity to cooperate still may be a function of the number of cooperators perceived by an individual who may choose whether or not to cooperate, but the relationship between perceived cooperation and the propensity to cooperate would be parabolic rather than linear. Thus, the instinct to cooperate is initially high when no one else visibly cooperates, drops dramatically when a few members in a large group are seen to be cooperating, and rises quickly as perceived cooperation increases.

[191]Sugden, *supra* note 163, at 781–82.

[192]Bar-Tal et al., *supra* note 175, at 293 ("Recently, several investigators have extended the principle of reciprocity that is applied in helping situations to contexts in which harm-doing occurs. The results of these studies have suggested that, in general, individuals tend to reciprocate harm done to them.") (citation

Even outside the context of computer networks and reciprocity norms, scholars have found that when community members falsely perceive particular practices to be widespread, they are likely to conform their own behavior to the way they believe others are behaving. The leading work in this area is that of H. Wesley Perkins, who has documented the phenomenon of college students persistently overestimating their peers' levels of alcohol consumption and has argued persuasively that these persistent misperceptions fuel more alcohol consumption than there otherwise would be.[193] In the case of alcohol consumption, where the most inebriated tend to be the most visible in social settings such as campus parties, this visibility suggests that there is a norm of binge drinking, and tendencies to adhere to that perceived norm cause more students to become severely intoxicated.[194] By the same token, those students who are not intoxicated are less visible, and less likely to be the subject of after-the-fact conversations.[195] Perkins writes: "With the accumulation of conversation over time, certain college social events get the reputation (often encouraged by the sponsors) that 'everyone goes' and 'everyone gets smashed.' Thus a sensationalized view of the college community emerges. This powerful mythology has a life of its own and actually encourages more students to attend parties and get drunk than might otherwise do so."[196] Misperceptions regarding levels of alcohol consumption can therefore become self-fulfilling prophesies, and can snowball as misperception fuels visible intoxication, which fuels more intoxication.[197] Universities have paid attention to Perkins's scholarship, and when they have implemented educational programs that attempt to correct misperceptions of alcohol consumption, they have generally seen significant decreases in the prevalence and severity of intoxication episodes. Thus campus programs that credibly publicized the lower-than-expected incidence of binge drinking have lowered the prevalence of overconsumption dramatically.[198]

---

omitted). Bar-Tal et al. point to one constraint on anti-cooperation cascades in loose-knit environments. *Id*. at 297 ("Conversely, individuals tend to feel most resentment when they are harmed by parents or siblings and least resentment when they are harmed by strangers.").

[193]H. Wesley Perkins, *College Student Misperceptions of Alcohol and Other Drug Norms among Peers: Exploring Causes, Consequences, and Implications for Prevention Programs*, *in* DESIGNING ALCOHOL AND OTHER DRUG PREVENTION PROGRAMS IN HIGHER EDUCATION: BRINGING THEORY INTO PRACTICE 177, 183–94 (1997). Perkins's data shows that while only 19% of students at a liberal arts college said that they viewed frequent intoxication as acceptable even if it interfered with other responsibilities, 63% perceived that view as the dominant one among their fellow students. *Id*. at 184.

[194]*Id*. at 190.

[195]*Id*. at 190–91.

[196]*Id*. at 191.

[197]*Id*. at 192.

[198]*See generally* MICHAEL P. HAINES, A SOCIAL NORMS APPROACH TO PREVENTING BINGE DRINKING AT COLLEGES AND UNIVERSITIES (1996); Perkins, *supra* note 193, at 194. A similar dynamic emerges when taxpayers are informed that, contrary to what they might believe, the overwhelming majority of taxpayers do not cheat on their taxes. Taxpayers in Minnesota who received such a letter paid their taxes at higher rates than did members of a control group. STEPHEN COLEMAN, MINNESOTA DEPARTMENT OF REVENUE,

3. Holdouts

What explains why not everyone who downloads becomes a file-sharer in light of the norm of reciprocity and charismatic code? There are several behavioral factors that might overcome the reciprocity norms outlined above. For some individuals, the increased cost of uploading or risk of adverse consequences resulting from uploading will dominate the reciprocity norms that would urge them to share. Some individuals might have less well-developed senses of reciprocity, for it is clear that individuals internalize and act upon even these widespread norms to varying degrees.[199] Other downloaders, despite the better efforts of the network creators, may not view uploading as "helping," and therefore will not conceptualize the acquisition of content as a favor that requires repayment.[200] Finally, some downloaders will conclude, based on the large number of other downloaders making their content available, that there is more than enough content to go around, even without their efforts. In social psychology, this is referred to as the "bystander effect," and its propensity to discourage altruism has been well documented, especially in those situations where the costs of helping are high.[201] Indeed, charitable organizations conducting fund raisers must constantly walk a fine line between extolling the virtues of achieving an ambitious goal and appearing not to need the contributions of the individual being solicited. Hence fund-raising letters contain schizophrenic language such as "Last year we raised a record $5 million for our school, but this year it's more important than ever that you join your fellow alumni in contributing to this worthy cause." Such language both plays on the recipient's desire to participate in a successful cooperative endeavor and reminds him that bad things will happen if he withholds his contribution.[202] The same is true on the file-swapping networks: Some users are motivated to cooperate when exposed to the purported ubiquity of file-sharing, but others feel less guilty about free riding.

THE MINNESOTA INCOME TAX COMPLIANCE EXPERIMENT: STATE TAX RESULTS 18-19 & 25 (Apr. 1996), *available in* <http://www.taxes.state.mn.us/reports/complnce.pdf> (visited Aug. 26, 2002).

[199]Piliavin & Charng, *supra* note 150, at 32.

[200]Greenberg & Shapiro, *supra* note 175, at 291 ("It must be pointed out, however, that reciprocation is neither the only mode nor necessarily the preferred mode for reducing indebtedness. The individual can reduce the magnitude of indebtedness by cognitively restructuring the situation. For example, he might devalue the help received and / or increase the magnitude of his costs and the donor's rewards for giving.").

[201]Howard & Crano, *supra* note 163, at 492, 502; Latane & Dabbs, *supra* note 177, at 185–88; Piliavin & Charng, *supra* note 150, at 35.

[202]Curiously, National Public Radio typically reports that only 10% of its listening audience contributes during membership drives. At the same time, it supplies anecdotal evidence to suggest that "listeners like you" are contributing: hence, the audible ringing of telephones in the background during appeals for contributions, and the publication of donators' names and home towns over the airwaves.

4. Alternative Explanations

As this discussion of holdouts suggests, the user population of the file-swapping networks is hardly monolithic. Some file sharers will be motivated by strong reciprocity urges, but for others, the desire to reciprocate will be too weak to overcome the costs of sharing. That said, it is worth exploring some alternative explanations for file sharing on these networks to determine whether they are consistent with the observed cooperation.

One possible explanation for file sharing is that individuals engaged in that behavior are doing so because they derive satisfaction from thumbing their collective noses at the recording industry and other copyright holders. Along the same lines, these users might have some taste for rebellion against the law, and gain utility from flouting it. According to this reasoning, file-sharing is a type of civil disobedience directed against those entities that improperly use the copyright laws to siphon off the revenue that rightly belongs to artists.

While this type of sentiment may have helped motivate the creators of these file-swapping networks to release their software to the public, it is unlikely that most of the file-sharers on the network share their files because of such feelings. After all, my data suggests that the vast majority of the file sharers on the MusicCity network engaged in low-level sharing—making no more than a few CDs worth of music available to the network's users. If file sharers make their content available because of a desire to harm copyright holders' economic interests or because of a taste for breaking copyright laws, then one would expect them to share their entire collections of MP3 files, rather than just a small portion of their collections.[203]

Sharing a portion of one's MP3 collection is consistent with a reciprocity story[204] but inconsistent with an antipathy / civil disobedience story. Because the population of users who share their entire MP3 collection with others appears to be relatively small, and because acceptance of the MusicCity defaults can account for at least some portion of that subgroup's behavior, the hypothesis that users share their content to rebel against copyright holders or copyright laws provides an unconvincing explanation for the behavior of most file sharers.

---

[203] Data on the types of sound recordings downloaded by MusicCity's users suggests that there are not broad cultural differences in the levels of sharing prevalent on the network. Thus, for example, those who downloaded Spanish language sound recordings shared their files at almost precisely the same rates and same levels as those who downloaded English language sound recordings. These results suggest that file-sharing is not be driven by any peculiar attributes of Anglo-American culture. That said, some caution is in order in interpreting this data in light of the small sample size (39 downloads of Spanish language music), and the increasing, albeit still limited, popularity of Spanish language music among those who speak only English.

