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ARTICLE

CHARISMATIC CODE, SOCIAL NORMS, AND THE EMERGENCE OF COOPERATION ON THE FILE- SWAPPING NETWORKS

*Lior Jacob Strahilevitz**

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INTRODUCTION

THREE years ago, no one had heard of Napster or Gnutella. Over 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 approximately 70 million users,¹ the overwhelming majority of whom used the service to obtain unlicensed copies of copyrighted sound recordings by swapping music files with other users.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 2002, another application, Kazaa, had twice as many users as Napster had at its peak.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

¹ Matt Richtel, With Napster Down, Its Audience Fans Out, N.Y. Times, July 20, 2001, at A1; Kelly Zito, Online Music Firm Settles Lawsuit with Publishers, S.F. Chron., Sept. 25, 2001, at C1.

² A & M Records 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 Amy Harmon, Gazing into 2003: Economy Intrudes on Dreams of New Services—Music Attracting Consumers to the Online Jukebox, N.Y. Times, Dec. 30, 2002, at C3; see also Gwendolyn Mariano, Napster Rivals Winning Popularity Contest, ZDNet Austl., at <http://www.zdnet.com.au/printfriendly?AT=2000024981-20261702> (Nov. 6, 2001) (on file with the Virginia Law Review Association) (noting that the Kazaa/Grokster network was predicted to have passed Napster in terms of number of simultaneous users by November of 2001); Richard Menta, RIAA and MPAA Sue Morpheus, Grokster, and KaZaa, at http://www.mp3newswire.net/stories/2001/sue_morpheus.html (Oct. 3, 2001) (on file with the Virginia Law Review Association) (“According to WebNoize, 3.05 billion files were downloaded in August via the leading Napster clones. At its peak last February Napster delivered 2.79 billion files.”).

⁴ Doug Bedell, Pay to Play? No Way: New Legislation, Record Labels Are Going After File-Sharing Networks, San Diego Union Trib., July 29, 2002, at E3 (citing a recent study by the San Francisco research firm Odyssey).

tens of millions of individuals have chosen to use these networks to *download* free, high-quality sound recordings. The more puzzling question is why tens 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, a substantial number of users still elected 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 so many 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 will 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 networks 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 the anonymous individuals interact is prop-

⁵ Close-knit environments are those in which repeat players can identify each other. See, e.g., Robert C. Ellickson, *Order Without Law: How Neighbors Settle Disputes* 177-78 (1991) ("A group is *close-knit* when informal power is broadly distributed among group members and the information pertinent to informal control 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 to identify each other in repeat interactions. While the legal literature on close-knit groups is well-developed, the literature on loose-knit groups is not. See Lior Jacob Strahilevitz, *Social Norms from Close-Knit Groups to Loose-Knit Groups*, 70 U. Chi. L. Rev. 359 (2003).

erly structured. I will propose that, in this instance, the ingenious structures of the file-swapping networks solidify a norm of sharing, and that this norm of sharing is reinforced by users' notions of reciprocity. If my account is correct, it suggests that rather than moving sequentially against the various post-Napster networks, the copyright industries should have helped create a norm of free-riding on the peer-to-peer networks. In so doing, copyright holders might have curtailed the cooperative uploading on which these networks rely. I will consider this and other alternative strategies for preventing copyright infringement in the final pages of this Article.

Part I of this Article will provide a technical, historical, and legal introduction to the world of file-swapping on the Internet. This Part will provide context so that the uninitiated may better understand the nature of the social phenomenon being characterized in the remainder of the Article. It will then explore 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.

Parts II and III will 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 this norm can be explained plausibly through a standard economic analysis supplemented by a traditional account of norm creation.

Part III will discuss a second norm—one that cannot be explained through the existing tool set that social norms scholars have developed to analyze close-knit groups. This norm holds that those who download content from peer-to-peer networks should also make content available to other users. This norm's emergence and survival can be best explained by reference to the social psychological literature that examines why people generally cooperate with or behave altruistically toward strangers. The literature suggests that even in loose-knit environments, individuals can be persuaded to cooperate if they view others as cooperating. Using this framework, Part III will argue 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 will apply 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 will suggest that courts and copyright holders may have botched their initial efforts to respond to the challenge posed by the file-swapping networks. This Part will then examine alternative strategies that copyright holders could employ to weaken these networks—specifically, self-help and pricing mechanisms that raise the cost of user cooperation. 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 will 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 will argue that the record industry’s well-publicized strategy of uploading flawed MP3 files onto the peer-to-peer networks is much more likely to succeed if done surreptitiously, so that users begin to blame each other for the presence of these files, prompting them to eschew future cooperation. Insights about charismatic code therefore can be useful to those wishing to control copyright infringement, but they might also be useful to those who wish to strengthen the networks. To that end, Part IV will suggest ways in which the networks could boost the levels of cooperation that exist therein. A brief conclusion will follow.

I. AN INTRODUCTION TO NAPSTER, GNUTELLA, AND THE FILE-SWAPPING HYBRIDS

The term “killer app” is software industry lingo 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 killer apps such as Lo-

⁶ See SearchWebServices.com, Definitions, Killer App, at http://searchwebservices.techtartget.com/sDefinition/0,,sid26_gci212442,00.html (last updated Oct. 30, 2002) (on file with the Virginia Law Review Association).

tus 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 created in 1999 by Shawn Fanning, a Northeastern University undergraduate who wanted to create a network that would allow him to trade MP3 music files⁸ with his friends over the Internet.⁹ Napster integrated two basic functionalities: It compiled a searchable directory that allowed 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 straightforward: A user directed his Internet browser to visit the Napster website and downloaded 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 desired files.

⁷ See Clay Shirky, *Listening to Napster*, in *Peer-to-Peer: Harnessing the Benefits of a Disruptive Technology* 21, 26 (Andy Oram ed., 2001) ("Whatever one thinks of Napster's probable longevity, Napster is the killer app for this revolution."); Karl Taro Greenfeld, *Meet the Napster*, *Time*, Oct. 2, 2000, at 60, 62 ("[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 standard software format for 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 A. Riehl, *Peer-to-Peer Distribution Systems: Will Napster, Gnutella, and Freenet Create a Copyright Nirvana or Gehenna?*, 27 *Wm. Mitchell L. Rev.* 1761, 1766 n.28 (2001).

¹⁰ Expert Report of Professor Lawrence Lessig Pursuant to Federal Rule of Civil Procedure 26(a)(2)(B) at ¶48, *A & M Records v. Napster, Inc.*, No. C 99-05183 MHP, 2000 U.S. Dist. LEXIS 6243 (N.D. Cal. May 5, 2000).

¹¹ Riehl, *supra* note 9, at 1768.

These files were then transferred directly from the 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, she could locate files for downloading in a couple of ways. Napster provided a search function whereby a user could locate files in fellow users' directories after searching by artist name or song title. She could then see not only which users had the files on their directories, but also the speed of their respective Internet connections. 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 that showed files satisfying the first search criteria to see what other files that user had made available for downloading.¹³ 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 had extensive collections of Davis or Armstrong recordings. In that way, users could find high-quality music by artists who were previously unknown to them.

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 could begin to download the music and, at the same time, page 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.¹⁴ 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 Internet.¹⁵ By

¹² *Id.*

¹³ *A & M Records v. Napster, Inc.*, 114 F. Supp. 2d 896, 906-07 (N.D. Cal. 2000).

¹⁴ *Id.* at 907.

¹⁵ Amanda Lenhart & Susannah Fox, The Pew Internet & Am. Life Project, *Downloading Free Music: Internet Music Lovers Don't Think It's Stealing* 4, at

the summer of 2000, less than one year after the program's launch, Napster use was widespread. Of the thirty-seven percent of Internet users in the United States who had listened to or downloaded music off the Internet,¹⁶ fifty-four percent had used Napster to download music.¹⁷ A little more than half of Napster's 70 million users were located in the United States, but significant user populations also existed in Canada, Australia, Brazil, Germany, and the United Kingdom.¹⁸

Napster fueled an unprecedented surge in music downloading from the Internet. Between July of 2000 and February of 2001, the number of Americans who had downloaded music off the Internet increased by more than forty percent.¹⁹ The majority of Americans between the ages of twelve and twenty-nine with Internet access had downloaded music files via the Internet.²⁰ Napster users began amassing increasingly larger collections of MP3 files. In April of 2000, the average file-sharing Napster user shared approximately 100 MP3 files.²¹

3. *The Napster Litigation and Its Fallout*

On December 6, 1999, several record labels sued Napster in the United States District Court for the Northern District of California for contributory and vicarious²² copyright infringement.²³ The dis-

<http://www.pewinternet.org/reports/toc.asp?Report=23> (Sept. 28, 2000) (on file with the Virginia Law Review Association).

¹⁶ *Id.* at 7.

¹⁷ *Id.* at 11.

¹⁸ Jupiter Media Metrix Reports Multi-Country Napster Usage Statistics for February 2001, PR Newswire, Apr. 5, 2001, available at LEXIS, Wire Service Stories File.

¹⁹ Mike Graziano & Lee Rainie, The Pew Internet & Am. Life Project, *The Music Downloading Deluge: 37 Million American Adults and Youth Have Retrieved Music Files on the Internet 2*, at <http://www.pewinternet.org/reports/toc.asp?Report=33> (Apr. 24, 2001) (on file with the Virginia Law Review Association).

²⁰ *Id.*

²¹ *Id.* at 3.

²² 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 benefits from that infringer's unlawful activities. See Aric Jacover, Note, *I Want My MP3! Creating a Legal and Practical Scheme to Combat Copyright Infringement on Peer-to-Peer Internet Applications*, 90 Geo. L.J. 2207, 2221 (2002).

²³ *A & M Records v. Napster, Inc.*, No. C 99-05183 MHP, 2000 U.S. Dist. LEXIS 6243, at *1 (N.D. Cal. May 5, 2000).

strict 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.²⁴ On July 26, 2000, the district court essentially sided with the record labels on the merits, granting their motion for a preliminary injunction to prevent Napster from engaging in contributory and vicarious infringement of the recording industry's copyrights.²⁵ 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."²⁶ 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 owned copyrights.²⁷ Shortly before the injunction was to become effective, the United States Court of Appeals for the Ninth Circuit granted Napster's application for a stay pending appeal.²⁸ While the case was awaiting the Ninth Circuit's review, the free publicity that Napster garnered through coverage of the litigation helped Napster's user base grow dramatically.²⁹

On February 12, 2001, the Ninth Circuit affirmed the district court's determination that Napster had likely engaged in contributory and vicarious copyright infringement.³⁰ The court altered the district court's injunction somewhat, finding the injunctive order overbroad to the extent that it placed upon Napster the primary onus to ensure that its network was free of copyrighted content.³¹ 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."³²

²⁴ 17 U.S.C. § 512(a); *Napster*, 2000 U.S. Dist. LEXIS 6243, at *29-30.

²⁵ *A & M Records v. Napster, Inc.*, 114 F. Supp. 2d 896, 918-22, 927 & n.32 (N.D. Cal. 2000).

²⁶ *Id.* at 927.

²⁷ *Id.*

²⁸ See *id.* at 927 n.32.

²⁹ John Alderman, *Sonic Boom: Napster, MP3, and the New Pioneers of Music* 143 (2001).

³⁰ *A & M Records v. Napster, Inc.*, 239 F.3d 1004, 1020, 1024 (9th Cir. 2001).

³¹ *Id.* at 1027.

³² *Id.*

Three weeks later, the district court modified its injunction on remand.³³ The court required the plaintiffs to provide Napster with a list of songs and names of artists whose copyrighted content was being traded on Napster.³⁴ 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."³⁵ Under the court's order, Napster had three days to prevent a copyrighted file that the plaintiffs had identified from being swapped via the network.³⁶ In order to comply with the injunction, Napster installed "filtering" software on its servers to prevent certain copyrighted files from appearing when one user searched another user's directory.³⁷ Moreover, Napster's search function was rigged so that when a user typed in a search query such as "Rolling Stones," the network immediately returned the response "No files found." This injunction essentially killed Napster—by September of 2002, Napster was no longer operating, had laid off virtually all of its employees, and appeared headed for liquidation.³⁸

B. Gnutella

Approximately one year after Napster's creation, Gnutella, a new file-swapping program, was released over the Internet.³⁹ Presently, there are several different Gnutella applications, all of which use the same basic network and file-swapping technologies. The most popular Gnutella applications when this Article went to press were BearShare, Limewire, Qtraxmax, and XoloX.⁴⁰ Although their interfaces and features vary somewhat, all of these applica-

³³ A & M Records v. Napster, Inc., No. C 99-05183 MHP, 2001 U.S. Dist. LEXIS 2186 (N.D. Cal. Mar. 5, 2001).

³⁴ Id. at *3-4.

³⁵ Id. at *5.

³⁶ Id. at *6-7.

³⁷ See Ernest A. Jasmin, *Crossing Swords with Pirates: Despite a Crackdown, Pirating Music Is More Common than Ever*, News Trib. (Tacoma, Wash.), Oct. 6, 2002, at D1.

³⁸ Matt Richtel, *Napster Says it Is Likely to Be Liquidated*, N.Y. Times, Sept. 4, 2002, at C2.

³⁹ Gene Kan, *Gnutella*, in *Peer-to-Peer: Harnessing the Benefits of a Disruptive Technology*, supra note 7, at 94, 95; Riehl, supra note 9, at 1774.

⁴⁰ MP3 Search Tools, Download.com, at <http://download.com/3150-2166-0-1-4.html?> (last visited Feb. 13, 2003) (on file with the Virginia Law Review Association).

tions 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.⁴¹ Scanned photographs, text files, and motion pictures can be exchanged over the Gnutella network. Not surprisingly, the Gnutella network has become quite popular among users who want to exchange copies of movies and pornographic images.