[204] *See supra* text accompanying note 179.

A related alternative explanation views uploading copyrighted content as an expressive act. Under this theory, explaining why anonymous individuals make their content available to other anonymous individuals on the network is no more difficult than explaining why hundreds of thousands of people have created personalized web pages that can be viewed by other web surfers or why tens of thousands of teenagers feel the need to blast their favorite music from the speakers of their automobiles or dorm rooms. Certainly, people will engage in those types of expressive activity even in the absence of economic incentives to do so.

While this expressive theory explanation probably explains the conduct of a few file sharers, there are several reasons why it provides a relatively unsatisfying explanation for why the vast majority of file sharers do what they do. First, file-swappers are quite capable of discerning which sound recordings are widely available on the networks and which are in short supply. If the expressive explanation accounted for most of their cooperation, then one would expect file sharers to fill their shared directories with music by more obscure artists whose works are difficult to obtain on the networks. As it happens, users do precisely the opposite. A common complaint among users of the networks, music critics, and the networks' creators is that popular, mainstream music is vastly overrepresented on the networks and more cutting edge music is too hard to find.[205] A review of users' shared directories confirms this, revealing that the overwhelming majority of listeners are content to make available yet another copy of a widely available Jennifer Lopez or Britney Spears song, rather than files by artists who have small but deeply dedicated followings. If the expressive theory really explains why people share, then one would expect to find a very different mix of files available for downloading.

Second, unlike most instances of expressive activity, the type of expression that occurs on the file-swapping networks is completely anonymous. So while individuals' web pages almost always contain an email address that allows a user browsing the Net to contact the publisher, the expressive activity that occurs on MusicCity or Gnutella is not conducive to such contact or association between the publisher and the matter published.[206]

Third, there is a cross-cutting motivation that may dampen the impulse to reciprocate. By making a particular artist's content available for downloading, a user who enjoys that artist's work is both disseminating the artist's work and potentially depriving that artist of revenue. A network user who adores a particular artist may therefore view

---

[205] *Cf.* Eric Boehlert, *Napster Sound Bite: Feelin' Groovy*, June 19, 2000, available in <http://www.salon.com/business.feature/2000/06/19/napsterlog/print.html> (visited Dec. 20, 2001).

[206] MusicCity, KaZaA, and the latest Limewire application all permit users to chat with other users, so some contact might occur with "publishers." Notably, significant numbers of network users appear to disable the chat function, precluding other users from contacting them. During my study of MusicCity, which entailed tens of hours spent online, only one other user attempted to chat with me.

placing that artist's work in his shared directory as an imperfect avenue for "spreading the gospel" about his favorite musician.

IV. Understanding and Shaping the File-Swapping Movement

Having introduced a theoretical framework and discussed the ways in which the file-swapping movement and file-sharing sentiment emerged, it is worth exploring some practical implications.

This Part begins by analyzing the aftermath of the Ninth Circuit's *Napster* decision. Although the *Napster* decision was successful in purely legal terms—it established clear rules and largely resolved the dispute among the parties—it was unsuccessful in two respects: It evidently failed to rally the public around the cause of combating copyright infringement on the Internet; and it ultimately shifted Napster users to other file-swapping networks without making them second-guess the morality of their actions. The Part then explores alternative strategies for addressing the societal and economic changes that Napster and its successors have introduced.

A. Napster *and the Failure of Law as an Expressivist Tool*

When, on February 12, 2001, the Ninth Circuit handed down the *Napster* decision, the court had a significant opportunity to persuade the public about the immorality of file-swapping. The decision had been eagerly anticipated for months, received enormous media attention, and its consequences would be felt immediately. Although the Ninth Circuit decisively rejected the legal arguments put forward by the file-swapping camp, the opinion evidently did little to stem the widespread participation in the networks. To the contrary, the haphazard way in which the decision dealt with injunctive remedies may well have done more good than harm to the networks collectively. A year and a half after the court's ruling, file-swapping is as widespread and prominent as it ever was. While it remains possible that the court's ruling may alter social norms in the long run, the early evidence should encourage boosters of file swapping.[207] What accounts for the apparent failure of the *Napster* decision to alter users' behavior?

1. The Importance of the Injunction

While the *Napster* court devoted barely two pages of its opinion to questions involving the scope of the injunction, it was this aspect of the opinion, rather than its

[207] *See supra* text accompanying note 132.

primary holding, that was most important in setting the tone for the events that followed.[208]

After ruling that Napster had been guilty of contributory copyright infringement and that Napster's users were themselves engaged in copyright infringement, the Ninth Circuit elected to exercise restraint at the remedial stage. The court first faulted the district court for allocating the burdens of ensuring copyright compliance improperly.[209] The court then remanded to the district court for a reassessment of the proper remedies.[210] The decision to remand effectively stayed injunctive relief until the district court could rule. Three weeks passed before the district court finally ruled regarding the scope of the injunction. Under the revised injunction, record labels would be held responsible for informing Napster of the artists and song titles to which they held copyrights. Upon receiving notice of a particular copyrighted file, Napster would be given three business days to remove the file and all identical files from its directory.[211]

As a result of this delay in the enforcement of the Napster injunction, several weeks passed before users observed a tangible difference in the quantity of copyrighted files available on the system. As one might imagine, the publicity generated by the Ninth Circuit's ruling brought millions of users to Napster's web site. Some were old-timers seeking a last opportunity to stock up on files; others were newcomers who wanted to see first hand the application that had generated so much controversy.

2. The Porous Filter

Millions of users logged into the Napster network and, for several weeks, saw that virtually nothing had changed. The courts had declared file-swapping illegal, yet file-swapping proceeded at a record pace. Recall that part of what made Napster such a seductive network is that it advertised and magnified noncompliance with copyright laws. On Napster, users learned easily what content individual users have and what they are downloading. Napster users logged onto the system in the wake on the Ninth Circuit's ruling and witnessed massive noncompliance with the spirit of the court's order. Indeed, even the filtering system that Napster installed pursuant to the court's order was quickly thwarted by not-so-clever coding systems (i.e., the Beatles became the "eatlesBe,"

---

[208] *Napster*, 239 F.3d at 1027–28.

[209] *Id*.

[210] As per usual Ninth Circuit practice, the court's mandate was withheld pending an application for rehearing en banc. In extraordinary cases—such as *Napster*—the court has the option of having its mandate issue immediately. *See* FED. R. APP. PRO. 41(b); *see also* Circuit Advisory Committee Note to Ninth Circuit Rule 41-1 ("Only in exceptional circumstances will a panel order the mandate to issue immediately upon the filing of a disposition. Such circumstances include cases . . . where an emergency situation requires that the action of the Court become final and mandate issue at once.").

[211] A & M Records, Inc. v. Napster, Inc., No. C. 99-05183 MHP, 2001 U.S. Dist. LEXIS 2186, at *7 (N.D. Cal. Mar 5, 2001).

"zBeatles," the "Fab Four," "John, Paul, George, and Ringo," etc.).[212] Witnessing thousands of other users' attempts to circumvent the injunction only fortified Napster users' resolve. The obvious lack of compliance with the law and with the spirit of the court's injunction encouraged other users to ignore the law and disregard the injunction. Just as behavioral cascades can occur in the reciprocity context, flouting of the law can also be self-reinforcing.

3. The Clearinghouse for Napster Alternatives

In some sense, the continued circumvention of Napster's copyright filtering mechanisms were the least of the recording industry's worries. Immediately after the *Napster* decision, Napster users thronged to the on-line Napster discussion fora, where they discussed not only various methods of getting around Napster's screening software, but also alternative file-swapping applications they would use in the event of Napster's ultimate downfall.[213] Various options, such as BearShare or AudioGalaxy Satellite, were promoted feverishly, and users were directed to the many Napster alternative applications available on download.com. Napster's parting blow to the record industry was therefore a decisive one: Users who still adhered to the file-swapping norms espoused by Napster used Napster itself as a forum for promoting alternative file-swapping networks.

Copyright holders were at least partially to blame for this use of Napster post-injunction. The *Napster* plaintiffs did not seek an injunction covering chat rooms or message boards on Napster,[214] presumably based on concerns that such an injunction might not withstand First Amendment scrutiny.[215] Because the injunction never applied

---

[212]Graziano & Rainie, *supra* note 17, at 3; P.J. Huffstutter, *Users Outwit Napster's Effort to Block Copyrighted Songs*, L.A. TIMES, Mar. 6, 2001 ("Fans are also flocking to 'translator' Web sites, where they can type in the name of an artist or a song title and learn what permutations are being used on Napster.").

[213]Richard J. Gilbert & Michael L. Katz, *When Good Value Chains Go Bad: The Economics of Indirect Liability for Copyright Infringement*, 52 HASTINGS L.J. 961, 979 (2001).

[214]*Napster*, 114 F. Supp.2d at 917.

[215]Had Napster been forced to take its web site offline temporarily pursuant to the court's injunction, it likely would have censored any discussion in its forums of Napster alternatives upon the service's re-launch. After all, the discussion of Napster alternatives that occurred in those forums spurred many of Napster's users to switch to other services, so it was hardly in Napster's commercial interest to permit such discussions in its own forums.

Whether a court could have directed Napster to shut down its forums pursuant to a preliminary injunction presents difficult constitutional questions. Such injunctive relief would necessarily constitute state action implicating the First Amendment. The propriety of restricting communications in those forums, however, would largely depend on the means by which a court would analyze the communications and relief at issue. The mere posting of the Internet addresses associated with alternative file-swapping sites is arguably non-speech that can be regulated without implicating the First Amendment. *Compare Junger v. Daley*, 209 F.3d 481 (6th Cir. 2000) (holding that posting software source code on the Internet is protected speech); *with PGMedia, Inc. v. Network Solutions, Inc.,* 51 F. Supp.2d 389, 407 (S.D.N.Y. 1999) (holding that an Internet domain name is "not speech" and therefore a government restriction on the use of Internet domain names is not a prior restraint); *Universal City Studios, Inc. v. Reimerdes*, 111 F.Supp.2d 294, 329 (S.D.N.Y. 2000) (holding that computer software code posted on an Internet site is not protected expression

to these fora, the recording industry could do nothing while they became communications hubs for those seeking to undermine the spirit of the court's ruling.

4. The Youth Vanguard

It is likely that the high visibility of successful screening circumvention on Napster made a particularly profound impression on younger Napster users. These are the users who were most committed to the morality of unauthorized downloading and most likely to engage in such behavior prior to the issuance of the injunction.[216] At the time of the Ninth Circuit's injunction, the file-swapping communities were particularly attractive to young computer users. Teenagers like Shawn Fanning and Gnutella creator Justin Frankel became role models for younger peers.[217]

For younger Internet users, the rebelliousness embodied in the various efforts to circumvent the Napster injunction no doubt proved quite attractive.[218] Noncompliance with the law became glamorous, and circumventing the law became a kind of game. Whatever political capital the Ninth Circuit and the agents of copyright enforcement had with the adult public, these institutions would receive little deference from younger users

---

and may be enjoined); *and* Orin S. Kerr, *Are We Overprotecting Code? Thoughts on First-Generation Internet Law*, 57 WASH. & LEE L. REV. 1287, 1290-93 (2000) (criticizing *Junger*, and arguing that source code generally is not protected speech); *see generally Ohralik v. Ohio State Bar Ass'n*, 436 U.S. 447, 456 (1978) ("Numerous examples could be cited of communications that are regulated without offending the First Amendment, such as the exchange of information about securities, corporate proxy statements, the exchange of price and production information among competitors, and employers' threats of retaliation for the labor activities of its employees. Each of these examples illustrates that the State does not lose its power to regulate commercial activity deemed harmful to the public whenever speech is a component of that activity.") (citations omitted). Alternatively, a court might hold that because a restriction on speech is necessary to avoid the thwarting of the court's order regarding remedies, such a restriction withstands First Amendment scrutiny. *Cf. Rhinehart v. Seattle Times*, 467 U.S. 20 (1984) (holding that the First Amendment does not bar courts from issuing protective orders to prevent others from publishing information obtained through pre-trial discovery).

On the other hand, one can argue persuasively that the speech occurring in Napster's forums should be analyzed as commercial speech or even political speech. To the extent that users of other file-swapping networks were urging Napster users to join them, such speech might constitute commercial speech, albeit speech not motivated by a blatant profit motive. If so categorized, the arguably unlawful nature of the commercial transaction being proposed might grant the government significant leeway to restrict speech promoting it. *See generally Central Hudson Gas v. Public Serv. Comm'n*, 447 U.S. 557 (1980). Yet, at least some of the discussion that occurred in Napster's forum was classic political speech—such as speech by those seeking to organize Napster users to contact Congress to express their disapproval of the court's actions. If a court felt that such political speech was significant and that encouraging some speech was at least part of the purpose behind Napster's creation of the forum, it would be quite reluctant to restrict speech therein.

[216] *See supra* note 102.

[217] Frankel was nineteen when, in 1996, he began working on MP3 technologies. ALDERMAN, *supra* note 27, at 55.

[218] *See generally* Gary Schwartz & Don Merten, *The Language of Adolescence: An Anthropological Approach to Youth Culture*, 72 AM. J. SOCIOLOGY 453, 458 (1967) (discussing the prevalence of rebelliousness as an admired quality among youth).

who had cut their teeth in the era of free music.[219] Because the law and the federal judges who interpret it command less respect among teenagers than among the public at large, the Ninth Circuit could not tap into a base of good will among many Napster users. Those teenagers and college students who disregarded the Ninth Circuit's decision were valorized as courageous, not dismissed as scofflaws. Teenagers understandably had little fear of facing legal repercussions for their actions,[220] and all the social incentives pointed toward circumventing the newly announced law. Peer pressure and peer-to-peer were perfectly aligned.[221]

The teenagers who playfully flouted the Ninth Circuit's injunction in the first weeks after its ruling and ultimately moved on to other file-swapping sites when the injunction was tightened undoubtedly drew a number of conclusions from the experience. On the basis of the injunction-circumvention experience, many of these teenagers have been socialized to believe that the copyright laws and courts are largely ineffectual, and that noncompliance with the spirit of the law is socially acceptable. Through their exposure to a system in which the law says one thing but everybody does the opposite, they may well have developed attitudes toward intellectual property laws that will stay with them.[222]

---

[219]Ellickson, *supra* note 122, at 40.

[220]Teenagers are essentially judgment-proof, so the record labels would have little incentive to pursue them. Recently, the sound recording industry has begun pressuring Internet Service Providers to terminate the accounts of copyright infringing users. This type of threat—potentially depriving users of something they value—may be more effective. John Borland, *File-Trading Pressure Mounts on ISPs*, CNET NEWS, July 25, 2001, available in <http://news.cnet.com/news/0-1004-200-6674297.html?tag=tp_pr> (visited Aug. 1, 2001); Amy Harmon, *Internet Services Must Help Fight Online Movie Pirates, Studios Say*, N.Y. TIMES, July 30, 2001, at C4. They can also be deterred in other ways, for example, by getting them into trouble with their parents or schools (recall contributory infringement liability, *supra* note 20).

As for criminal sanctions, there were simply too many teenaged copyright infringers and too little public support for such prosecutions to make them a reality. In this vein, Tom Tyler has argued forcefully that the threat of sanctions is an ineffective deterrent against unlawful behavior in general, and that this is particularly true in the intellectual property context, where the chances of an individual infringer being punished are quite remote. Tom R. Tyler, *Compliance with Intellectual Property Laws: A Psychological Perspective*, 29 N.Y.U. J. INT'L L. & POL. 219, 223-24 (1996-97).

[221]*See also* Tyler, *supra* note 220, at 225 (arguing that peer disapproval is an important element in determining whether individuals comply with the law).

[222]*See* MICHAEL DELLI CARPINI, STABILITY AND CHANGE IN AMERICAN POLITICS 9 (1986). Social norms can migrate from the Internet to society-at-large. *See* Major, *supra* note 99, at 90. Ergo, it seems possible that file-swappers' disrespect for intellectual property laws in cyberspace will carry over toward their attitudes about intellectual property laws in general. This suggests, for example, that plaintiffs in patent infringement cases might confront less sympathetic jury pools in the coming years.

5. The Injunction in Retrospect

Today, it is fair to say that Napster was brought to its knees by the Ninth Circuit's injunction.[223] The movement that Napster spawned, however, is alive and well. The few weeks following the Ninth Circuit's ruling in the Napster litigation were a critical period. The decision itself galvanized file-swappers and, for a brief period, generated enormous free publicity for the file-swapping applications. The porous Napster injunction emboldened hackers and users alike, convincing them that while the courts could deal a setback to the file-swapping movement, the government could never eradicate it.