A user searching for software files on Gnutella does so in a manner somewhat similar to searching on Napster.⁴² After logging in to the Gnutella network, his computer connects 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 title, 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 in turn query the computers to which they are connected, and so on.⁴³ Eventually, many of the computers connected to a particular network (a maximum of 10,000 machines)⁴⁴ will be asked whether they have files that match the search query, and will return any affirmative responses to the requesting computer.⁴⁵ 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.

⁴¹ For an excellent, detailed overview of Gnutella's history and an explanation of how Gnutella works, see Kan, *supra* note 39, at 94-122.

⁴² The text that follows is based on a description of BearShare, a popular application for searching the Gnutella network. The user experience varies slightly on other Gnutella applications.

⁴³ See Expert Report of Professor Lawrence Lessig Pursuant to Federal Rule of Civil Procedure 26(a)(2)(B) at ¶¶ 50-51, *A & M Records v. Napster, Inc.*, No. C 99-05183 MHP, 2000 U.S. Dist. LEXIS 6243 (N.D. Cal. May 5, 2000).

⁴⁴ See Kan, *supra* note 39, at 111; What Is Gnutella?, at http://www.gnutellanews.com/information/what_is_gnutella.shtml (last visited July 1, 2001) (on file with the Virginia Law Review Association).

⁴⁵ What Is Gnutella?, *supra* note 44.

Until somewhat recently, Gnutella did not permit a user to scan the directory of another user to see all the files he had made available. In place of that handy Napster function, however, Gnutella introduced a fascinating voyeurism tool entitled "Monitor." A Gnutella user can observe, at any given time, a scrolling list of queries that other users have recently entered into their Gnutella search engines. Such searches reveal the eclectic tastes of Gnutella's users⁴⁶ and often inspire users to duplicate a particular search.

Unlike Napster's software, the Gnutella network does not rely on a central server to store a directory of the files available on users' systems.⁴⁷ Rather, all the computers plugged into the network function as mini-servers. In an era when lawsuits and injunctions are the primary tools for preventing copyright infringement on the Internet, this decentralized structure makes it relatively difficult to police (and ultimately shut down) Gnutella.⁴⁸ 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

⁴⁶ For example, a random search I 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*," and "*Enemy at the Gates*"), computer software applications ("Easy CD Creator 5"), and pornography ("Kiddie mpg," "Girls Gone Wild," and "Barely Legal 6").

⁴⁷ Tim Wu, *Compliance & Code: Is Peer-to-Peer Really a Challenge to Law?*, 89 Va. L. Rev. (forthcoming June 2003) (manuscript at 21, on file with the Virginia Law Review Association).

⁴⁸ See Robert E. Litan, *Law and Policy in the Age of the Internet*, 50 Duke L.J. 1045, 1068-69 (2001).

here tomorrow. It's reliable, it's sharing terabytes of data, and it is absolutely unstoppable.⁴⁹

This rhetoric may be overblown and unsophisticated, but neither lawyers nor server failures have been able to bring down Gnutella since its birth.⁵⁰ 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 initially held their fire against Gnutella's developers and users.⁵¹ Not surprisingly, Gnutella's creators have exhibited a disdain for capitalism in general and intellectual property rights in particular.⁵²

⁴⁹ What Is Gnutella?, *supra* note 44.

⁵⁰ 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 Healey, *Gnutella Targeted for Piracy Control*, L.A. Times, Mar. 29, 2001, at C5 (discussing the legal difficulties faced by the RIAA if it wishes to shut down Gnutella).

⁵¹ John Borland, *RIAA: Gnutella not yet a Threat*, News.com, at <http://news.com.com/2102-1023-255005.html> (Mar. 29, 2001) (on file with the Virginia Law Review Association). In 2003, the music industry changed tactics. See Recording Indus. Assoc. of Am. v. Verizon Internet Servs., Civil Action 02-MS-0323 (JDB), 2003 U.S. Dist. LEXIS 681 (D.D.C. Jan. 21, 2003) (holding that Verizon must supply to the Recording Industry Association of America the identity of anonymous users of its Internet service who have allegedly violated the Digital Millennium Copyright Act of 1998); Alan Goldstein, *Tune-Swapping Issue Gets Personal*, Dallas Morning News, Jan. 29, 2003, at 1D (“A federal court ruling last week grants entertainment companies the right to unmask the identities of subscribers suspected of swapping unauthorized music over peer-to-peer file sharing services.”).

⁵² See Alderman, *supra* note 29, at 148–49.

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 seventeen percent increase in Gnutella usage on the day after the *Napster* decision was handed down.⁵³ That trend continued as Napster began making it more difficult for users to access copyrighted MP3 files.⁵⁴ 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.⁵⁵

C. *File-Swapping Hybrids*

In the past two years, 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,⁵⁶

⁵³ Victory or Defeat?, Salon.com, at http://archive.salon.com/tech/feature/2001/02/12/napster_reactions/print.html (Feb. 12, 2001) (on file with the Virginia Law Review Association) (quoting Kelly Truelove, CEO of Clip2); see also Janelle Brown, *The Music Revolution Will not Be Digitized*, Salon.com, at http://archive.salon.com/tech/feature/2001/06/01/digital_music/print.html (June 1, 2001) (on file with the Virginia Law Review Association) (discussing the spike in Gnutella usage after the *Napster* decision).

⁵⁴ See Richtel, *supra* note 1 ("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."); Ron Harris, *Napster: Company Is Not Dead*, at <http://garth.membrane.com/news/mp3news/mp3050301.html> (May 3, 2001) (on file with the Virginia Law Review Association); *Napster Use Slumps as Screening Technology Takes Hold*, at <http://garth.membrane.com/news/mp3news/mp3031601.html> (Mar. 16, 2001) (on file with the Virginia Law Review Association).

⁵⁵ See 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.

⁵⁶ In February of 2002, Morpheus switched over from the network that it shared with users of Kazaa and Grokster to the Gnutella network. Farhad Manjoo, *Sour*

are operated by companies based outside the United States.⁵⁷ The file-swapping hybrids generally “scale” better than Gnutella does, which means that when a user logs in to 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.⁵⁸ 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.⁵⁹

While the Gnutella network has gained significant traffic in the wake of Napster’s downfall, the file-swapping hybrids have been the primary beneficiaries.⁶⁰ During a single week in August of 2001, 2.8 million people downloaded the three most popular hybrid applications.⁶¹ Although it is difficult to gauge the precise number of users on these networks, the two most popular, Kazaa and MusicCity’s Morpheus, have been downloaded more than 300 million times between them, and the next four most popular, iMesh, Audiogalaxy Satellite, BearShare, and Limewire, account for an

Notes, Salon.com, at http://archive.salon.com/tech/feature/2002/07/30/file_trading/print.html (July 30, 2002) (on file with the Virginia Law Review Association).

⁵⁷ *Metro-Goldwyn-Mayer Studios v. Grokster, Ltd.*, No. CIV.A.01-08541, 2003 WL 186657, at *1 (C.D. Cal. Jan. 9, 2003) (noting that Kazaa’s parent company is organized under the laws of Vanuatu, with its principal place of business in Australia).

⁵⁸ See Michael Miller, *Discovering P2P* 165 (2001); Wu, *supra* note 47 (manuscript at 36). For further discussions of scalability, see also Steve McCannell, *The Second Coming of Gnutella*, at http://www.webreview.com/mmedia/2001/03_02_01.shtml (Mar. 2, 2001) (on file with the Virginia Law Review Association) (discussing Gnutella’s scalability problems); Erick Schonfeld, *Goodbye Napster, Hello Morpheus*, ZDNet, at <http://zdnet.com.com/2100-1107-861914.html> (Mar. 18, 2002) (on file with the Virginia Law Review Association) (discussing the scalability of hybrids).

⁵⁹ See Wu, *supra* note 47 (manuscript at 36).

⁶⁰ See Mark Lewis, *Does Morpheus’ Architecture Save MusicCity from Legal Liability?*, at <http://news.webnoize.com/item.rs?ID=13863> (Aug. 23, 2001) (on file with the Virginia Law Review Association) (noting that use of the combined Morpheus, Kazaa, and Grokster networks grew by eighty-nine percent in June, and that by August there were more than 700,000 users on the network simultaneously); Farhad Manjoo, *Gnutella Bandwidth Bandits*, Salon.com, at http://archive.salon.com/tech/feature/2002/08/08/gnutella_developers/ (Aug. 8, 2002) (on file with the Virginia Law Review Association).

⁶¹ These statistics are updated weekly at Download.com. See <http://download.com> (last visited Apr. 2, 2003) (on file with the Virginia Law Review Association).

additional 111 million downloads.⁶² 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.⁶³

The music and motion picture industries have recently begun to pursue legal actions against the creators of these hybrid sites.⁶⁴ Some of these actions have been successful, such as the Recording Industry Association of America's ("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.⁶⁵ Despite these court victories, Congressman Henry Waxman, a recording industry stalwart, recently offered the following assessment of the hybrids and Gnutella: "[K]illing Napster created problems of even greater magnitude."⁶⁶

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

In order to describe user conduct on the peer-to-peer networks precisely, it is necessary to deviate somewhat from the vocabulary

⁶² According to Download.com, as of April 2, 2003, Kazaa had been downloaded 209,618,921 times, Morpheus 110,323,729 times, iMesh 46,767,579 times, Audiogalaxy 31,362,750 times, BearShare 18,185,931 times, and LimeWire 15,273,726 times. MP3 Search Tools, Download.com, at <http://download.com.com/3150-2166-0-1-4.html?> (last visited Apr. 2, 2003) (on file with the Virginia Law Review Association). 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 conservative estimate extrapolating from this data suggests that at least 100 million computer users have experimented with file-swapping applications.

⁶³ Mark A. Lemley, *The Law and Economics of Internet Norms*, 73 Chi.-Kent L. Rev. 1257, 1281-84 (1998); Amitai Aviram, *Regulation by Networks* 9-16 (Sept. 10, 2002) (unpublished manuscript on file with the Virginia Law Review Association).

⁶⁴ See Jane Black, *Napster's Sons: Singing a Different Tune?*, Bus. Wk. Online, at http://www.businessweek.com/bwdaily/dnflash/feb2002/nf20020221_6377.htm (Feb. 21, 2002) (on file with the Virginia Law Review Association).

⁶⁵ See Eliot Van Buskirk, *File Sharing After Audiogalaxy*, MP3 Insider, at <http://electronics.cnet.com/electronics/0-3219397-8-20067407-1.html> (June 21, 2002) (on file with the Virginia Law Review Association).

⁶⁶ See John Snell, *What Napster has Spawned; Porn Pervasive on Successors; Also Viruses, Spyware*, Seattle Times, Feb. 24, 2003, at C3 (quoting Congressman Waxman).

of network users. Members of the networks themselves refer to participation in the networks as “file-sharing” or “file-swapping.” They use these two phrases 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 (that is, 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.⁶⁷

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.⁶⁸ 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.

⁶⁷ 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.

⁶⁸ 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 infringer’s actions is an element in vicarious copyright infringement. Finally, recall that the peer-to-peer networks compete with each other for “market share.” Individual network creators may have decided that instituting any impediments to downloading would have placed them at a competitive disadvantage vis-à-vis 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 Eytan Adar and Bernardo Huberman, looked at the prevalence of file-sharing on the Gnutella network during a single twenty-four-hour period in August of 2000.⁶⁹ According to that study, approximately sixty-six percent of those users who were logged in to the network shared no files, and seventy-three percent of users shared ten files or fewer.⁷⁰ The authors also concluded that bandwidth (the speed of an uploader's Internet connection) did not affect file-sharing significantly.⁷¹

In describing the implications of their data, Adar and Huberman predict 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

⁶⁹ Eytan Adar & Bernardo A. Huberman, *Free Riding on Gnutella*, 5 *First Monday* (Oct. 2000), at http://www.firstmonday.org/issues/issue5_10/adar/index.html (on file with the Virginia Law Review Association).

⁷⁰ *Id.*

⁷¹ *Id.* But see Posting of Chakotay, *Distributed File Sharing System Problematics*, to kuro5hin.org, at <http://www.kuro5hin.org/story/2000/10/23/3027/2141> (Oct. 23, 2000) (on file with the Virginia Law Review Association) (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," that is, download different identical files from several machines simultaneously to speed up the transfer time. See *infra* note 109 and accompanying text. The peer-to-peer applications thus encourage users to download portions of the same file from several other users at one 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 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. See *infra* text accompanying note 155.

"tragedy of the digital commons."⁷² 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."⁷³ 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; after all, uploaders can establish viable peer-to-peer connections with only so many downloaders at a time.

Adar and Huberman's pessimistic characterization of file-sharing on the Gnutella network mostly misses the mark. While they observe that only one-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.⁷⁴ 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."⁷⁵ 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 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.⁷⁶

Gnutella's vulnerability stems not from the absence of sharing, but from the relatively small number of users who create the new

⁷² Adar & Huberman, *supra* note 69.

⁷³ *Id.*

⁷⁴ The 33,335 hosts sampled by the Adar and Huberman study were sharing some 3,100,464 files. *Id.*

⁷⁵ Shirky, *supra* note 7, at 33.

⁷⁶ 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 of his at bats. In some other instances, thirty-three percent noncooperation would prove entirely unviable in maintaining a system. For example, if even one-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).

content.⁷⁷ 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 conversion 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 group of users releases popular new content on the network, it 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.⁷⁸ Free-riding appears to have been more prevalent on early Gnutella than on other file-swapping networks. The default user settings on Napster, as well as on hybrid programs and more recent Gnutella applications, were such that after a user downloaded a file, his copy of that file would be available for other users to download from him.⁷⁹ 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 each contained a default setting whereby uploading was enabled whenever the computer on which it was installed was activated.⁸⁰ 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 de-

⁷⁷ See Healey, *supra* note 50, at C5.