B. The Self-Help Strategy

The RIAA convinced the Ninth Circuit to set an important pro-copyright precedent in *A & M Records v. Napster*, just as they had succeeded in persuading Congress to enact aggressively pro-copyright laws such as the Digital Millennium Copyright Act.[224] While it seems likely that the recording industry may be able to continue this success against some of the hybrids that have emerged in the wake of Napster's downfall, the Gnutella network presents the labels with a serious conundrum, whereby they may well have to pursue legal actions against individual music listeners or politically powerful Internet Service Providers if they are to clamp down on illicit file-swapping effectively. The future for the recording industry portends significant legal costs as well as bruising public relations battles, as it confronts an environment in which a significant percentage of the public is evidently skeptical of the need for copyright protection of MP3s.

Given this rather unappealing scenario, it is somewhat surprising that the recording industry has only recently begun to pursue extra-legal strategies for dealing with the file-swapping networks. A few self-help strategies are discussed below.[225]

1. Uploading Inferior or Incomplete Copies

As discussed above, the greatest assets that the file-swapping networks possess are their ever-improving technologies and the widespread, accumulated trust among members within the network. The technology will only get better as time passes, but the trust is vulnerable. Had the RIAA devoted its resources to hiring saboteurs rather than

---

[223]Matt Richtel, *Turmoil at Napster Moves the Service Closer to the Day the Music Dies*, N.Y. TIMES, May 15, 2002, at C1.

[224]17 U.S.C. 512(c). For a discussion of Napster's status under the Digital Millennium Copyright Act, see John W. Belknap, *Recent Developments: Copyright Law and Napster*, 5 J. SMALL & EMERGING BUS. L. 183, 194-98 (2001).

[225]A brief discussion of encryption as a self-help strategy against file-swapping networks can be found in Gilbert & Katz, *supra* note 213, at 975, 980.

investigators and attorneys, it might have undermined confidence in file-swapping during the important time period when the technology was developing a critical mass of users. While it would have been easier to do so when the networks were in their embryonic stages, a committed group of a several dozen mischievous uploaders might still wreak havoc on the Gnutella or hybrid networks. After all, a tiny segment of the Gnutella community is responsible for creating and uploading the vast majority of the content appearing on the network, so a small group of hyperactive uploaders could accomplish a great deal.

Doug Lichtman and David Jacobson suggested in 2000 that the RIAA could launch an effective counterattack against file-swapping by creating a large number of MP3 files that are the same size and share the same titles as widely circulated copyrighted files that are swapped over the network.[226] This could be accomplished rather easily. The RIAA versions, however, would be flawed in one of several respects: They might contain annoying pops, screeches, skips, and buzzes throughout the record. Alternatively, the song might be interspersed with public service announcements about the importance of respecting copyright laws.

Two years after Lichtman and Jacobson proposed the idea, there is reason to believe that the RIAA is actually using such a strategy. Three of the major record labels in June of 2002 evidently began "deluging popular services like Morpheus, KaZaA and Grokster with thousands of decoy music files that look identical to a sought-after song but are filled with long minutes of silence—or 30-second loops of a song's chorus."[227] While some avid file-swappers posting in a Gnutella forum report not having come across any such files in the time since they were released, a large percentage expressed significant annoyance at having come across the files and began brainstorming for ways in which the recording industry's efforts might be thwarted.[228] This apparent RIAA strategy coincides with the introduction of controversial legislation in Congress that would authorize copyright holders to employ technology-based, anti-infringement measures against the file-swapping networks and their users.[229]

---

[226] *See generally* Doug Lichtman & David Jacobson, *Anonymity a Double-Edged Sword for Pirates On-Line*, CHI. TRIB., Apr. 13, 2000, at 25 (proposing that the RIAA flood the file-swapping networks with thousands of flawed sound recordings). The rock group Barenaked Ladies has adopted such a strategy, but did so openly, and on a very small scale. Bev Wake, *Canadian Band Gets Last Laugh in MP3 Fight*, OTTAWA CITIZEN, Sep. 22, 2000, at A8.

[227] Nick Wingfield, *Record Industry Plants Decoys to Foil Fans of Free Web Tunes*, WALL STREET J., July 11, 2002, at D1; Dawn C. Chmielewski, *Music Industry Swamps Swap Networks with Phony Files*, Jun. 27, 2002, available in <http://www.silliconvalley.com/mld/silliconvalley/3560365.htm> (visited Aug. 8, 2002).

[228] Gnutella News Forum, *Spoof Files on P2P Networks? Tell Us!*, July 1, 2002, available in <http://www.gnutellanews.com/article/5015> (visited Aug. 8, 2002).

[229] A Bill to Amend Title 17, United States Code, to Limit the Liability of Copyright Owners for Protecting Their Works on Peer-to-Peer Networks, H.R. 5211, 107th Cong. (2002); Teresa Wiltz, *Music Debate Heads to the Hill*, WASH. POST, Aug. 21, 2002, at A8.

Because most users who upload MP3 files to others have their defaults set to make those files they have just downloaded available for uploads by others, the faulty files have spread quickly beyond the RIAA's computers. The increased prevalence of these files on the network has increased the effective cost of obtaining "free music." The minority of users who share files indiscriminately might respond to the development by changing their default settings so that only those files they have listened to would be available for downloading, and if many users took this step the availability of files on the networks would decline noticeably. That said, revealing itself to be the creator of these files was a strategic blunder by the RIAA. By making no secret of its involvement, the RIAA ensured that the frustration of file-swappers would be directed at it alone. Had the RIAA put its plan into practice surreptitiously, it might have successfully pitted the file swappers against each other, since some ordinary users would falsely suspect each other of having intentionally spread the corrupted copies.[230] If users of the peer-to-peer networks began having adverse experiences with greater regularity and did not have a solitary, unsympathetic target for their anger, their could have been a cascade of animosity that reverberated through the network.[231]

Theories of reciprocity suggest that while increasing the cost of uploading will result in fewer downloads, framing file-swappers for the crime of passing along tainted files would cause far greater long-term damage to the networks. I have argued that file-sharing exists on these networks because some segment of the user population determines that making their files available to the entire user population is a good substitute for repaying those from whom they have downloaded files. But this presupposes that file-swappers actually feel indebted to those who have provided them with content. If covert actions by the RIAA caused file-swappers to feel angry with those who have provided them with content, the reciprocal chain motivating their cooperation might have broken.[232]

2. Mischievous Misidentification

The self-help strategies need not be limited to providing users with inferior copies of content they actually desire. An even more mischievous strategy would misidentify certain relatively undesirable songs as popular songs. For example, by labeling various polka melodies as Britney Spears hits and distributing Mongolian throat singing MP3s as popular Celine Dion vocals, a few dozen mischievous uploaders could quickly undermine the trust that has characterized the file-swapping networks. Once again, these uploaders

[230]For this reason the RIAA would have an incentive to avoid publicizing its efforts on this front.

[231]*See supra* note 192 and accompanying text.

[232]Indeed, if reciprocity runs in both directions, then they may decide to retaliate against the uploader by intentionally making the flawed file available to other downloaders. In that sense, a norm of cooperation might degenerate into a norm of feuding and revenge.

would only need to distribute the misidentified copies on the Internet every so often and could count on unsuspecting users to spread those copies further.

3. Potential Drawbacks

The RIAA might well be concerned about "sinking to Gnutella's level" by attempting a self-help approach. Yet, it is not at all clear that this is a well-founded concern. The RIAA's actions in creating spoof files were widely reported, but hardly editorialized. Newspaper coverage has been generally neutral,[233] and while file-swappers themselves have been angered by the moves, there is no evidence that music listeners writ large have changed their views about the record labels or copyright laws as a result of these efforts. Those Gnutella users who have complained about the flawed MP3 files will likely find an unsympathetic audience outside the network, since they clearly assumed the risk of imperfection when they tried to obtain copyrighted materials for free.

A more sensible cause for concern among recording industry executives would be that the file-swapping networks would be able to combat misidentification or flawed file uploads through various technological innovations. Indeed, by introducing an eBay-like technology[234] that allows its users to rate a particular file's quality, the MusicCity network attempted to put such an infrastructure in place. On MusicCity, however, such a rating system was cumbersome and, as a result, virtually no one used it. What works on eBay when a auction participant must rate a handful of buyers or sellers will work much less well on a file-swapping network, where a typical user might engage in dozens of transactions during a single day. Less cumbersome ratings systems conceivably might be introduced in response to a serious mislabeling threat, but only after some time elapsed, and it may well be that the recording industry could develop technologies that would leapfrog whatever protections the file-swapping programmers invented.[235] The recording industry need not prevent all file-swapping; it only need make file-sharing more difficult and less attractive.[236]

C. Taxing Uploading

Charismatic code has helped trigger a cooperative cascade on peer-to-peer networks, but it has its limits. The cost of uploading is minimal for many users, so they can be convinced to behave altruistically. Of course, the cost of uploading need not be

---

[233] *See supra* sources cited in note 227.

[234] *See* Tamar Frankel, *Trusting and Non-Trusting on the Internet*, 81 B.U. L. REV. 457, 471 (2001); <http://pages.ebay.com/services/forum/feedback.html> (visited Dec. 22, 2001).

[235] LESSIG, *supra* note 99, at 129-30. Lessig has argued that trusted systems ultimately may become a technological fix for copyright infringement. Lessig, perhaps because he was writing in a pre-Gnutella era, uncharacteristically underestimates the possibilities for hackers to spread via the Net innovative tools for circumventing trusted systems. *Id*. at 130.

[236] *Id*. at 57.

minimal. Students receive free high-speed Internet access at many universities. Subscribers to DSL and cable modem services generally pay a flat monthly fee rather than paying for bandwidth based on usage. As an increasing number of file-swappers obtain these high-speed connections, they are able to upload files more rapidly and without slowing their downloading times appreciably. In Europe, by contrast, flat-rate schemes have been rejected as a pricing model among residential Internet subscribers.[237]

The copyright industries enjoy the benefit of a sympathetic Congress and sympathetic courts. But they lack the popular support to enforce criminal or significant civil penalties against file-swappers. The copyright industries' various attempts to enforce their copyrights via what Dan Kahan calls "hard shoves" have been largely unsuccessful because of the lack of public support for harsh sanctions against individual copyright infringers.[238] And because there is not a strong social norm against either downloading or uploading, shame sanctions that try to target file-swappers are unlikely to work: There would be little or no shame to accompany a public identification of an individual as a file swapper. In order to create a moral consensus that supports the copyright status of sound recordings, the copyright industries therefore may wish to explore less punitive strategies.

Perhaps the most effective "gentle nudge" that copyright holders could employ would be to convince Congress to enact a regulation on Internet Service Providers banning flat-fee pricing on uploads by residential customers.[239] Providers of residential Internet service based in the United States, whether commercial providers or universities, could be required by law to charge users incrementally for every upload based on the amount of data transferred.[240] This fee need not be high. A charge of a dollar per 50,000 kilobytes would easily do the trick, especially in deterring students.[241] Indeed, as Clay Skirky notes, "Napster not only takes advantage of low marginal costs, it couldn't work without them. Imagine how few people would use Napster if it cost them even a penny every time someone else copied a song from them."[242] Alternatively, the federal

[237]Litan, *supra* note 44, at 1076.

[238]Kahan describes a "hard shove" as a law that severely condemns behavior, and a "gentle nudge" as a law that encourages the desired behavior without forcing it down the throats of an unsympathetic public. Kahan, *supra* note 109, at 609.

[239]For a general discussion of the potential for regulating user conduct via Internet Service Providers, see Katyal, *supra* note 108, at 1095-1101.

[240]If the law also governed business customers, it would be more difficult to circumvent, but political opposition would likely be fierce. Companies that distribute software applications, upgrades, or web content over the Internet could see their costs of doing business skyrocket. Moreover, it would raise the cost of the copyright industries' efforts to sell their content to end users.

[241]Under such a charging scheme it would cost approximately ten cents to upload the average song in MP3 format and a little over a dollar to upload the average album (e.g., The Beatles' *Magical Mystery Tour*, which is 51,771 kilobytes).

[242]Shirkey, *supra* note 6, at 33.

government could tax such uploads directly, and collect through the Internet Service Providers.

The introduction of such a charge on residential uploading would constitute an enforceable effort to shut off the flow of free content that has made the file-swapping networks possible.[243] Copyright holders would be recognizing that they could neither stop Internet users from visiting file-swapping sites nor adequately deter them from infringing copyrights through those sites. Instead, this pricing regime would alter the incentives sufficiently so that those users living in the United States could no longer be convinced to upload files by charismatic code or the change agents who created it. As the continued prevalence of file transfer disruptions on the file-swapping networks suggests, even in the face of charismatic code's attempts to instill a cooperative norm of reciprocity, there are limits to the kinds of sacrifices that users will make for the benefit of anonymous fellow users.[244] If the pricing scheme governing uploads were altered, sharing content would no longer be an almost costless virtue for users on the file-swapping network. On the file-swapping networks, such a regulation would expose the limits of peoples' willingness to be kind to strangers.

An incremental charging scheme will be overinclusive. Professors who wish to share their own writings with others would face increased costs, as would rappers trying to build their audiences by giving away content and family members sending digital photographs over the Internet. In that sense, the Internet would look less like a free network for exchanging information and more like a parcel post system, where the cost of transmitting material depends on the amount of material sent. Such an alteration of the nature of the Net could eviscerate much of what makes it such an attractive tool for democratic self-expression and decentralized debate, among other things.[245] Reasonable people may well conclude that the tradeoffs involved exceed any anti-infringement benefits.[246] That said, it is worth underscoring that peer-to-peer file sharers will be far more sensitive to price than their photograph swapping counterparts. People have demonstrated a willingness to pay incremental fees to share reprints with colleagues or

[243]My reciprocity analysis suggests that such a change in the pricing regime would increase the intensity of indebtedness feelings when an individual did successfully download a file from a domestic file-sharer. I suspect, however, that most people would find ways other than making their own files available to alleviate their guilt after such a transaction. Perhaps an instant messaging thank-you note would do the trick. Alternatively, it might make the cost of sharing so high and so obvious that downloaders would be deterred from acquiring content from uploaders in the first place. *Cf*. Shapiro, *supra* note 162, at 262 (noting that people are particularly reluctant to seek help from strangers, but not from friends, when the costs of helping are high).

[244]*See supra* text accompanying notes 92-95.

[245]Lawrence Lessig, *The Death of Cyberspace*, 57 WASH. & LEE L. REV. 337, 341-42 (2000).

[246]Alternatively, policy makers might craft a better tailored scheme that would make refunds available to those individuals who could prove to a non-governmental third party payer that they had uploaded public domain materials or had a license to share their content. Consumers could then permit these third parties to audit their Internet transactions to ensure that their uploads were indeed authorized as a condition for participation in the refund regime.

photographs with loved ones, but a peer-to-peer network that charges users for the "privilege" of sharing their copyrighted content with anonymous strangers is unlikely to succeed. Thus, in this instance where legitimate uses of a network are far less sensitive to price than illegitimate uses, a somewhat overinclusive marginal pricing mechanism may well be net socially beneficial.

D. The Power of Information and Un-charismatic Code

Perhaps the copyright industries will conclude that the threat to their revenues does not justify arguably extreme measures such as self-help or incremental taxes on uploading. If copyright holders still wish to combat copyright infringement, but wish to do so via less controversial means, they might mount a new sort of public relations campaign. So far, the copyright industries' propaganda efforts have been largely limited to educating the public—and students in particular—about the importance of respecting intellectual property.[247] By and large, these efforts have failed to sway popular sentiment. Users have continued to engage in file-swapping and file-sharing despite these campaigns and despite *Napster*'s holding that such activities amount to copyright infringement. At the present time, it appears that it will be quite difficult for the copyright industries to alter the perception that participation in these networks is morally acceptable.

The copyright industries might be able to weaken file-sharing through a less ambitious education campaign, however. The charismatic code hypothesis suggests that if cooperative behavior is magnified and uncooperative behavior is masked, then members of a community are more likely to cooperate. If the copyright industries could somehow magnify noncooperative behavior and mask cooperative behavior, they should be able to undermine cooperation and perhaps even trigger a cascade of noncooperative behavior. How might these goals be accomplished?

One strategy would be for the copyright industry to publicize statistics that reflect actual rates of sharing on the file-swapping networks. For example, the Adar and Huberman study's finding that two-thirds of all Gnutella users share no files presents a damaging counterpoint to the impression of widespread file-sharing that is presented by Gnutella's charismatic code. Particularly if follow-up work reveals that Gnutella's rates of file sharing have not increased significantly in the time since Adar and Huberman collected their data, the copyright industries could devote resources to convincing Gnutella users that there is a norm of free-riding on Gnutella. If Gnutella's users believe this data—and that's a big "if"—then that statistic could make file sharing scarcer still. Of course, if the MusicCity network, on which my data suggests sharing is more common

[247] *See* <http://www.riaa.org/Protect-Online-3.cfm> (visited Dec. 21, 2001) (discussing the RIAA Soundbyting education campaign).

than free riding, is typical of the hybrids, publicizing such data might not have a detrimental effect on file-sharing rates.