⁷⁸ See http://www.limewire.com/index.jsp/net_improvements (last visited Feb. 11, 2003) (on file with the Virginia Law Review Association) (noting that the defaults of the Gnutella prototype, version 0.56, did not cause downloaded files to be shared); Posting of Finney.org, Incentives for Sharing in P2P Networks, to geocrawler.com, at <http://www.geocrawler.com/archives/3/5025/2001/6/50/5957312> (June 13, 2001) (on file with the Virginia Law Review Association) (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); see also Janelle Brown, *The Gnutella Paradox*, Salon.com, at http://archive.salon.com/tech/feature/2000/09/29/gnutella_paradox/print.html (Sept. 29, 2000) (on file with the Virginia Law Review Association) (noting that in the year 2000 Gnutella developers were considering adjusting the default settings to increase sharing).

⁷⁹ See Kelly Truelove & Andrew Chasin, *Morpheus Out of the Underworld*, OpenP2P.com, at <http://www.openp2p.com/pub/a/p2p/2001/07/02/morpheus.html> (July 2, 2001) (on file with the Virginia Law Review Association).

⁸⁰ *Id.*

fault 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.⁸¹ As a result, some users abided by the default choice regardless of whether that choice was prosharing or antisharing.⁸² Early Gnutella applications, by contrast, sometimes required users to opt-in to file-sharing.⁸³ Thus, it is important to note that Adar and Huberman were studying a very early version of the Gnutella network, one 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 Kazaa/MusicCity network, which was more popular, had many more users, and was easier to study than Gnutella. Data from that study revealed that sixty-eight percent of music file-swappers shared at least one file, and fifty-three percent shared more than ten files.⁸⁴

⁸¹ See Philippe Golle et al., *Incentives for Sharing in Peer-to-Peer Networks* 7 (2001), at <http://crypto.stanford.edu/~pgolle/papers/peer.pdf> (on file with the Virginia Law Review Association).

⁸² For discussions of the power of defaults generally, see Cass R. Sunstein, *Switching the Default Rule*, 77 N.Y.U. L. Rev. 106 (2002) (arguing that people conform with default choices in a variety of employment-related contexts); 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). From a rational choice perspective, users' widespread failure to opt out of sharing is puzzling, given the often high cost of sharing.

⁸³ See *supra* note 78.

⁸⁴ The sample size for my study consisted of 208 unique users who downloaded MP3 files from my hard drive during several sessions in November, 2001. 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 the user's 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 rarely download content from others. This group is evidently small but not nonexistent. Cf. *infra* note 101 (noting that some Gnutella users had been logged on for days at a time). At the same time, it is worth

The median downloader was sharing eighteen songs, the equivalent of less than two typical music CDs. Just twenty percent of all users shared more than 100 files each. Yet, according to a survey conducted by Edison Media Research, forty-three percent of file-swappers admitted downloading 100 or more files.⁸⁵ Evidently, a majority of file-swappers with large collections were choosing to share only portions of those collections. Cooperation, albeit small-scale cooperation, therefore was the norm on Kazaa/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 have been motivated by other factors because a majority of sharers evidently shared content in a manner inconsistent with the defaults built into the MusicCity and Kazaa applications.⁸⁶ Users of Kazaa/MusicCity, like early users of Gnutella, therefore made *conscious decisions* about *whether* to

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 MP3 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 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 minor sample bias into the study.

⁸⁵ Edison Media Research, The National Record Buyers Study II (2002), at <http://www.edisonresearch.com/R&RRecordBuyersII.htm> (last visited Feb. 7, 2003) (on file with the Virginia Law Review Association). 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, *And the Beat Goes On: Music Downloads Are Going Strong Despite Napster's Setback*, Atlanta J.-Const., Jan. 20, 2002, at 1 (providing anecdotal evidence suggesting that some users have enormous music collections—numbering in the “thousands, if not tens of thousands, of songs”).

⁸⁶ 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 both inconsistent with the software defaults and technically difficult. Finally, it appears, based on the Edison Media Research survey quoted in the text above, that at least one-half of the remaining sharers elected to share only a portion of their MP3 collections, which is also inconsistent with the software's defaults. In other words, although forty-three percent of file-swappers reported downloading 100 files or more, only twenty percent of the downloaders in my sample shared 100 files or more. (It is evidently common for users to move files from their shared directories to non-shared directories from time to time, which allows increased sharing as the size of their shared directories grows with subsequent downloads. It would have been much simpler for users to opt not to share any files, yet relatively few chose that option.) See Edison Media Research, *supra* note 85.

contribute content to anonymous others, and about the *extent* of those contributions.⁸⁷ In short, millions of users of Napster, Gnutella, Kazaa/MusicCity, and other file-swapping networks made files available for download by total strangers, notwithstanding the users' lack of an obvious incentive for doing so.

⁸⁷ One study concludes that many Kazaa users do not realize they are sharing files with other users. See Nathaniel S. Good & Aaron Krekelberg, Usability and Privacy: A Study of Kazaa P2P File-Sharing 8, at <http://hpl.hp.com/shl/papers/kazaa/KazaaUsability.pdf> (last visited Jan. 12, 2003) (on file with the Virginia Law Review Association). The methodology of this study, however, is seriously flawed. During a twelve-hour period, the researchers conducted 443 searches of the Kazaa network looking for users who were sharing a Microsoft email file entitled "Inbox.dbx." In these twelve hours, their searches turned up 156 such users. *Id.* at 2. On the basis of this data, the authors conclude that "a large number of users are currently sharing personal and private files without their knowledge." *Id.* at 1. However, 156 is not a large number when compared with the *millions* of Kazaa users who are *not* sharing their inbox files. For example, on January 12, 2003, there were 3,896,624 users logged in to the Kazaa network at 7:30 p.m. Central Standard Time. My search at 7:30 duplicating Good and Krekelberg's methodology revealed only two users, Angel10005@kazaa and Sparky8403@kazaa, who were sharing what appears to have been their inbox files. Placed in context, the finding that during the course of twelve hours 156 users were therefore unknowingly sharing their personal email hardly suggests that ignorance about what content is being shared is widespread.

The second part of Good and Krekelberg's study is even less convincing. The authors configured twelve computers to run Kazaa and share all of the files on their hard drives. Good and Krekelberg then invited twelve subjects to use these computers and asked them to determine whether they thought they were sharing their files with network users. *Id.* at 7. Two subjects correctly noted that all files were being shared, and eight subjects noted that some content was probably being shared, but did not realize that all their files were being shared. *Id.* at 8. The remaining two subjects incorrectly believed that no files were being shared. *Id.* On the basis of that data, Good and Krekelberg concluded that "the majority of the users in our study were unable to tell what files they were sharing, and sometimes incorrectly assumed they were not sharing any files when in fact they were sharing *all* files on their hard drive." *Id.* at 1.

Good and Krekelberg fail to notice an obvious explanation for their users' poor recognition. While the experimenters enabled sharing in the Kazaa software, they also prevented any other members of the networks from actually downloading files from their computers. An easy and intuitive way to determine whether a Kazaa-enabled computer is set to share files with other members of the network is to look at the "uploads" window in Kazaa and wait for another user to begin downloading content. The uploads screen, as the authors recognize, appears adjacent to the downloads window in Kazaa. *Id.* at 6. It is only natural that after seeing *no one* download *any* of their files during an entire Kazaa session, many users would conclude that file-sharing was disabled. Had the firewall not been in place, and had third parties actually been able to download files from the subjects' computers, the subjects easily would have seen that sharing was enabled. In light of the way that Good and Krekelberg skewed the test, it is remarkable that five-sixths of their subjects actually stated that they believed sharing was enabled. In a real-world scenario, the sharing of content on Kazaa is blatant.

2. *Files Are Usually Accurately Labeled and of High Quality*

It is exceptionally rare for files to be misidentified on Gnutella and the other file-swapping networks (the same was true for Napster as well). A user who downloads a file entitled “Thelonius Monk—Straight, No Chaser,” will almost certainly obtain that tune performed by that artist. In a few instances, musical compositions are 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.”⁸⁸ Otherwise, the overwhelming majority of music files available on Gnutella and the hybrid systems are accurately identified in terms of content.⁸⁹

Given the amount of mischief that generally pervades the Internet,⁹⁰ it is surprising that extensive downloading revealed little 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. Furthermore, because of the technological defaults built into the software, many users of the hybrids automatically make available for downloading any file they have downloaded. My Ka-

⁸⁸ 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.

⁸⁹ 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.

⁹⁰ See, e.g., David Anderson, SETI@home, in *Peer-to-Peer: Harnessing the Benefits of a Disruptive Technology*, supra note 7, at 67, 73 (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”).

zaa/MusicCity sample revealed that seventy-eight percent of sharers automatically shared a file they had just downloaded. It follows from these premises that a small but energetic band of uploaders could rapidly spread large numbers of intentionally misidentified files through the Internet.⁹¹

The best-publicized 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.⁹² One organization that was concerned about Gnutella's use by child pornographers adopted the file misidentification strategy, albeit with a shame sanctions twist.⁹³ The proprietors of the website Zeropaaid.com posted a number of phony child pornography files on Gnutella, then recorded the IP addresses of those who downloaded them.⁹⁴ They then posted those addresses on their website's "Wall of Shame."⁹⁵ While Zeropaaid did not take the next step of tracing those IP addresses to particular individuals, computer users with moderate sophistication could have done so in many cases. According to the Zeropaaid website, the Wall of Shame's creators hoped to frighten and shame those who traffic in child pornography into leaving the Gnutella network. To that end, Zeropaaid's creators also distributed a program called "Fakeroo" that permitted individual Internet users to create their own walls of

⁹¹ One effort to mislabel files is described at Cuckoo Egg FAQ, at <http://www.hand-2-mouth.com/cuckooegg/eggfaq.htm> (last visited Jan. 12, 2003) (on file with the Virginia Law Review Association).

⁹² See John Schwartz, *File Swapping Is New Route for Internet Pornography*, N.Y. Times, July 28, 2001, at C1; MSNBC, *Gnutella Ignites Porn, Pirate Worries*, ZDNet, at <http://zdnet.com.com/2100-11-519877.html> (Apr. 12, 2000) (on file with the Virginia Law Review Association).

⁹³ For illuminating discussions of shame sanctions, see Eric A. Posner, *Law and Social Norms* 88-111 (2000); Dan M. Kahan, *What Do Alternative Sanctions Mean?*, 63 U. Chi. L. Rev. 591 (1996); James Q. Whitman, *What Is Wrong with Inflicting Shame Sanctions?*, 107 Yale L.J. 1056 (1998).

⁹⁴ An IP address is an Internet Protocol address. Each computer connected to the Internet is assigned a unique IP address. Some Internet Service Providers use dynamic IP addresses, meaning that someone logging in to the Internet on multiple occasions would be assigned a different IP address each time.

⁹⁵ Kan, *supra* note 39, at 118-19; MSNBC, *Gnutella Porn Surfers Exposed*, ZDNet, at <http://zdnet.com.com/2100-11-520437.html?legacy=zdn> (May 3, 2000) (on file with the Virginia Law Review Association).

shame.⁹⁶ 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.⁹⁷ Opponents of the Wall of Shame successfully ended Zeropaid's experiment 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 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.⁹⁸

Zeropaid therefore elected 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 are low-quality recordings, and some contain mysterious screeches and pops that sound quite unpleasant when reproduced by computer speakers.⁹⁹ Because these flaws in MP3 files are more difficult to detect than mislabeling,¹⁰⁰ the existence of large numbers of flawed copies would quickly erode the trust that has developed on the file-swapping networks.

⁹⁶ See Zeropaid Clan, Fakeroo, at <http://www.zeropaid.com/busted/fake.php> (last visited Nov. 24, 2002) (on file with the Virginia Law Review Association).

⁹⁷ For an extended discussion, see Music City: We Can't Stop Child Porn, at <http://www.zeropaid.com/news/articles/auto/09192001a> (last visited Dec. 1, 2002) (on file with the Virginia Law Review Association).

⁹⁸ Kan, *supra* note 39, at 119.

⁹⁹ Approximately one and one-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.

¹⁰⁰ Mislabeling ordinarily can be detected within a note or two, and a user who plays 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.¹⁰¹ Most users, however, 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 turned out, download cutoffs were one of the more vexing problems on the Napster and Gnutella networks.¹⁰² My own efforts to download large files—such as DVD movies or complete albums—failed more often than not. Some portion of these interruptions are attributable to network errors or failures, but a significant number can be attributed to users shutting down their computers while an upload is in progress.¹⁰³

There was an aspirational norm¹⁰⁴ on the Napster and Gnutella networks holding that it was improper to log off the system while someone else was downloading a file from you. This rule was announced both through the software itself, which discouraged such behavior with various warnings and beeps, and through general

¹⁰¹ At the time I was conducting my research in late 2001, BearShare, a Gnutella program, permitted users to examine how long users who had made files available had been logged in to the system. (Note, however, that this data was provided only with respect to about half of all users.) The data generally showed that the majority of users logged on to the network for less than a few hours, but that a (not insignificant) minority of users logged on for days at a time.

¹⁰² See High-Speed Hookup Could Let You Download Napster Better, *Houston Chron.*, May 12, 2000, at 4; Kelly Truelove, Gnutella: Alive, Well, and Changing Fast, *The O'Reilly Network*, at <http://www.openp2p.com/lpt/a/p2p/2001/01/25/truelove0101.html> (Jan. 25, 2001) (on file with the Virginia Law Review Association).

¹⁰³ See Truelove, *supra* note 102 (“[H]osts may go offline or change their content between the point of advertising a file and the point of receiving a download request.”).