A significant problem with such a simple education program is that its message is unlikely to be internalized among the members of the target audience. File-swappers may view any claims made by the copyright industries or their surrogates as inherently suspect in light of those industries' motives for causing people to believe that there is a norm of free-riding.[248] Moreover, even if people hear the message that free riding is the norm on Gnutella and believe it at some level, if that message is inconsistent with the observed distortion created by the charismatic code, then the statistic may seem less "real" than the distortion.[249]

An alternative "education" strategy might confront charismatic code on its own terms. Given the open-source nature of the Gnutella applications for file-swapping, the record labels are free to create "patches" or updates to existing versions of Gnutella. The recording industry might find it worthwhile to develop and distribute software patches that expose users to the many free-riders on Gnutella and magnify the actions of those free riders. For example, the program might identify free-riders and those sharing very few files prominently in responding to search queries. Alternatively, the patch might prominently gather and display real time updates concerning the number of free riders on the network and the median number of files being shared. In order to convince file-swappers to download these patches, the creators of these patches would need to create desirable improvements that enhanced the experience of using these applications, and bundle these improvements with the un-charismatic code elements. Provided such patches were widely disseminated, the recording industry might effectively combat the distortion created by charismatic code. By providing file-swappers with a more realistic assessment of their peers, the recording industry might well prompt them to imitate the free-riding behavior that is still somewhat common on these networks.

E. Strengthening the File-Swapping Movement

The foregoing discussion presumes that the reader's orientation is toward controlling copyright infringement in light of litigation's apparent failure to do so. But one can use insights about charismatic code and reciprocity to buttress the file-swapping networks as well. Indeed, while the *Napster* court almost certainly reached the proper

[248] *Cf.* Perkins, *supra* note 193, at 198 ("If they are highly committed to their own misperceptions, some students will be skeptical of results from campuswide polls about substance use norms. This may be true of both problem users and other students, who will explain discrepancies as the result of an odd sample, poor questions, poor participation, and so forth.").

[249] *Cf. id*. at 181 ("If people perceive situations as real, those situations are real in their consequences. Subjective perceptions, be they accurate or inaccurate, must be taken as important in their own right since people act on their perceptions in addition to acting within a real world.") (citation omitted).

result under existing copyright laws, the wisdom of those laws is open to serious question. Those who see file-swapping as a laudable effort to undermine a copyright regime that is inefficient, subject to interest group capture, and irreconcilably contrary to social norms regarding the appropriate use of media files ought to be thinking about ways in which the applications' code can better tap into norms of reciprocity.[250]

While the various file-swapping networks all employ some sort of charismatic code with varying degrees of success, each application could do a better job of encouraging uploading. For example, KaZaA allows a user to peek at the shared directory of another user who is downloading from him. By making such searches available, the software potentially permits a user to discover that some portion of those who are downloading from him are not sharing with others. By disabling this feature, KaZaA could render invisible those users who were sharing no files. Alternatively, the software might identify new users using a particular color code or symbol during their first week of participation in the network. By doing so, the network's creators would indicate to its membership that these newer users, who were relatively unlikely to have amassed large collections of MP3 files were not being uncooperative, but had merely not had a chance to engage in substantial sharing.

The networks might also begin showing users how their own sharing can reverberate through the system. For example, the software easily could be designed to track not only the number of uploads a particular user had provided, but the number of times the copies he passed along had themselves been copied. Such information would demonstrate to users that others were cooperating along with him by sharing the files they had acquired, and would also emphasize that a single upload was likely to engender benefits for many downstream users of the network.

V. Conclusion

The file-swapping networks present a fascinating case study for those who study networks of illegality and technologies for intellectual property infringement. A third group of scholars ought to be quite interested in studying file-swapping networks, however. These scholars, the social norms theorists, examine instances in which behavioral regularities arise among groups in response to social pressures and in which

[250]As someone who is for the time being agnostic about the desirability of strong versus weak copyright protections for sound recordings, I feel the most troubling aspect of the current regime is the stark conflict between copyright law and social norms regarding the scope of noncommercial use of sound recordings. I would be inclined to allow copyright holders and the governments sympathetic to them some time to mount a campaign to alter social norms governing the use of MP3 files. But if those efforts should fail because the message or messenger is unappealing, then I would favor amending the copyright laws to reflect popular attitudes.

those regularities have little or no resemblance to formal law. In this instance, tens of millions of file-swappers are behaving in ways that flout the nation's copyright laws.

To date, the norms theorists have said little about the file-swapping phenomenon. That silence stems in part from norms theorists' understandable caution in moving beyond the realm of close-knit groups. Yet, as social psychologists have demonstrated, there are persuasive explanations for why we might see cooperative behavior even in those environments where free riding is easy, repeat-player interactions are rare, and anonymity is widespread. The explanations are different, but they are no less compelling.

As one who is sympathetic to the social norms perspective, but cognizant of its present limitations, I have begun to explain how these behavioral regularities might arise in loose-knit groups. My article suggests that in certain environments people may internalize cooperative norms that are consistent with meta-norms of reciprocity. It further suggests that community members' perceptions of their peers can be self-fulfilling, and that the file-swapping networks' creators have successfully designed a world in which their members see each other through rose-colored glasses. Charismatic code, which magnifies cooperative behavior and masks uncooperative behavior, can be a powerful tool for instituting a cooperative arrangement and solidifying nascent cooperative norms. Although they are almost as loose-knit a community as one can imagine, the file-swappers trading files on Gnutella and the hybrids have come to acquire some of the cooperative attitudes and customs that one would ordinarily expect to find in much closer-knit groups. Indeed, for many file-swappers, reciprocal predilections easily trump any preference for behaving lawfully.

The strategies that copyright holders have employed so far have failed to reduce the prevalence of file swapping. Copyright holders, like legal scholars generally, have focused too much attention on what the law should be with respect to copyright infringement via the Internet and too little attention on understanding the powerful motivations that have caused tens of millions of Americans to ignore copyright laws. If norms, and not the law, are what motivates consumers to act, then a wiser strategy for the RIAA and their allies might be to think about ways in which they might weaken the cooperative norms that have arisen among users of these networks. Creators of copyrighted content should try to understand what makes users cooperate with anonymous strangers. Once they have figured that out, they might apply their creativity to the interesting problem of developing strategies for undermining the substantial but vulnerable trust that permeates these online communities. Because uploading, not downloading, is the weak link in these file transfers, strategies that weaken the impulse to upload are most likely to succeed.

Readers with comments should address them to:

Lior Strahilevitz
University of Chicago Law School
1111 East 60th Street
Chicago, IL 60637
lior@uchicago.edu

Chicago Working Papers in Law and Economics
(Second Series)

1. William M. Landes, Copyright Protection of Letters, Diaries and Other Unpublished Works: An Economic Approach (July 1991)
2. Richard A. Epstein, The Path to *The T. J. Hooper*: The Theory and History of Custom in the Law of Tort (August 1991)
3. Cass R. Sunstein, On Property and Constitutionalism (September 1991)
4. Richard A. Posner, Blackmail, Privacy, and Freedom of Contract (February 1992)
5. Randal C. Picker, Security Interests, Misbehavior, and Common Pools (February 1992)
6. Tomas J. Philipson & Richard A. Posner, Optimal Regulation of AIDS (April 1992)
7. Douglas G. Baird, Revisiting Auctions in Chapter 11 (April 1992)
8. William M. Landes, Sequential versus Unitary Trials: An Economic Analysis (July 1992)
9. William M. Landes & Richard A. Posner, The Influence of Economics on Law: A Quantitative Study (August 1992)
10. Alan O. Sykes, The Welfare Economics of Immigration Law: A Theoretical Survey With An Analysis of U.S. Policy (September 1992)
11. Douglas G. Baird, 1992 Katz Lecture: Reconstructing Contracts (November 1992)
12. Gary S. Becker, The Economic Way of Looking at Life (January 1993)
13. J. Mark Ramseyer, Credibly Committing to Efficiency Wages: Cotton Spinning Cartels in Imperial Japan (March 1993)
14. Cass R. Sunstein, Endogenous Preferences, Environmental Law (April 1993)
15. Richard A. Posner, What Do Judges and Justices Maximize? (The Same Thing Everyone Else Does) (April 1993)
16. Lucian Arye Bebchuk and Randal C. Picker, Bankruptcy Rules, Managerial Entrenchment, and Firm-Specific Human Capital (August 1993)
17. J. Mark Ramseyer, Explicit Reasons for Implicit Contracts: The Legal Logic to the Japanese Main Bank System (August 1993)
18. William M. Landes and Richard A. Posner, The Economics of Anticipatory Adjudication (September 1993)
19. Kenneth W. Dam, The Economic Underpinnings of Patent Law (September 1993)
20. Alan O. Sykes, An Introduction to Regression Analysis (October 1993)
21. Richard A. Epstein, The Ubiquity of the Benefit Principle (March 1994)
22. Randal C. Picker, An Introduction to Game Theory and the Law (June 1994)
23. William M. Landes, Counterclaims: An Economic Analysis (June 1994)
24. J. Mark Ramseyer, The Market for Children: Evidence from Early Modern Japan (August 1994)
25. Robert H. Gertner and Geoffrey P. Miller, Settlement Escrows (August 1994)
26. Kenneth W. Dam, Some Economic Considerations in the Intellectual Property Protection of Software (August 1994)
27. Cass R. Sunstein, Rules and Rulelessness, (October 1994)

28. David Friedman, More Justice for Less Money: A Step Beyond *Cimino* (December 1994)
29. Daniel Shaviro, Budget Deficits and the Intergenerational Distribution of Lifetime Consumption (January 1995)
30. Douglas G. Baird, The Law and Economics of Contract Damages (February 1995)
31. Daniel Kessler, Thomas Meites, and Geoffrey P. Miller, Explaining Deviations from the Fifty Percent Rule: A Multimodal Approach to the Selection of Cases for Litigation (March 1995)
32. Geoffrey P. Miller, Das Kapital: Solvency Regulation of the American Business Enterprise (April 1995)
33. Richard Craswell, Freedom of Contract (August 1995)
34. J. Mark Ramseyer, Public Choice (November 1995)
35. Kenneth W. Dam, Intellectual Property in an Age of Software and Biotechnology (November 1995)
36. Cass R. Sunstein, Social Norms and Social Roles (January 1996)
37. J. Mark Ramseyer and Eric B. Rasmusen, Judicial Independence in Civil Law Regimes: Econometrics from Japan (January 1996)
38. Richard A. Epstein, Transaction Costs and Property Rights: Or Do Good Fences Make Good Neighbors? (March 1996)
39. Cass R. Sunstein, The Cost-Benefit State (May 1996)
40. William M. Landes and Richard A. Posner, The Economics of Legal Disputes Over the Ownership of Works of Art and Other Collectibles (July 1996)
41. John R. Lott, Jr. and David B. Mustard, Crime, Deterrence, and Right-to-Carry Concealed Handguns (August 1996)
42. Cass R. Sunstein, Health-Health Tradeoffs (September 1996)
43. G. Baird, The Hidden Virtues of Chapter 11: An Overview of the Law and Economics of Financially Distressed Firms (March 1997)
44. Richard A. Posner, Community, Wealth, and Equality (March 1997)
45. William M. Landes, The Art of Law and Economics: An Autobiographical Essay (March 1997)
46. Cass R. Sunstein, Behavioral Analysis of Law (April 1997)
47. John R. Lott, Jr. and Kermit Daniel, Term Limits and Electoral Competitiveness: Evidence from California's State Legislative Races (May 1997)
48. Randal C. Picker, Simple Games in a Complex World: A Generative Approach to the Adoption of Norms (June 1997)
49. Richard A. Epstein, Contracts Small and Contracts Large: Contract Law through the Lens of Laissez-Faire (August 1997)
50. Cass R. Sunstein, Daniel Kahneman, and David Schkade, Assessing Punitive Damages (with Notes on Cognition and Valuation in Law) (December 1997)
51. William M. Landes, Lawrence Lessig, and Michael E. Solimine, Judicial Influence: A Citation Analysis of Federal Courts of Appeals Judges (January 1998)
52. John R. Lott, Jr., A Simple Explanation for Why Campaign Expenditures are Increasing: The Government is Getting Bigger (February 1998)

53. Richard A. Posner, Values and Consequences: An Introduction to Economic Analysis of Law (March 1998)
54. Denise DiPasquale and Edward L. Glaeser, Incentives and Social Capital: Are Homeowners Better Citizens? (April 1998)
55. Christine Jolls, Cass R. Sunstein, and Richard Thaler, A Behavioral Approach to Law and Economics (May 1998)
56. John R. Lott, Jr., Does a Helping Hand Put Others At Risk?: Affirmative Action, Police Departments, and Crime (May 1998)
57. Cass R. Sunstein and Edna Ullmann-Margalit, Second-Order Decisions (June 1998)
58. Jonathan M. Karpoff and John R. Lott, Jr., Punitive Damages: Their Determinants, Effects on Firm Value, and the Impact of Supreme Court and Congressional Attempts to Limit Awards (July 1998)
59. Kenneth W. Dam, Self-Help in the Digital Jungle (August 1998)
60. John R. Lott, Jr., How Dramatically Did Women's Suffrage Change the Size and Scope of Government? (September 1998)
61. Kevin A. Kordana and Eric A. Posner, A Positive Theory of Chapter 11 (October 1998)
62. David A. Weisbach, Line Drawing, Doctrine, and Efficiency in the Tax Law (November 1998)
63. Jack L. Goldsmith and Eric A. Posner, A Theory of Customary International Law (November 1998)
64. John R. Lott, Jr., Public Schooling, Indoctrination, and Totalitarianism (December 1998)
65. Cass R. Sunstein, Private Broadcasters and the Public Interest: Notes Toward A "Third Way" (January 1999)
66. Richard A. Posner, An Economic Approach to the Law of Evidence (February 1999)
67. Yannis Bakos, Erik Brynjolfsson, Douglas Lichtman, Shared Information Goods (February 1999)
68. Kenneth W. Dam, Intellectual Property and the Academic Enterprise (February 1999)
69. Gertrud M. Fremling and Richard A. Posner, Status Signaling and the Law, with Particular Application to Sexual Harassment (March 1999)
70. Cass R. Sunstein, Must Formalism Be Defended Empirically? (March 1999)
71. Jonathan M. Karpoff, John R. Lott, Jr., and Graeme Rankine, Environmental Violations, Legal Penalties, and Reputation Costs (March 1999)
72. Matthew D. Adler and Eric A. Posner, Rethinking Cost-Benefit Analysis (April 1999)
73. John R. Lott, Jr. and William M. Landes, Multiple Victim Public Shooting, Bombings, and Right-to-Carry Concealed Handgun Laws: Contrasting Private and Public Law Enforcement (April 1999)

74. Lisa Bernstein, The Questionable Empirical Basis of Article 2's Incorporation Strategy: A Preliminary Study (May 1999)
75. Richard A. Epstein, Deconstructing Privacy: and Putting It Back Together Again (May 1999)
76. William M. Landes, Winning the Art Lottery: The Economic Returns to the Ganz Collection (May 1999)
77. Cass R. Sunstein, David Schkade, and Daniel Kahneman, Do People Want Optimal Deterrence? (June 1999)
78. Tomas J. Philipson and Richard A. Posner, The Long-Run Growth in Obesity as a Function of Technological Change (June 1999)
79. David A. Weisbach, Ironing Out the Flat Tax (August 1999)
80. Eric A. Posner, A Theory of Contract Law under Conditions of Radical Judicial Error (August 1999)
81. David Schkade, Cass R. Sunstein, and Daniel Kahneman, Are Juries Less Erratic than Individuals? Deliberation, Polarization, and Punitive Damages (September 1999)
82. Cass R. Sunstein, Nondelegation Canons (September 1999)
83. Richard A. Posner, The Theory and Practice of Citations Analysis, with Special Reference to Law and Economics (September 1999)
84. Randal C. Picker, Regulating Network Industries: A Look at *Intel* (October 1999)
85. Cass R. Sunstein, Cognition and Cost-Benefit Analysis (October 1999)
86. Douglas G. Baird and Edward R. Morrison, Optimal Timing and Legal Decisionmaking: The Case of the Liquidation Decision in Bankruptcy (October 1999)
87. Gertrud M. Fremling and Richard A. Posner, Market Signaling of Personal Characteristics (November 1999)
88. Matthew D. Adler and Eric A. Posner, Implementing Cost-Benefit Analysis When Preferences Are Distorted (November 1999)
89. Richard A. Posner, Orwell versus Huxley: Economics, Technology, Privacy, and Satire (November 1999)
90. David A. Weisbach, Should the Tax Law Require Current Accrual of Interest on Derivative Financial Instruments? (December 1999)
91. Cass R. Sunstein, The Law of Group Polarization (December 1999)
92. Eric A. Posner, Agency Models in Law and Economics (January 2000)
93. Karen Eggleston, Eric A. Posner, and Richard Zeckhauser, Simplicity and Complexity in Contracts (January 2000)
94. Douglas G. Baird and Robert K. Rasmussen, Boyd's Legacy and Blackstone's Ghost (February 2000)
95. David Schkade, Cass R. Sunstein, Daniel Kahneman, Deliberating about Dollars: The Severity Shift (February 2000)
96. Richard A. Posner and Eric B. Rasmusen, Creating and Enforcing Norms, with Special Reference to Sanctions (March 2000)