¹⁰⁴ 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).

discussions of Napster and Gnutella “netiquette.”¹⁰⁵ Some users apparently felt pangs of guilt when they logged off the network while a download was in progress.¹⁰⁶

Efforts to secure widespread compliance with the aspirational antitermination norm on Gnutella face 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, she likely connects to a different segment of the network and is linked with completely different users. 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 her—the venerable tit-for-tat strategy.¹⁰⁷ 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.¹⁰⁸

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. Although 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 could not 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

¹⁰⁵ See generally Gnutella Forums: Gnutella Network Discussion: being nice (etiquette), at <http://www.gnutellaforums.com/showthread.php?s=18602f5a72f0507e902dc801c84ba751&threadid=1988> (last visited Nov. 24, 2002) (on file with the Virginia Law Review Association) (displaying postings of various users that discuss the “netiquette” of signing off the Gnutella network while another’s download is in progress).

¹⁰⁶ See *id.*

¹⁰⁷ See Robert Axelrod, *The Emergence of Cooperation Among Egoists*, 75 *Am. Pol. Sci. Rev.* 306, 308–16 (1981).

¹⁰⁸ 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); April Mara Major, *Norm Origin and Development in Cyberspace: Models of Cybernorm Evolution*, 78 *Wash. U. L.Q.* 59, 95–102 (2000).

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.¹⁰⁹ 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 new applications generally permit users to continue aborted downloads in progress.¹¹⁰ 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* infringement behavior.¹¹¹ 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 individual computer users to obtain sound recordings not only from friends, family members, and co-workers, but from anonymous individuals 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

¹⁰⁹ See, e.g., Why LimeWire?, at <http://www.limewire.com> (last visited Feb. 7, 2003) (on file with the Virginia Law Review Association) (noting that LimeWire's "'swarm' downloads from multiple hosts help[] get files faster").

¹¹⁰ See *id.* (describing the availability of "resume downloads").

¹¹¹ See Wu, *supra* note 47 (manuscript at 25) (noting "widespread anecdotal evidence to suggest a normative difference between commercial and non-commercial copying") (citation omitted).

levels.¹¹² 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.¹¹³ 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.¹¹⁴ The file-swapping networks therefore represent a particularly brazen and successful attack on intellectual property rights.

¹¹² Before Internet access became widespread, computer Bulletin Board Services ("BBS"'s) 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 to 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 only 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: Off-Roading Beyond the Internet, S.F. Chron., 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 mainstream values.

¹¹³ See Comments of Peter K. Schalestock, Panel One: The Road to Napster: Internet Technology & Digital Content, 50 Am. U. L. Rev. 363, 381 (2000).

¹¹⁴ One needs to be cautious in suggesting 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 feasible, and so it never occurred to anyone to ask about it. What one 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 we detect a difference in the two groups' responses, then 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, sixty-four percent of those between the ages of eighteen and twenty-nine believe that there is nothing wrong with downloading music for free off the Internet. Lenhart & Fox, *supra*

The simple account of how the types of transactions that Napster facilitated became socially acceptable is based entirely on 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.¹¹⁵ Historically, 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 obvious potential to adversely affect copyright holders' profits. 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 a not-insignificant amount 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.¹¹⁶ In short, large-scale Napster sharers looked more like altruists than thieves and

note 15, at 6. By contrast, forty-three percent of those aged thirty to forty-nine and twenty-eight percent of those aged fifty to sixty-four believe that there is nothing wrong with such downloading. *Id.* Fifty-one percent of *Internet users* aged eighteen to twenty-nine had downloaded music by February 2001, compared to only twenty-three percent of those aged thirty to forty-nine, and fifteen percent of those Internet users aged fifty or older. Graziano & Rainie, *supra* note 19, 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." Edison Media Research, *supra* note 85. Seventy-four percent of those aged twelve to seventeen agreed with the statement, as did fifty-nine percent of those aged eighteen to twenty-four. Yet only forty-five percent of those aged twenty-five to thirty-four and thirty-nine percent of those aged thirty-five to forty-four agreed with the statement. *Id.* 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.

¹¹⁵ Yannis Bakos et al., *Shared Information Goods*, 42 J.L. & Econ. 117, 123 (1999).

¹¹⁶ 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).

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.¹¹⁷ 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 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”).¹¹⁸ Alternatively, as I will argue in Section III.D.1, 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: normative (how people ought to behave) and descriptive (how people do behave).¹¹⁹

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

¹¹⁷ See Strahilevitz, *supra* note 104, at 1234 n.11.

¹¹⁸ 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, 355–72 (1997); see also Robert Sugden, *Spontaneous Order*, 3 J. Econ. Persp., Fall 1989, at 85, 95–97 (articulating a similar theory). By contrast, Posner 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 93, at 18–27.

¹¹⁹ Strahilevitz, *supra* note 104, at 1234 n.11.

instruct people how to behave.¹²⁰ Second, because of the power of social norms, those laws that parallel social norms will be adhered to most widely and enforced most easily.¹²¹ Third, under certain conditions, government laws and policies can alter social norms.¹²²

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.¹²³ This group

¹²⁰ See 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).

¹²¹ See 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); Dan M. Kahan, *Gentle Nudges vs. 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 120, at 402.

¹²² See Lessig, *supra* note 108, at 92–93; Cass R. Sunstein, *Social Norms and Social Roles*, 96 Colum. L. Rev. 903, 910 (1996).

¹²³ See Spencer E. Ante, *Inside Napster*, *Bus. Wk.*, Aug. 14, 2000, at 112, 114–15. It is worth noting 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 the development 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 subsequently be converted into income (for example, by means of the sale of services).") (citation omitted). 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.

consisted of slightly more than thirty people.¹²⁴ Yet within a matter of days, the online word-of-mouth had spread news of the new application, and Napster had been downloaded by 3000 to 4000 people.¹²⁵

Napster's primary creator evidently did not give any thought to whether his network would be unlawful before he launched it,¹²⁶ yet he plainly intended to deprive the recording industry of its control over access to and distribution of sound recordings.¹²⁷ 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*

In Napster's first year of existence, a period in which its user base expanded from thirty¹²⁸ to 25 million,¹²⁹ 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 accounted for twenty to thirty percent of the bandwidth usage at major universities.¹³⁰ Yet during the remainder of the calendar year, Napster was virtually ignored by mainstream media. A three sentence blurb in the *Newsbytes* wire service appeared on July 23, 1999, touting Napster as a useful new

¹²⁴ Ante, supra note 123, at 115.

¹²⁵ Id.

¹²⁶ Comments of 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 64. 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 123, at 115.

¹²⁷ See *A & M Records v. Napster, Inc.*, 114 F. Supp. 2d 896, 903 (N.D. Cal. 2000); Shirky, supra note 7, at 28.

¹²⁸ Ante, supra note 123, at 115.

¹²⁹ Becky Beaupre, Suit Can't Stop Napster from Gaining, Chi. Sun-Times, Aug. 28, 2000, at 26 (suggesting that by July of 2000, Napster had "at least 25 million" users).

¹³⁰ Ante, supra note 123, at 115.

application for obtaining MP3 files.¹³¹ Radio silence persisted again until November 2, 1999, when the Israeli newspaper *Ha'Aretz* featured a brief description of the Napster service.¹³² It was not until the 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, 1999,¹³³ and within a few weeks the *Wall Street Journal* began to cover the story.¹³⁴ 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 leaders¹³⁵ 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 report on the service so as to avoid encouraging its use. More likely, however, the major media outlets 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 ordinary 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.¹³⁶ Download.com contains a system of "user ratings" whereby those who download an applica-

¹³¹ Martyn Williams, Internet Update, Newsbytes, July 23, 1999, available at LEXIS, Wire Service Stories File.

¹³² Zvika Alberger, Cutting the Chords: MP3 Has Replaced Sex as the Biggest Thing on the Internet, *Ha'Aretz* (Tel Aviv, Israel), Nov. 2, 1999, available at Westlaw, Westnews, AP Newswires - Plus File.

¹³³ See Janelle Brown, MP3 Crackdown, Salon.com, at <http://www.salon.com/tech/log/1999/11/17/riaa/index.html> (Nov. 17, 1999) (on file with the Virginia Law Review Association).

¹³⁴ See Don Clark, Recording Industry Group Sues Napster, Alleging Copyright Infringement on Net, *Wall St. J.*, Dec. 9, 1999, at B18.

¹³⁵ 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).

¹³⁶ David de Groot, Napster: A History, *Epinions.com*, at <http://epinions.com/cmd-review-38E8-2919A149-3A426109-prod2?sp=ink> (Dec. 21, 2000) (on file with the Virginia Law Review Association).

tion 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 dormitories¹³⁷ 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 outlets finally began reporting on the story, many gave credence to Napster’s argument that the legality of the file-swapping service was a “gray area” of the law.¹³⁸ By repeating the tenuous proposition that Napster (and by extension its users) was 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 on file-

¹³⁷ See Reuters, *Napster Users Majority on Campus*, *Wired News*, at <http://www.wired.com/news/culture/0,1284,36354,00.html> (May 15, 2000) (on file with the Virginia Law Review Association).

¹³⁸ Clark, *supra* note 134, at B18; see also Ante, *supra* note 123, at 114 (“In an e-mail 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 66 (quoting the assertion of Napster attorney David Boies that the company had a fifty-fifty chance of prevailing in the *RIAA* lawsuit); Eric Boehlert, *The Great MP3 Love Fest: Has the Press Given Napster a Free-ride?*, *Salon.com*, at <http://dir.salon.com/business/feature/2000/08/01/napsterpress/index.html> (Aug. 1, 2000) (on file with the Virginia Law Review Association) (“From the get-go, disturbing signs suggested the press was more interested in advancing Napster’s story as a David-vs.-Goliath tale than in seriously addressing the intricate issues at hand.”). But see Brown, *supra* note 133, (“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.”).

swapping. Perhaps the most telling sign of the emerging consensus appeared in a front-page *New York Times* article on July 20, 2001.¹³⁹ The subject matter of the article was rather unremarkable in that it reported on the phenomenon of users moving 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.¹⁴⁰ Thus, the most respected newspaper in the United States, owned by a corporation whose profits are largely derived from its copyrighted content, 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.¹⁴¹

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."¹⁴² In order to test that 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, seventy-eight percent of those Internet users who had downloaded music from the Internet stated that they did not

¹³⁹ See Richtel, *supra* note 1.

¹⁴⁰ See *id.*

¹⁴¹ See Ron Harris, Testdrive: File Sharing Applications, *Orlando Sentinel*, July 27, 2001, available at LEXIS, Global News Wire File.

¹⁴² *A & M Records v. Napster, Inc.*, 114 F. Supp. 2d 896, 910 (N.D. Cal. 2000) (emphasis added).

consider themselves to be “stealing” the music.¹⁴³ Among all Americans, however, forty percent stated that those who downloaded music off the Internet for free were doing nothing wrong, thirty-five percent believed that the practice amounted to stealing, and twenty-five percent would not address the propriety of such activities or gave inconsistent answers.¹⁴⁴

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. However, a public opinion poll conducted in the summer of 2002 (more than one year after the *Napster* decision was handed down) revealed an evenly divided populace, with fifty-two percent of those polled agreeing that “[t]here is nothing morally wrong about downloading music for free from the

¹⁴³ Lenhart & Fox, *supra* note 15, 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 do not care whether the music they downloaded is copyrighted, whereas thirty-one percent stated that the music’s copyrighted status was something that concerned them. *Id.*

¹⁴⁴ *Id.* at 6. 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 that “[d]ownloading music without paying for it is a form of piracy and should be illegal,” whereas 46.3% disagreed. Poll Suggests Home PC Users Favor Napster’s Arguments, *Tech L.J.* (July 27, 2000), at <http://www.techlawjournal.com/intelpro/20000727.asp> (on file with the Virginia Law Review Association). A mere 15.6% favored shutting down services such as Napster and Gnutella, whereas 45.1% opposed such a shut-down. *Id.* Finally 55.9% of those polled agreed with the statement that “[d]ownloading music over the Internet is simply a harmless way of allowing free exchange of music,” whereas 17% disagreed. *Id.* 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. See Press Release, Majority of Americans Agree that Downloading Free Music from the Internet Will Increase, Taylor Nelson Sofres Intersearch, at <http://www.intersearch.tnsfres.com/press/releases/violations.htm> (Feb. 22, 2001) (on file with the Virginia Law Review Association) (finding that 18% of Internet users said downloading music from the Internet without paying is wrong and that they would not do it; that 11% of users said it is wrong, but everyone else does it, so they would probably do it too; and that 59% said it is not wrong and they would probably do it).

Internet,” and forty-eight percent disagreeing with that statement.¹⁴⁵

As these numbers indicate, a significant portion of the American public believes that 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 exposed to the activities of file-swappers because 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 one-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 who believe that unauthorized downloading is theft have been unwilling to do anything to combat the practice. Nor has any 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.¹⁴⁶

Young people frequently lend homemade CDs containing illicitly copied MP3 files to friends. Known unauthorized 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,¹⁴⁷ no one has ever thought to do the same to the millions of individuals who are downloading copyrighted content off the same net-

¹⁴⁵ Edison Media Research, *supra* note 85. 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, fifty-four percent said they had some reservations about doing so, and five percent stated that they would not download in the future. *Id.*

¹⁴⁶ See Strahilevitz, *supra* note 104, at 1242 n.53.

¹⁴⁷ See *supra* text accompanying notes 92–95.

work. While large-scale file-sharers might be prosecuted, it is widely believed that the public could not stomach widespread prosecutions of individual computer users who had illicitly downloaded copyrighted content.¹⁴⁸ 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.”¹⁴⁹ 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. 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.”¹⁵⁰ A gushing *Time* profile of Fanning summarized his status thusly:

¹⁴⁸ See Melanic Warner, *The New Napsters*, *Fortune*, Aug. 12, 2002, at 115, 116 (“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.”).

¹⁴⁹ Litan, *supra* note 48, at 1070; see also Deborah Tussey, *From Fan Sites to Filesharing: Personal Use in Cyberspace*, 35 *Ga. L. Rev.* 1129, 1158–59 (2001) (noting that owners are more likely to target commercial enterprises because of the unpopularity and difficulty of targeting individual users); 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).