97. Douglas Lichtman, Property Rights in Emerging Platform Technologies (April 2000)
98. Cass R. Sunstein and Edna Ullmann-Margalit, Solidarity in Consumption (May 2000)
99. David A. Weisbach, An Economic Analysis of Anti-Tax Avoidance Laws (May 2000, revised May 2002)
100. Cass R. Sunstein, Human Behavior and the Law of Work (June 2000)
101. William M. Landes and Richard A. Posner, Harmless Error (June 2000)
102. Robert H. Frank and Cass R. Sunstein, Cost-Benefit Analysis and Relative Position (August 2000)
103. Eric A. Posner, Law and the Emotions (September 2000)
104. Cass R. Sunstein, Cost-Benefit Default Principles (October 2000)
105. Jack Goldsmith and Alan Sykes, The Dormant Commerce Clause and the Internet (November 2000)
106. Richard A. Posner, Antitrust in the New Economy (November 2000)
107. Douglas Lichtman, Scott Baker, and Kate Kraus, Strategic Disclosure in the Patent System (November 2000)
108. Jack L. Goldsmith and Eric A. Posner, Moral and Legal Rhetoric in International Relations: A Rational Choice Perspective (November 2000)
109. William Meadow and Cass R. Sunstein, Statistics, Not Experts (December 2000)
110. Saul Levmore, Conjunction and Aggregation (December 2000)
111. Saul Levmore, Puzzling Stock Options and Compensation Norms (December 2000)
112. Richard A. Epstein and Alan O. Sykes, The Assault on Managed Care: Vicarious Liability, Class Actions and the Patient's Bill of Rights (December 2000)
113. William M. Landes, Copyright, Borrowed Images and Appropriation Art: An Economic Approach (December 2000)
114. Cass R. Sunstein, Switching the Default Rule (January 2001)
115. George G. Triantis, Financial Contract Design in the World of Venture Capital (January 2001)
116. Jack Goldsmith, Statutory Foreign Affairs Preemption (February 2001)
117. Richard Hynes and Eric A. Posner, The Law and Economics of Consumer Finance (February 2001)
118. Cass R. Sunstein, Academic Fads and Fashions (with Special Reference to Law) (March 2001)
119. Eric A. Posner, Controlling Agencies with Cost-Benefit Analysis: A Positive Political Theory Perspective (April 2001)
120. Douglas G. Baird, Does Bogart Still Get Scale? Rights of Publicity in the Digital Age (April 2001)
121. Douglas G. Baird and Robert K. Rasmussen, Control Rights, Priority Rights and the Conceptual Foundations of Corporate Reorganization (April 2001)
122. David A. Weisbach, Ten Truths about Tax Shelters (May 2001)

123. William M. Landes, What Has the Visual Arts Rights Act of 1990 Accomplished? (May 2001)
124. Cass R. Sunstein, Social and Economic Rights? Lessons from South Africa (May 2001)
125. Christopher Avery, Christine Jolls, Richard A. Posner, and Alvin E. Roth, The Market for Federal Judicial Law Clerks (June 2001)
126. Douglas G. Baird and Edward R. Morrison, Bankruptcy Decision Making (June 2001)
127. Cass R. Sunstein, Regulating Risks after ATA (June 2001)
128. Cass R. Sunstein, The Laws of Fear (June 2001)
129. Richard A. Epstein, In and Out of Public Solution: The Hidden Perils of Property Transfer (July 2001)
130. Randal C. Picker, Pursuing a Remedy in *Microsoft*: The Declining Need for Centralized Coordination in a Networked World (July 2001)
131. Cass R. Sunstein, Daniel Kahneman, David Schkade, and Ilana Ritov, Predictably Incoherent Judgments (July 2001)
132. Eric A. Posner, Courts Should Not Enforce Government Contracts (August 2001)
133. Lisa Bernstein, Private Commercial Law in the Cotton Industry: Creating Cooperation through Rules, Norms, and Institutions (August 2001)
134. Richard A. Epstein, The Allocation of the Commons:Parking and Stopping on the Commons (August 2001)
135. Cass R. Sunstein, The Arithmetic of Arsenic (September 2001)
136. Eric A. Posner, Richard Hynes, and Anup Malani, The Political Economy of Property Exemption Laws (September 2001)
137. Eric A. Posner and George G. Triantis, Covenants Not to Compete from an Incomplete Contracts Perspective (September 2001)
138. Cass R. Sunstein, Probability Neglect: Emptions, Worst Cases, and Law (November 2001)
139. Randall S. Kroszner and Philip E. Strahan, Throwing Good Money after Bad? Board Connections and Conflicts in Bank Lending (December 2001)
140. Alan O. Sykes, TRIPs, Pharmaceuticals, Developing Countries, and the Doha "Solution" (February 2002)
141. Edna Ullmann-Margalit and Cass R. Sunstein, Inequality and Indignation (February 2002)
142. Daniel N. Shaviro and David A. Weisbach, The Fifth Circuit Gets It Wrong in *Compaq v. Commissioner* (February 2002) (Published in *Tax Notes*, January 28, 2002)
143. Warren F. Schwartz and Alan O. Sykes, The Economic Structure of Renegotiation and Dispute Resolution in the WTO/GATT System (March 2002, forthcoming *Journal of Legal Studies* 2002)
144. Richard A. Epstein, HIPAA on Privacy: Its Unintended and Intended Consequences (March 2002, forthcoming *Cato Journal*, summer 2002)

145. David A. Weisbach, Thinking Ouside the Little Boxes (March 2002, forthcoming *Texas Law Review*)
146. Eric A. Posner, Economic Analysis of Contract Law after Three Decades: Success or Failure (March 2002)
147. Randal C. Picker, Copyright as Entry Policy: The Case of Digital Distribution (April 2002, forthcoming The Antitrust Bulletin)
148. David A. Weisbach, Taxes and Torts in the Redistribution of Income (April 2002, Coase Lecture February 2002)
149. Cass R. Sunstein, Beyond the Precautionary Principle (April 2002)
150. Robert W. Hahn and Cass R. Sunstein, A New Executive Order for Improving Federal Regulation? Deeper and Wider Cost-Benefit Analysis (April 2002)
151. Douglas Lichtman, Copyright as a Rule of Evidence (May 2002)
152. Richard A. Epstein, Steady the Course: Property Rights in Genetic Material (May 2002)
153. Jack Goldsmith and Cass R. Sunstein, Military Tribunals and Legal Culture: What a Difference Sixty Years Makes (June 2002)
154. William M. Landes and Richard A. Posner, Indefinitely Renewable Copyright (July 2002)
155. Anne Gron and Alan O. Sykes, Terrorism and Insurance Markets: A Role for the Government as Insurer? (July 2002)
156. Cass R. Sunstein and Adrian Vermeule, Interpretation and Institutions (July 2002)
157. Cass R. Sunstein, The Rights of Animals: A Very Short Primer (August 2002)
158. Cass R. Sunstein, Avoiding Absurdity? A New Canon in Regulatory Law (with Notes on Interpretive Theory) (August 2002)
159. Randal C. Picker, From Edison to the Broadcast Flag: Mechanisms of Consent and Refusal and the Propertization of Copyright (September 2002)
160. Eric A. Posner, A Theory of the Laws of War (September 2002)
161 Eric A. Posner, Probability Errors: Some Positive and Normative Implications for Tort and Contract Law (September 2002)
162. Lior Jacob Strahilevitz, Charismatic Code, Social Norms, and the Emergence of Cooperation on the File-Swapping Networks (September 2002)