¹⁵⁰ Alderman, *supra* note 29, at 163 (referring to a statement made by Senator Orrin Hatch).

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.¹⁵¹

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, but that is not to say that their acts have gone unrewarded in terms of social benefits. The 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 source¹⁵² programmers:

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 their peers, the wish to further computer science and make things better generally, and even animosity toward commercial 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

¹⁵¹ Greenfeld, *supra* note 7, at 66.

¹⁵² 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.

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.¹⁵³

It is this desire for the support of one's peers that is particularly important in helping to craft subgroup norms.¹⁵⁴

Thus, the widespread popularity of downloading music files becomes understandable when one recognizes how Napster's file-sharing technology lowered the transaction costs of copyright infringement and undermined the anti-infringement norms that had existed among some members of the public. It is now appropriate to turn to the much more interesting half of the file-swapping equation.

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.

¹⁵³ 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 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 108, at 194, and Major, *supra* note 108, at 77-78.

¹⁵⁴ Major, *supra* note 108, at 76.

Where downloading from networks is easy and provides significant benefits at low costs, little need be done to convince people to use these networks to download content. The fact that file-swapping change-agents such as Shawn Fanning and Gnutella creator Justin Frankel are valorized adds fuel to the fire. Downloading is attractive, acceptable within the relevant peer groups, and 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 puzzling question 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 would lose much of their user 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 lawbreakers, 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. As Glynn Lunney notes, "[f]or private sharing to occur, someone must undertake the expense of loading the work on her computer and then open her computer to others, with consequential risks to security and her bandwidth usage."¹⁵⁵ While the cost of sharing is 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

¹⁵⁵ Glynn S. Lunney, Jr., *The Death of Copyright: Digital Technology, Private Copying, and the Digital Millennium Copyright Act*, 87 Va. L. Rev. 813, 868 n.186 (2001); see also Brown, *supra* note 78 ("There's very little reward for you sharing your files, and there's a high cost . . . because [due to bandwidth limitations] even if you're on a DSL connection you can't do other things that you want to do.") (quoting a statement made by Eytan Adar).

substantially the same (relatively high) rates.¹⁵⁶ Moreover, thousands incur a serious risk of severe criminal penalties by uploading pornography (including child pornography) to strangers.¹⁵⁷ What on earth causes people to behave in such a manner?

In this Part, I 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 then suggest that charismatic code is particularly potent in this case because it successfully taps into internalized and nearly universal norms of reciprocity.¹⁵⁸ 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 for norm enforcement purposes by magnifying the actions of those who cooperate and masking the actions of those who do not. In another sense, the applications act as a 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 depends.

¹⁵⁶ See *supra* note 71 and accompanying text.

¹⁵⁷ See, e.g., 18 U.S.C. § 2252 (2000) (criminalizing the uploading of visual depictions of actual minors engaging in sexually explicit conduct).

¹⁵⁸ This discussion is foreshadowed in Lemley, *supra* note 63, 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 108, at 85–90. Lessig identifies four “regulators” in cyberspace: law, markets, norms, and architecture. *Id.* at 87–88. In Lessig’s view, architecture, or code, is a particularly powerful regulator of liberty 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.

B. The Distorted Image

Some file-swappers will share their files with other network members regardless of whether they believe others are sharing. It seems that a large number of users, however, will engage in conditional cross-cooperation—sharing their files only if they believe that a norm of sharing exists. The challenge for creators of peer-to-peer networks is to convince these many conditional cooperators to share.

I mentioned earlier that only about one-third of all users of the Gnutella network apparently made any of their content available for downloading by others.¹⁵⁹ The creators of the Gnutella network knew this, and yet they said it was not so. Until recently, 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 was 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.”¹⁶⁰ While there is nothing terribly persuasive about telling a lie per se, 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 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 a norm of sharing and cooperation exists 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,¹⁶¹ while the ac-

¹⁵⁹ Supra text accompanying notes 69–70.

¹⁶⁰ What Is Gnutella?, supra note 44.

¹⁶¹ 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 149, 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 the extent of criminal behavior, are different from other forms of criminality on the Internet. See generally Katyal, supra note 120, 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

tions of those who do not share content are virtually invisible.¹⁶² Particularly if a user is searching for content by an especially 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. Therefore, other users generally will have a very difficult time perceiving non-sharers' 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 every successful file-swapping application I have seen.

Some of the networks are careful to present data that reinforces this image of widespread file-sharing. For example, the MusicCity Morpheus application prominently displayed the total number of users logged in to the network at a given time, as well as the aggregate number of files being shared.¹⁶³ These statistics not only punctuate the ubiquity of usership, 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 per user 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.¹⁶⁴

The applications not only provide information about the prevalence of file-sharers, they also reveal some useful information about their users' preferences. The file-swapping networks bring

students have little privacy and file-sharing therefore may be quite visible, even in real space.

¹⁶² Until recently, Gnutella applications did not allow a user to locate non-sharers on the network—they were essentially invisible. On Kazaa/MusicCity, non-sharers are exceedingly well camouflaged. To locate non-sharers on these networks, a user must make content available for downloading, wait for other users to download the content, and then peek at the downloaders' shared directories during the transfer, or shortly thereafter, to determine whether these users are sharing any files. That is the methodology I employed in my study of the Kazaa network, and I can testify to its cumbersome and tedious nature.

¹⁶³ This statistic apparently includes the number of non-unique files being shared. Thus, a thousand identical copies of the song "Piano Man" would be counted as a thousand files being shared, not one file being shared.

¹⁶⁴ See Miller, *supra* note 58, at 77.

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. Although users exchanging files on the file-swapping networks are anonymous, their preferences are not. When someone searches for music by the Cameroonian vocalist Henri Dikongue, he is necessarily searching for users who, like him, enjoy that artist's work. While this commonality may be more meaningful to users who are interested in relatively obscure artists like Dikongue, the affinity effect cannot be discounted in building trust within a community of anonymous users.¹⁶⁵ 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."

The file-swapping networks also provide avenues of self-expression for those particularly committed to the community of file-swappers. The file-swapping networks generally contain discussion forums and "Frequently Asked Questions" postings that provide the curious user with assistance in optimizing his use of the networks.¹⁶⁶ My informal survey of postings in the forums revealed that the individuals who responded to user queries in these discussion groups tended to be those who are most committed to the suc-

¹⁶⁵ See Peter J.D. Carnevale et al., *Effects of Future Dependence, Liking, and Repeated Requests for Help on Helping Behavior*, 45 *Soc. Psychol. 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 more likely to help those whom they liked than those whom they did not like); Jane Allyn Piliavin & Hong-Wen Charng, *Altruism: A Review of Recent Theory and Research*, 16 *Ann. Rev. Soc.* 27, 36, 47, 50 (1990) (presenting empirical evidence that affinity and empathy between the donor and the donees engender increased helping behavior); Jane Sell et al., *Are Women More Cooperative Than Men in Social Dilemmas?*, 56 *Soc. Psychol. Q.* 211, 214 (1993) ("Literature concerning one type of social dilemma—resource replenishment—suggests that in-group identity helps to build cooperation.") (citation omitted); cf. Jerome Rabow et al., *Altruism in Drunk Driving Situations: Personal and Situational Factors in Intervention*, 53 *Soc. Psychol. 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).

¹⁶⁶ See, e.g., FAQ for BearShare, at <http://www.bearshare.com/help/faq.htm> (last visited Feb. 6, 2003) (on file with the Virginia Law Review Association) (posting responses to frequently asked questions about BearShare).

cess of the network and, not coincidentally, the most dogmatic supporters of file-swapping norms.¹⁶⁷ In these forums, 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 (that is, 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 forums, the number of people who join Kazaa/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 Kazaa/MusicCity host. Because of this homogeneity, dissenting views regarding the propriety of their collective file-swapping activity are almost never voiced.¹⁶⁸ Despite the fact that anyone can log on to the networks, and that free speech is generally encouraged, opinions expressed in the chat groups and forums associated with file-swapping applications reveal almost total adherence to the “information-wants-to-be-free” orthodoxy.

¹⁶⁷ See, e.g., Posting of Zeroshadow, Gnutella Forums: Gnutella Network Discussion: being nice (etiquette), to gnutella.com, at <http://www.gnutellaforums.com/showthread.php?s=18602f5a72f0507e902dc801c84ba751&threadid=1988> (June 27, 2001) (on file with the Virginia Law Review Association).

¹⁶⁸ 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 adopt increasingly extreme viewpoints, see Cass R. Sunstein, *Deliberative Trouble? Why Groups Go to Extremes*, 110 Yale L.J. 71, 89–90 (2000).

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 successful in large part because they have managed to tap into internalized norms of reciprocity. Recall the passage from the "What Is Gnutella?" screen quoted above: "The other half of Gnutella is giving back. Almost everyone on GnutellaNet *shares* their stuff."¹⁶⁹ In the previous Section, I focused on the second sentence of that excerpt, but the first sentence—"the other half of Gnutella is giving back"—is also important. 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. Applications such as MusicCity and Kazaa display a user's downloads and uploads from a given session on the same screen, usually in two adjacent windows.¹⁷⁰ This juxtaposition of downloads and uploads on the same screen cannot be altered by the user.¹⁷¹ 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 an obligation to give something back to the networks' members. In that subtle way, the file-

¹⁶⁹ Kazaa's creators use similar language. See *Sharing and the P2P Philosophy*, Kazaa.com, at http://www.kazaa.com/us/help/glossary/p2p_philosophy.htm (last visited Feb. 7, 2003) (on file with the Virginia Law Review Association) ("Responsible sharing is the cornerstone of a useful peer-to-peer experience. In order for everyone to benefit from the collaboration, users need to share appropriate files. Successful peer-to-peer is a two way street.").

¹⁷⁰ Gnutella applications are exceptional in this respect. On Gnutella, 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.

¹⁷¹ A user on MusicCity's Morpheus or Kazaa can increase or reduce the size of the windows during a particular session, but these modifications cannot be saved. So, while a user might shrink his upload screen into oblivion, the next time he logs in to the network he will again see two adjacent screens of equal size: one for uploads and the other for downloads.

swapping applications tap further into norms of reciprocity that users bring with them to these networks.¹⁷²

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.¹⁷³ Thus, a user could 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 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 weakening the charismatic nature of Gnutella's code. In order to justify introducing this option, the network's creators must have been motivated by two powerful countervailing intuitions: (1) the instinct that users do care with whom they are

¹⁷² 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 et al., *Accountability*, in *Peer-to-Peer: Harnessing the Benefits of a Disruptive Technology*, supra note 7, 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.

¹⁷³ The most recent Kazaa release contains a somewhat similar feature. When a user downloads a file, her "participation level" is revealed, reflecting the extent of her sharing. Users with higher participation levels now receive priority in downloading. See *Participation Level*, Kazaa.com, at http://www.kazaa.com/us/help/glossary/participation_ratio.htm (last visited Jan. 19, 2003) (on file with the Virginia Law Review Association). Unfortunately for Kazaa, computer programmers developed applications such as Kazaa Lite, which falsely reports that each Kazaa user is an extreme sharer, enabling Kazaa Lite free-riders to jump to the head of the downloading queue. This Article was written in 2001 and 2002, when encouraging voluntary cooperation was the dominant strategy for peer-to-peer networks, but as the Article goes to press in 2003, it appears that the networks are embracing a model of coerced cooperation. I believe this shift in tactics is unnecessary and counterproductive for the file-swapping networks.

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 cooperation on Gnutella was insufficient, 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. So far it is difficult to gauge what effect this innovation is having on the Gnutella network, but my analysis suggests 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.¹⁷⁴ Behaviors such as making content that one has downloaded available to other downloaders and labeling content accurately are consistent with a broader societal norm of reciprocity—the golden rule.¹⁷⁵ As I argue below, because reciprocity is so strongly inculcated in most members of society, file-sharing norms can piggyback on that meta-norm.¹⁷⁶

¹⁷⁴ See, e.g., Gnutella Forums: Options for Freeloading Prevention?, at <http://www.gnutellaforums.com/showthread.php?threadid=12038> (last visited Aug. 8, 2002) (on file with the Virginia Law Review Association) (displaying postings of various users); Gnutella Forums: Stop Freeloading, at <http://www.gnutellaforums.com/showthread.php?threadid=9558> (last visited Aug. 8, 2002) (on file with the Virginia Law Review Association) (same). Those who favor strong intellectual property protections are more likely to use the term "freeloader" 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).

¹⁷⁵ Shirky, *supra* note 7, 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.").

¹⁷⁶ See *infra* Section III.D. See generally Lemley, *supra* note 63, at 1273 (arguing that norms based on intuitively reciprocal behaviors are likely to be particularly effective); Major, *supra* note 108, at 83 ("Many non-digital social norms have greatly influenced the evolution of social behavior in cyberspace."); Sugden, *supra* note 118, 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.").

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 are a testament to the subtle ways in which these online spaces have been successful in reinforcing 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, why does that connection arise? Put another way, the file-swapping networks' charismatic code is working, but why?¹⁷⁷

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 in close-knit groups. Analysis of close-knit groups sheds light on the process by which file-swapping's visible manifestations are becoming socially acceptable, and one can tell a plausible story about how social pressures might spur file-swapping behaviors using either Richard McAdams's esteem theory or Eric Posner's signaling theory.¹⁷⁸ Thus, there is little

¹⁷⁷ 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 104, 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.

¹⁷⁸ See *supra* note 118. McAdams might argue that by amassing large collections of music and letting their real-world neighbors know they acquired them, file-swappers

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.¹⁷⁹

Social norms theory, so useful in real space, encounters difficulties in cyberspace. Neither McAdams's nor Posner's theory can adequately explain the emergence of cooperation among the loose-

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 this reward attracts more file-swappers.

Posner might 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.

¹⁷⁹ That is not to say that social norms 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. Members of close-knit groups might adhere to close-knit groups not out of concerns about being held in high esteem or enticing others to engage in cooperative relations with one's 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 guilt 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. See generally Paul R. Amato, *Urban-Rural Differences in Helping Friends and Family Members*, 56 *Soc. Psychol. 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). I intend to take up that issue in subsequent writings. For the time being, I adhere to the plausible accounts put forth by Ellickson, Posner, and McAdams.

knit community of users on the file-swapping networks.¹⁸⁰ Specifically, neither of these theories persuasively explains the prevalence of cooperation in the face of anonymity. Although the cost of sharing music is in some instances low, sharing is never costless, and a user can download as much free music as she wants without sharing. Yet, sharing behavior still emerges among a significant portion of the networks' users. Moreover, even where the cost of sharing is relatively high—among users who have slow Internet connections or those users who share pornographic content, for example—file-sharing persists.¹⁸¹ In a loose-knit setting—an environment characterized by user anonymity and a low likelihood of repeat player interactions—neither

¹⁸⁰ 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, at 177–78; Lisa Bernstein, *Merchant Law in a Merchant Court: Rethinking the Code's Search for Immanent Business Norms*, 144 U. Pa. L. Rev. 1765, 1787–88 (1996). My scholarship seeks to explain the development and enforcement of social norms in loose-knit environments. See Strahilevitz, *supra* note 104, at 1273 & n.216 (studying commuters on the San Diego highway system); Strahilevitz, *supra* note 5, at 359 (discussing the emergence of social norms in a variety of loose-knit and intermediate-knit settings).

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 as environments in which social norms as such do not arise. See, e.g., Jon Elster, *Social Norms and Economic Theory*, J. Econ. Persp., Fall 1989, at 99, 100:

[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.

Id. (citation omitted). 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—one 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 or to experience the warm glow associated with group solidarity. While these norms are enforced and internalized differently than social norms in close-knit groups, they are no less powerful, and they are by no means non-social.

¹⁸¹ See Adar & Huberman, *supra* note 69 (presenting data to support the hypothesis that "the speed of a peer's internet connection will not influence the likelihood to free-ride"); *supra* text accompanying note 92 (discussing the wide availability of pornography on peer-to-peer networks).

esteem theory nor signaling can explain this behavioral regularity.¹⁸² Classical economics is also at a loss.¹⁸³

¹⁸² 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. Psychol. 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 by 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, and holding an elevator door open for someone who wants to get inside before the doors close. *Id.* app. 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. Psychol. Q.* 259, 262 (1980).

¹⁸³ See Robert Sugden, *Reciprocity: The Supply of Public Goods Through Voluntary Contributions*, 94 *Econ. J.* 772, 773–74 (1984); see also Lunney, *supra* note 155, at 859–60 ("As part of the development of the free-rider concept, economists often begin with the assumption that each consumer makes decisions to maximize her utility based a narrow view of rational self-interest [E]conomists have . . . recognized that these assumptions are unlikely to prove generally accurate. Self-sacrifice, cooperation, and charitable contribution, just to name a few examples, are all extremely common and tend to refute . . . to some extent, the free-rider theory.").

Robyn Dawes and Richard Thaler 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*, *J. Econ. Persp.*, Summer 1988, at 187, 188. 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 its 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 C. Daniel Batson, *Prosocial Motivation: Is it Ever Truly Altruistic?*, 20 *Advances Experimental Soc. Psychol.* 65, 95 (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* 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. Psychol. Q.* 36, 38–39 (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

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.¹⁸⁴ All that phrase does, however, 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 introduces the notion of a “norm of reciprocity.”¹⁸⁵ The idea is a simple one. Under a norm of reciprocity, when *A* helps *B*, *B* feels obligated to return the favor, either by helping

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 twenty dollar bill on the sidewalk than to donating twenty dollars 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 165 (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. See J. Keith Murnighan et al., *The Volunteer Dilemma*, 38 *Admin. Sci. Q.* 515, 535 (1993).

¹⁸⁴ 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 than previous versions. During the 1970s, situation comedies typically introduced “laugh tracks” onto 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.

¹⁸⁵ Alvin W. Gouldner, *The Norm of Reciprocity: A Preliminary Statement*, 25 *Am. Soc. 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).

A, or by helping C (a third party, albeit one who shares at least some relevant characteristic with A).¹⁸⁶ The norm is by no means limited to three-person interactions, and scholars have begun to study its application to much larger groups of individuals, such as a nation's taxpayers.¹⁸⁷ As the authors of this literature have recognized, the norm of reciprocity is sufficiently powerful that the founding members of a new community are likely to bring it with them into that community and see it potentially flourish therein.¹⁸⁸ If the file-swapping example is illustrative, these reciprocity norms

¹⁸⁶ I borrow this definition, not from Gouldner, but from Takahashi. Nobuyuki Takahashi, *The Emergence of Generalized Exchange*, 105 *Am. J. Soc.* 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 Tilburg et al., *The Measurement of Reciprocity in Ego-Centered Networks of Personal Relationships: A Comparison of Various Indices*, 54 *Soc. Psychol. Q.* 54, 55 (1991) (discussing indirect reciprocity). File-swapping consists almost entirely of generalized exchange.

¹⁸⁷ Dan M. Kahan, *Trust, Collective Action, and Law*, 81 *B.U. L. Rev.* 333, 340-43 (2001). Truman Bewley has argued persuasively that reciprocity explains corporate managers' general reluctance to reduce employees' wages. See Truman Bewley, *Fairness, Reciprocity, and Wage Rigidity* (Cowles Found. Discussion Paper No. 1383, Oct. 2002), available at <http://cowles.econ.yale.edu/P/cd/d13b/d1383.pdf>.

¹⁸⁸ See Gouldner, *supra* note 185, 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."); sources cited *supra* note 176; see also Michael W. Macy, *PAVLOV and the Evolution of Cooperation: An Experimental Test*, 58 *Soc. Psychol. 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. See James K. Rilling et al., *A Neural Basis for Social Cooperation*, 35 *Neuron* 395, 395-403 (2002). Revealingly, some of the same brain areas were not activated when the subjects were told they were cooperating with a computer in a prisoner's dilemma game. *Id.* at 398. Because all subjects in the research were adults, 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).

may also 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 Sally Ann Shumaker and James S. Jackson have dubbed the “aversive effects of nonreciprocated benefits.”¹⁸⁹ 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.”¹⁹⁰ 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 directly reciprocating the donor will help a third person.”¹⁹¹ Conducting their own experiment, the researchers determined that while subjects who had been helped by others but were unable to reciprocate reported feeling guilty,¹⁹²

[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.¹⁹³

¹⁸⁹ Sally Ann Shumaker & James S. Jackson, *The Aversive Effects of Nonreciprocated Benefits*, 42 Soc. Psychol. Q. 148 (1979).

¹⁹⁰ *Id.* at 149 (citing M. Greenberg, *A Theory of Indebtedness, in Social Exchange: Advances in Theory and Research* (K.J. Gergen et al. eds., 1980)). 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 155–57.

¹⁹¹ *Id.* at 149.

¹⁹² *Id.* at 156.

¹⁹³ *Id.* A subsequent study provided further support for this conclusion. Amato, *supra* note 182, 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 partly by helping anyone—including strangers.”) (citation omitted).

Thus, the authors concluded that while helping a third person may not alleviate guilt as much as direct reciprocation, it is the next best thing.¹⁹⁴ Research by Shumaker and Jackson's peers has resulted in similar findings.¹⁹⁵ Indeed, the aversive effects of nonreciprocated benefits are likely to be particularly pronounced among anonymous strangers.¹⁹⁶ 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.¹⁹⁷

¹⁹⁴ Shumaker & Jackson, *supra* note 189, at 157.

¹⁹⁵ See 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) (describing the feelings of indebtedness and obligation to reciprocate after receiving assistance.); Martin S. Greenberg & Solomon P. Shapiro, *Indebtedness: An Adverse Aspect of Asking for and Receiving Help*, 34 *Sociometry* 290, 290-300 (1971) (describing a study that showed participants were less likely to ask for help when they did not anticipate being able to reciprocate); Roberta G. Simmons et al., *The Self-Image of Unrelated Bone Marrow Donors*, 34 *J. Health & Soc. Behav.* 285, 291 (1993) ("Donating bone marrow was seen as indirect reciprocation, a token of gratitude for their own good fortune.") (citation omitted); see also Paula F. Levin & Alice M. Isen, *Further Studies on the Effect of Feeling Good on Helping*, 38 *Sociometry* 141 (1975) (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 et al., *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.

¹⁹⁶ See Bar-Tal et al., *supra* note 195, at 297 ("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 182, 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.").

¹⁹⁷ 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 188, at 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. Bibb Latane and James M. 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

They derive satisfaction from maintaining these positive self-images.¹⁹⁸

Notably, reciprocation does not require a one-to-one 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.¹⁹⁹ Thus, a user who reciprocates his 100 downloads by permitting twenty 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 has only made twenty available, reciprocity levels might well approach a one-to-one ratio because a user need only 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 be engaged in one-to-one 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 economic incentives 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 be initiated only at the downloader’s request, opportunities to upload a file to someone from whom a file-swapper has just downloaded are extremely

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 183, 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 165, at 32 (discussing the important connection between altruism and an individual’s self-image).

¹⁹⁸ See Simmons et al., *supra* note 195, at 287–97.

¹⁹⁹ See Greenberg & Shapiro, *supra* note 195, at 300; see also Amato, *supra* note 179, 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).

limited. 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 just any third party. Under the guilt alleviation theory, a user will prefer to return the favor to someone who is similar, in the relevant respect, to the donor whose largesse the user earlier received. He knows that the donor has made his files available to others for downloading, so the user will feel better about his uploading if he believes that the recipient is also a file-sharer. If a user perceives that many of those downloading 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 Dawes and Thaler hypothesize, “people have a tendency to cooperate until experience shows that those with whom they are interacting are taking advantage of them.”²⁰⁰ 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. Charismatic code therefore avoids the extinguishment of reciprocity obligations among its more cooperative users.²⁰¹

These studies of cooperation among anonymous strangers provide a persuasive psychological account of what motivates users of

²⁰⁰ Dawes & Thaler, *supra* note 183, at 191.

²⁰¹ 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 sharing files. See *supra* note 145 and accompanying text (noting that fifty-four percent of downloaders have “some reservations” about obtaining free music off the Internet). To be sure, sharing compounds the illegality, 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?*, Salon.com, at http://archive.salon.com/tech/col/rose/2000/08/07/breaking_law/print.html (Aug. 7, 2000) (on file with the Virginia Law Review Association) (“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 . . .”).

peer-to-peer networks to upload their files. Yet these experiments differ from the peer-to-peer situation in one important respect: While the participants in various experiments were anonymous, they were permitted face-to-face contact, which allowed for greater empathy. Elinor Ostrom describes a consensus view among scholars 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.²⁰² Seen in this light, the reasonably high levels of cooperation observed on MusicCity are even more startling.

Whatever the experiments say, robust cooperation can and does emerge among anonymous members of a computer network in the real world. Why the divergence between the studies and the real world evidence? Two interesting possibilities spring to mind. The first possibility is that charismatic code and the very large numbers of sharers visible on these networks overwhelm the users' reluctance to cooperate with unseen individuals. The second possibility 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, unseen 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 anonymous users as she would if she confronted those users face-to-face. Under this hypothesis, if one tested Kazaa'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, the networks can rely on several factors to further solidify file-sharing behaviors.

²⁰² See Ostrom, *supra* note 185, at 6–7 (reviewing the literature on these kinds of experiments).

Cooperation tends to engender more cooperation,²⁰³ although there are several complementary explanations for why this 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, it also validates and solidifies the behavior of the person who is being imitated.²⁰⁴ The feedback effects created 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.²⁰⁵ Relatedly, visible sharing can make sharers out of members who have just joined a network.²⁰⁶

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 heuristic for helping them estimate the cooperativeness of others in that network.²⁰⁷ File-sharers will thus tend to overestimate the extent of file-sharing on the network, and those who only download will tend to underestimate the extent of file-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 then logs in to the network and sees that quite a lot

²⁰³ 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 183, at 774–75, 783.

²⁰⁴ See Michael C. Roberts, *On Being Imitated: Effects of Levels of Imitation and Imitator Competence*, 43 Soc. Psychol. 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 . . .”).

²⁰⁵ See *id.* at 239.

²⁰⁶ See also Piliavin & Charng, *supra* note 165, at 41 (“Experimental studies have consistently shown that children display greater generosity when they are exposed to generous models than to selfish models.”) (citations omitted).

²⁰⁷ See Tomonori Morikawa et al., *The Advantage of Being Moderately Cooperative*, 89 Am. Pol. Sci. Rev. 601, 601 (1995); John Orbell & Robyn M. Dawes, *A “Cognitive Miser” Theory of Cooperators’ Advantage*, 85 Am. Pol. Sci. Rev. 515, 515, 517 (1991); Takahashi, *supra* note 186, at 1130.

of members are sharing content,²⁰⁸ and consequently he feels that his initial intuition has been validated.²⁰⁹

Third, increased cooperation among members of a network ordinarily engenders increased benefits for the cooperators.²¹⁰ This presumption is particularly true in the case of file-swapping, in which more cooperators means more new content and more sources for obtaining that content. As a file-swapping network thus comes to be characterized by increased levels of file-sharing, participation in the network becomes increasingly attractive for file-sharers.²¹¹ 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. Reciprocity cascades therefore engender material rewards in addition to psychic benefits.

²⁰⁸ The Gnutella networks arguably do a better job of exploiting bounded rationality to create an appearance of widespread sharing than networks such as Kazaa. 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. Kazaa, by contrast, defaults to show no more than 100 or so matching files.

²⁰⁹ Cf. Ostrom, *supra* note 185, 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 helps 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 et al., *Altruism and the Theory of Rational Action: Rescuers of Jews in Nazi Europe*, 101 *Ethics* 103, 112–13 (1990). Even if that anecdotal evidence is indicative of a general trend, it is not inconsistent with the theory of cooperation relied upon in this Article. The propensity to cooperate may still be a function of the number of cooperators perceived by someone who must decide whether to cooperate, but the relationship between perceived cooperation and the propensity to cooperate would be parabolic rather than linear. The instinct to cooperate is therefore initially high when no one else visibly cooperates, slopes downward dramatically when a few members in a large group are seen to be cooperating, and slopes upward dramatically as perceived cooperation increases and reciprocity instincts are triggered.

²¹⁰ See Atip Asvanund et al., *An Empirical Analysis of Network Externalities in P2P Music-Sharing Networks 1–4*, 7 (Carnegie Mellon Univ. H. John Heinz Sch. of Pub. Policy and Mgmt. Working Paper No. 2002-37, July 2002), available at <http://www.heinz.cmu.edu/wpapers/detail.jsp?id=4256>.

²¹¹ See Sugden, *supra* note 183, at 781–82.

There is, of course, a corollary to the notion of reciprocity cascades. Just as cooperation can engender more cooperation, noncooperation can snowball. Particularly when noncooperative behavior becomes malicious and harms cooperators, antisocial behaviors can reverberate throughout a network, punishing the innocent, and causing the innocent to punish the equally innocent.²¹²

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 would be otherwise.²¹³ In the case of alcohol consumption, the most inebriated people 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.²¹⁴ 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.²¹⁵ Perkins writes:

With the accumulation of conversation over time, certain college social events get the reputation (often encouraged by the spon-

²¹² Bar-Tal et al., *supra* note 195, 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 omitted). Bar-Tal et al. point to one potential constraint on anti-cooperation cascades in loose-knit environments. *Id.* at 297 ("[I]ndividuals tend to feel most resentment when they are harmed by parents or siblings and least resentment when they are harmed by strangers.").

²¹³ 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 nineteen percent of students at a liberal arts college said they viewed frequent intoxication as acceptable even if it interfered with other responsibilities, sixty-three percent perceived that view as the dominant one among their fellow students. *Id.* at 184.

²¹⁴ *Id.* at 190.

²¹⁵ *Id.* at 190-91.

sors) 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.²¹⁶

Misperceptions regarding levels of alcohol consumption therefore can become “self-fulfilling prophe[sies]” and can snowball as visible intoxication fuels misperception, which in turn fuels more intoxication.²¹⁷ 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. Campus programs that credibly publicized the lower-than-expected incidence of binge drinking have lowered the prevalence of overconsumption dramatically.²¹⁸

3. *Holdouts*

What explains why some users who download do not become file-sharers? Several behavioral factors might overcome the reciprocity norms outlined above. For some individuals, the increased cost of uploading, or the risk of adverse consequences resulting from uploading, will dominate the reciprocity norms that would urge them to share.²¹⁹ Some individuals will have less well-developed senses of reciprocity; it is clear that individuals internal-

²¹⁶ *Id.* at 191.

²¹⁷ *Id.* at 192.

²¹⁸ See Michael P. Haines, *A Social Norms Approach to Preventing Binge Drinking at Colleges and Universities* 11 (1996); Perkins, *supra* note 213, 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 letters referencing the pervasiveness of compliance with tax laws paid their taxes at higher rates than did members of a control group. Stephen Coleman, Minn. Dep’t of Revenue, *The Minnesota Income Tax Compliance Experiment: State Tax Results 18–19*, 25 (Apr. 1996), available at <http://www.taxes.state.mn.us/reports/complnce.pdf>.

²¹⁹ See, e.g., Ramayya Krishnan et al., *The Virtual Commons: Why Free-Riding Can Be Tolerated in File Sharing Networks 2* (Carnegie Mellon Univ. H. John Heinz Sch. of Pub. Policy and Mgmt. Working Paper No. 2002-36, Jan. 2002), available at <http://www.heinz.cmu.edu/wpapers/detail.jsp?id=4255> (“While users share downloaded content, by default, they can and frequently do turn off this feature to economize on their own private allocation of bandwidth.”).

ize and act upon even these widespread norms to varying degrees.²²⁰ Other downloaders, despite the better efforts of the network creators, will not view uploading as "helping," and therefore will not conceptualize the acquisition of content as a favor that requires repayment.²²¹ 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 phenomenon 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.²²² 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 might 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 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.²²³ The same is true on the file-swapping networks: Some users are motivated to cooperate when exposed to the purported ubiquity of file-sharing, while others feel less guilty about free-riding.

²²⁰ See Piliavin & Charng, *supra* note 165, at 32.

²²¹ Greenberg & Shapiro, *supra* note 195, 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.").

²²² Howard & Crano, *supra* note 183, at 493, 501-02; Latane & Dabbs, *supra* note 197, at 185-88; Piliavin & Charng, *supra* note 165, at 35.

²²³ I have heard National Public Radio stations report that only ten percent of their listening audience contributes during membership drives. At the same time, National Public Radio 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 donors' names and hometowns 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; 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 are engaging in that behavior because they derive satisfaction from thumbing their collective noses at the recording industry and other copyright holders.²²⁴ 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 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 majority of the file-sharers on the Kazaa/MusicCity network engaged in low-level sharing—making no more than a few CDs worth of music available to the network's users.²²⁵ 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.²²⁶

²²⁴ See, e.g., Michael Goldberg, 20 Million Napster Fans Can't be Wrong, *InsiderOne*, at <http://insiderone.net/drama/drama003.html> (Aug. 14, 2000) (on file with the Virginia Law Review Association) ("Like smoking a joint or chugging a six-pack, using Napster lets a 15-year-old give mom and dad the finger and express solidarity with fellow members of what *Spin* has called 'Generation Mook.' But it's not just the kids who are ripping off the copyright holders. I know one 45-year-old man who's filled his hard drive with music he hasn't paid for. He's not rebelling. He says he's a victim of a corporate music business that charges too much for music.").

²²⁵ See *supra* text accompanying notes 84–85.

²²⁶ My data on the types of sound recordings downloaded by Kazaa/MusicCity's users suggests that there are not broad cultural differences in the levels of sharing prevalent on the network. For example, those who downloaded Spanish language

Sharing a portion of one's MP3 collection is consistent with a reciprocity story,²²⁷ 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 Kazaa/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.

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 activities 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 behave as 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.²²⁸ As it happens, users do precisely the opposite. A com-

sound recordings shared their files at almost precisely the same rates and levels as those who downloaded English language sound recordings. Sixty-four percent of those downloading Spanish language songs shared files, versus sixty-nine percent for all other music downloaders. These results suggest that file-sharing is not 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 (thirty-nine downloads of Spanish language music), and the increasing, albeit still limited, popularity of Spanish language music among those who speak only English.

²²⁷ See *supra* note 199 and accompanying text.

²²⁸ My account presumes that users do not derive much expressive value from anonymously mimicking their peers' mainstream expressions.

mon complaint among network users is that popular, mainstream music is vastly overrepresented on the networks and more cutting edge music is too hard to find.²²⁹ A review of users' shared directories confirms this phenomenon, revealing that the overwhelming majority of listeners are content to share yet another copy of an already 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 an individual's web page almost always contains an email address that allows a user browsing the Internet to contact the publisher, the expressive activity that occurs on Kazaa/MusicCity or Gnutella is not conducive to such contact or association between the publisher and the matter published.²³⁰

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

²²⁹ See Asvanund et al., *supra* note 210, at 12 (noting that "song availability was very low for a random selection of songs from all artists" on the OpenNap P2P network); cf. Eric Boehlert, *Napster Sound Bite: Feelin' Groovy*, Salon.com, at <http://dir.salon.com/business/feature/2000/06/19/napsterlog/index.html> (June 19, 2000) (on file with the Virginia Law Review Association) (providing examples of popular musical hits downloaded by Napster's own executives).

²³⁰ Kazaa and the latest Limewire application both 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 Kazaa, which entailed scores of hours spent online, only one other user attempted to chat with me.

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 *A & M Records, v. Napster, Inc.* decision.²³¹ 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 diverted Napster users to other file-swapping networks without making them second-guess the morality of their actions. This 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

On February 12, 2001, when 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 Napster's attorneys,²³² the opinion evidently did little to stem widespread participation in the networks. To the contrary, the haphazard way in which the decision dealt with injunctive remedies may well have done more collective good than harm to the networks. Two years after the court's ruling, file-swapping is as widespread and prominent as ever.²³³ While the court's ruling may alter social norms in the long run, the early evidence should encourage supporters of file-swapping.²³⁴ What accounts for the apparent failure of the *Napster* decision to alter users' behavior?

²³¹ 239 F.3d 1004 (9th Cir. 2001).

²³² See *id.* at 1024–27.

²³³ See *supra* text accompanying note 4.

²³⁴ See *supra* note 145 and accompanying text.

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 primary holding, that was most important in setting the tone for the events that followed.²³⁵

After ruling that Napster had been guilty of contributory copyright infringement and that Napster's users were themselves engaged in copyright infringement,²³⁶ the Ninth Circuit elected to exercise restraint at the remedial stage. The court first faulted the district court for improperly allocating the burdens of ensuring copyright compliance.²³⁷ It then remanded the case to the district court for a reassessment of the proper remedies.²³⁸ The decision to remand effectively stayed injunctive relief until the district court could rule. Three weeks passed before the district court finally ruled on 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 that and all identical files from its directory.²³⁹

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; oth-

²³⁵ See *Napster*, 239 F.3d at 1027–28.

²³⁶ See *id.* at 1014–22.

²³⁷ *Id.* at 1027.

²³⁸ *Id.* at 1029. 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. P. 41(b); see also 9th Cir. R. 41-1 advisory committee's note (“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.”).

²³⁹ *A & M Records v. Napster, Inc.*, No. C 99-05183 MHP, 2000 U.S. Dist. LEXIS 6243, at *6–7 (N.D. Cal. May 5, 2000).

ers were newcomers who wanted to see firsthand the application that had generated so much controversy.²⁴⁰

2. *The Porous Filter*

Millions of users logged in to 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.²⁴¹ On Napster, users easily learned what content individual users had and what those users were downloading. Napster users logged on to the system in the wake of 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 (for example, the Beatles became the "eatlesBe," "zBeatles," the "Fab Four," "John, Paul, George, and Ringo," etc.).²⁴² Witnessing thousands of other users' attempts to circumvent the injunction only fortified Napster users' resolve. The obvious noncompliance 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 was the least of the recording industry's worries. Immediately after the *Napster* decision, Napster users thronged to the online Napster discussion forum, where they dis-

²⁴⁰ See *supra* notes 53–55 and accompanying text.

²⁴¹ See *supra* Section III.B.

²⁴² See P.J. Huffstutter, Users Outwit Napster's Effort to Block Copyrighted Songs, L.A. Times, Mar. 6, 2001, at C1 ("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."); Graziano & Rainie, *supra* note 19, at 3 ("[U]sers give multiple titles to individual songs, in some cases, in apparently deliberate attempts to ensure popular songs are not recognized by Napster's copyrighted-song sniffing system.").

cussed 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.²⁴³ 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 post-injunction use of Napster. The *Napster* plaintiffs did not seek an injunction covering chat rooms or message boards on Napster,²⁴⁴ presumably based on concerns that such an injunction might not withstand First Amendment scrutiny.²⁴⁵ Because the injunction never

²⁴³ See 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) (observing that the recording companies alleged that Napster allowed its electronic bulletin boards to be used to disseminate information on renaming conventions).

²⁴⁴ *A & M Records v. Napster, Inc.*, 114 F. Supp. 2d 896, 917 (N.D. Cal. 2000).

²⁴⁵ Had Napster been forced to take its web site offline temporarily pursuant to the court's injunction, it likely would have censored any discussion of Napster alternatives in its forums 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. On the one hand, the mere posting of the Internet addresses associated with alternative file-swapping sites is arguably nonspeech that can be regulated without implicating the First Amendment. Compare *Universal City Studios v. Corley*, 273 F.3d 429, 447-49, 451-53 (2d Cir. 2001) (holding that decryption software code is speech, but that it also contains "nonspeech components" and therefore can be restricted more severely by government than traditional speech), and *Junger v. Daley*, 209 F.3d 481, 485 (6th Cir. 2000) (holding that posting software source code on the Internet is protected speech), with *Name.Space, Inc. v. Network Solutions, Inc.*, 202 F.3d 573, 585 (2d Cir. 2000) (holding that a top level Internet domain name is not speech, but that lengthier domain names may be speech), 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

applied to these forums, the recording industry could do nothing while the chat rooms and message boards 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.²⁴⁶ 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 Justin Frankel had become role models for younger peers.²⁴⁷

For younger Internet users, the rebelliousness embodied in the various efforts to circumvent the *Napster* injunction undoubtedly

(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 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. *Seattle Times Co. v. Rhinehart*, 467 U.S. 20, 37 (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 that occurred 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 give the government significant leeway to restrict speech promoting it. See *Central Hudson Gas & Elec. Corp. v. Public Serv. Comm'n*, 447 U.S. 557, 563-64 (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.

²⁴⁶ See *supra* note 114.

²⁴⁷ Frankel was nineteen when he began working on MP3 technologies in 1996. Alderman, *supra* note 29, at 55.

proved quite attractive.²⁴⁸ 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 who had cut their teeth in the era of free music.²⁴⁹ Because the law and the federal judges who interpreted it commanded less respect among teenagers than among the public at large, the Ninth Circuit could not tap into a base of goodwill 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,²⁵⁰ and all the social incentives pointed toward circumventing the newly announced law. Peer pressure and peer-to-peer norms were perfectly aligned.²⁵¹

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

²⁴⁸ See generally Gary Schwartz & Don Merten, *The Language of Adolescence: An Anthropological Approach to the Youth Culture*, 72 *Am. J. Soc.* 453, 458 (1967) (discussing the prevalence of rebelliousness as an admired quality among youth).

²⁴⁹ See Ellickson, *supra* note 135, at 40.

²⁵⁰ Teenagers are essentially judgment proof, so the record labels would have little incentive to pursue them. In 2001, the sound recording industry began 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 effective. See Amy Harmon, *Internet Services Must Help Fight Online Movie Pirates*, *Studios Say*, *N.Y. Times*, July 30, 2001, at C4; John Borland, *File-Trading Pressure Mounts on ISPs*, *CNet News*, at <http://news.com.com/2100-1033-270568.html> (July 25, 2001) (on file with the Virginia Law Review Association). Copyright holders can also deter teenagers in other ways—for example, by getting them into trouble with their parents or schools.

The large number of teenaged copyright infringers and the lack of public support for prosecutions of file swappers make legal sanctions an unattractive tool for regulating behavior. 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. See Tom R. Tyler, *Compliance with Intellectual Property Laws: A Psychological Perspective*, 29 *N.Y.U. J. Int'l L. & Pol.* 219, 223–24 (1997).

²⁵¹ See also Tyler, *supra* note 250, at 225 (arguing that peer disapproval is an important element in determining whether individuals comply with the law).

the basis of the injunction-circumvention experience, many of these teenagers have been socialized to believe that the copyright laws and the 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 enduring attitudes toward intellectual property laws.²⁵²

5. *The Injunction in Retrospect*

Today, it is fair to say that Napster was brought to its knees by the Ninth Circuit's injunction.²⁵³ The movement that Napster spawned, however, is alive and well. The few weeks following the Ninth Circuit's ruling in *Napster* was a critical period. The decision itself galvanized file-swappers and, for a brief period, generated enormous free publicity for 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 succeeded in convincing the Ninth Circuit to set an important pro-copyright precedent in *Napster*, just as it had succeeded in persuading Congress to enact aggressively pro-copyright laws such as the Digital Millennium Copyright Act.²⁵⁴ While it seems likely that the recording industry will 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. They may have to pursue legal ac-

²⁵² See Michael X. Delli Carpini, *Stability and Change in American Politics: The Coming of Age of the Generation of the 1960s*, at 9 (1986). Social norms can migrate from the Internet to society at large. See Major, *supra* note 108, 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 logic suggests, for example, that plaintiffs in patent infringement cases might confront less sympathetic jury pools in the coming years.

²⁵³ See Matt Richtel, *Turmoil at Napster Moves the Service Closer to the Day the Music Dies*, N.Y. Times, May 15, 2002, at C1.

²⁵⁴ 17 U.S.C. § 512 (2000). 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, 193-200 (2001).

tions 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 the industry 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 to deal with the file-swapping networks. A few self-help strategies are discussed below.²⁵⁵

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 continue to improve as time passes, but the trust is vulnerable. Had the RIAA devoted its resources to hiring saboteurs rather than 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 several dozen mischievous uploaders might still wreak havoc on the Gnutella or hybrid networks. After all, a tiny segment of the file-sharing 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.²⁵⁶ This could be accomplished

²⁵⁵ A brief discussion of encryption as a self-help strategy against file-swapping networks can be found in Gilbert & Katz, *supra* note 243, at 974–75, 980.

²⁵⁶ Doug Lichtman & David Jacobson, *Anonymity a Double-Edged Sword for Pirates Online*, Chi. Trib., Apr. 13, 2000, at N25; see also Ramayya Krishnan et al., *The Economics of Peer-to-Peer Networks 9* (Carnegie Mellon Univ. H. John Heinz Sch. of Pub. Policy and Mgmt. Working Paper No. 2002-34, Aug. 2002), available at

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 songs might be interspersed with public service announcements about the importance of respecting copyright laws.

Two years after Lichtman and Jacobson proposed the idea, the RIAA apparently began using such a strategy. In June of 2002, three of the major record labels 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.”²⁵⁷ While some avid file-swappers posting in a Gnutella forum report not having come across any such files since they were released, a large percentage expressed significant annoyance at having come across the files and began brainstorming ways in which the recording industry’s efforts might be thwarted.²⁵⁸ 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.²⁵⁹

Because most users who upload MP3 files have their defaults set to make those files they have just downloaded available for download by others, the faulty files have spread quickly beyond the

<http://www.heinz.cmu.edu/wpapers/detail.jsp?id=4252> (proposing that the RIAA flood the file-swapping networks with thousands of flawed sound recordings). The rock group Barenaked Ladies has adopted this strategy, but did so openly, and on a very small scale. See Bev Wake, Canadian Band Gets Last Laugh in MP3 Fight: ‘Sneaky’ Barenaked Ladies Dupe Online Music Pirates, *Ottawa Citizen*, Sept. 22, 2000, at A8.

²⁵⁷ Dawn C. Chmielewski, Labels Open New Fire on Piracy: Barrage of Decoy Music Aims at Online Services, *San Jose Mercury News*, June 28, 2002, available at 2002 WL 21858536; see also Nick Wingfield, Behind the Fake Music: Record Industry Plants Decoys to Foil Fans of Free Web Tunes; A Decoy for Sheryl Crow, *Wall St. J.*, July 11, 2002, at D1 (discussing the recording industry’s tactic of planting decoy songs on file-sharing services).

²⁵⁸ See Gnutella News Forum, Spoof Files on P2P Networks? Tell Us!, at <http://www.gnutellanews.com/article/5015> (last visited Aug. 8, 2002) (on file with the Virginia Law Review Association) (displaying postings of various users).

²⁵⁹ 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); See Teresa Wiltz, Music Debate Heads to the Hill, *Wash. Post*, Aug. 21, 2002, at A8.

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 this development by changing their default settings so that only those files they have listened to would be available for downloading. 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 fellow users of having intentionally spread the corrupted copies. 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, there could have been a cascade of animosity reverberating through the networks.

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 had provided them with content, the reciprocal chain motivating their cooperation would have broken.²⁶⁰

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

²⁶⁰ Indeed, if reciprocity runs in both directions, then file-swappers 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.

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 thus far has characterized the file-swapping networks. Once again, these uploaders 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,²⁶¹ and while file-swappers themselves have been angered by the moves, there is no evidence that music listeners generally 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 assumed the risk of imperfection when they tried to obtain copyrighted materials for free.

A more sensible cause for concern among recording industry executives is that the file-swapping networks would be able to combat misidentified or flawed file uploads through various technological innovations. Indeed, by introducing an eBay-like technology²⁶² that allowed its users to rate a particular file’s quality, the Kazaa network attempted to put such an infrastructure in place.²⁶³ On Kazaa, however, such a rating system required a user to report on the quality of the downloaded file. Because doing this was cumber-

²⁶¹ See sources cited *supra* note 257.

²⁶² See Tamar Frankel, *Trusting and Non-Trusting on the Internet*, 81 B.U. L. Rev. 457, 471 (2001); Feedback Forum, at <http://pages.ebay.com/services/forum/feedback.html> (last visited Nov. 16, 2002) (on file with the Virginia Law Review Association) (describing the “Feedback Profile” that every eBay user develops based upon comments from other users).

²⁶³ See Integrity Rating, at <http://www.kazaa.com/us/help/glossary/ratings.htm> (last visited Jan. 19, 2003) (on file with the Virginia Law Review Association).

some, I observed relatively few users employing it. What works on eBay when an auction participant must rate a handful of buyers or sellers will not work as 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 had elapsed. It may well be that the recording industry could develop technologies that would leapfrog whatever protections the file-swapping programmers invented.²⁶⁴ The recording industry does not need to prevent all file-swapping; it only needs to make file-sharing more difficult and less attractive.²⁶⁵

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 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.²⁶⁶

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 sanc-

²⁶⁴ See Lessig, *supra* note 108, at 129–30. Lessig has argued that trusted systems ultimately may become a technological fix for copyright infringement. See *id.* at 130. Lessig, perhaps because he was writing in a pre-Gnutella era, uncharacteristically underestimates the possibilities for hackers to spread, via the Internet, innovative tools for circumventing trusted systems.

²⁶⁵ See *id.* at 57.

²⁶⁶ Litan, *supra* note 48, at 1076.

tions against individual copyright infringers.²⁶⁷ 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 accompanying 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.²⁶⁸ Residential Internet Service Providers 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.²⁶⁹ This fee need not be high. A charge of one dollar per 50,000 kilobytes would easily do the trick, especially in deterring students.²⁷⁰ 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.”²⁷¹ Alternatively, the federal government could tax such uploads directly, and collect through the Internet Service Providers.

The introduction of such a charge on residential uploading would constitute a self-enforcing effort to shut off the flow of free

²⁶⁷ 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 121, at 609.

²⁶⁸ For a general discussion of the potential for regulating user conduct via Internet Service Providers, see Katyal, *supra* note 120, at 1095–1101.

²⁶⁹ 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.

²⁷⁰ Under such a charging scheme it would cost approximately ten cents to upload the average song in MP3 format and a little over one dollar to upload the average album (for example, The Beatles’ *Magical Mystery Tour*, which is 51,771 kilobytes).

²⁷¹ Shirky, *supra* note 7, at 33.

content that has made the file-swapping networks possible.²⁷² 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, there are limits to the kinds of sacrifices that users will make for the benefit of anonymous fellow users, even in the face of charismatic code's attempts to instill a cooperative norm of reciprocity.²⁷³ 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. Such a regulation would expose the limits of people's willingness to be kind to strangers.

An incremental charging scheme will of course 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 Internet could eviscerate much of what makes it such an attractive tool for democratic self-expression and decentralized debate, among other things.²⁷⁴ Reasonable people may well conclude that the tradeoffs involved exceed any anti-infringement

²⁷² 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 182, at 262 (noting that people are particularly reluctant to seek help from strangers, but not from friends, when the costs of helping are high).

²⁷³ See *supra* text accompanying notes 101–06.

²⁷⁴ See Lawrence Lessig, *The Death of Cyberspace*, 57 Wash. & Lee L. Rev. 337, 341–43 (2000).

benefits.²⁷⁵ 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 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.²⁷⁶ 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, however, might be able to weaken file-sharing through a less ambitious education campaign. The charismatic code hypothesis suggests that if cooperative behavior is mag-

²⁷⁵ Alternatively, policymakers 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.

²⁷⁶ See Recording Industry Association of America, Anti-Piracy: Education, Innovation and Enforcement, at <http://www.riaa.org/protect-online-3.cfm> (last visited Nov. 16, 2002) (on file with the Virginia Law Review Association) (discussing the RIAA Soundbyting education campaign).

nified 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 industries 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 a norm of free-riding exists on Gnutella. If Gnutella's users believe this data—and that is a big “if”—then that statistic could make file-sharing scarcer still. Of course, if the Kazaa/MusicCity network (on which my data suggests sharing is more common 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 by 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.²⁷⁷ 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.²⁷⁸

²⁷⁷ Cf. Perkins, *supra* note 213, 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.”).

²⁷⁸ 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

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 prominently identify free-riders and those sharing very few files in response 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. Similarly, the record labels or their allies might release a Kazaa patch that either magnifies the extent of the free-riding on Kazaa, defaults users into free-riding, or, as the Kazaa Lite application has already done, allows free-riders to download files more efficiently than most file-sharers.²⁷⁹ In order to convince file-swappers to download these patches, the creators of these patches would need to create desirable improvements that enhance the experience of using these applications, and bundle these improvements with the un-charismatic code elements. If 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 or strengthening the appeal of free-riding, the recording industry might well prompt file-swappers to imitate the free-riding behavior that is still somewhat common on these networks.

taken as important in their own right since people act on their perceptions in addition to acting within a real world.") (citation omitted).

²⁷⁹ See *supra* note 173 (discussing Kazaa Lite and the way it undermines the effectiveness of Kazaa's new "participation levels" feature). Kazaa Lite is an unauthorized version of Kazaa's proprietary software. See Pete Rojas, *Kazaa Lite: No Spyware Aftertaste*, *Wired News*, at <http://www.wired.com/news/mp3/0,1285,51916,00.html> (Apr. 18, 2002) (on file with the Virginia Law Review Association). Of course, as the defendants in an RIAA lawsuit alleging massive copyright infringement, Kazaa's creators are not in a particularly strong position to urge a crackdown on Kazaa Lite's infringement of Kazaa's copyrights.

E. Strengthening the File-Swapping Movement

The foregoing discussion presumes that the reader's orientation is toward controlling copyright infringement. 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 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 an inefficient copyright regime, 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.²⁸⁰

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, in the past MusicCity allowed a user to peek at the shared directory of another user who was downloading from him. By making such searches available, the software potentially permitted a user to discover that some portion of those users who were downloading from him were not sharing with others. By disabling this feature, MusicCity could have rendered invisible those users who were sharing no files. Alternatively, the software might identify new users by using a particular color code or symbol during the users' 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. In the most recent version of Kazaa, the software creators have gone so

²⁸⁰ 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.

far as to provide uploading users with information about each downloader's propensity to share.²⁸¹

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 as well 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.

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 also ought to be quite interested in studying file-swapping networks. These scholars—the social norms theorists—examine instances in which behavioral regularities arise among groups in response to social pressures, especially when 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 one 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.

²⁸¹ See *supra* note 173. Because a number of network users employ Kazaa Lite software that misidentifies its users as maximally cooperative, the extent of sharing on Kazaa is unintentionally magnified. In any event, given the propensity of most Kazaa users to engage in small-scale sharing, in the absence of the Kazaa Lite distortion, one could expect that Kazaa's new "participation levels" feature would discourage both free-riding and large-scale sharing. Paradoxically, as an increasing number of Kazaa users learn about Kazaa Lite's availability, the contributions made by actual large-scale sharers will become blurred.

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 norms of conditional cooperation. It further suggests that community members' favorable 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 motivate consumers to act, then a wiser strategy for the RIAA and its allies might be to think about ways in which they could 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 redirect their creativity toward 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.
