

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

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[M]y 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.

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. ... [I]t 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, "for 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." 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 substantially the same (relatively high) rates. Moreover, thousands incur a serious risk of severe criminal

penalties by uploading pornography (including child pornography) to strangers. What on earth causes people to behave in such a manner?

... 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. 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.

## 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. 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." 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, while the actions of those who do not share content are virtually invisible. 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. 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.

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 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. 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. 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 success of the network and, not coincidentally, the most dogmatic supporters of file-swapping norms. 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. 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.

### 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." 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. This juxtaposition of downloads and uploads on the same screen cannot be altered by the user. 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-swapping applications tap further into norms of reciprocity that users bring with them to these networks.

During 2001, several Gnutella applications introduced a new feature that is a testament to the force behind the impulse to reciprocate. That feature allows users to choose to share their files only with fellow users who are in turn sharing their files. It also allows the user to specify the number of files that another user must be sharing in order to gain access to the files in one's shared directory. Thus, a user 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 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. 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. As I argue below, because reciprocity is so strongly inculcated in most members of society, file-sharing norms can piggyback on that meta-norm.

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?

#### 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. Thus, there is little mystery about how the mass media's glorification of Shawn Fanning might be related to the social acceptability of college students trading homemade CDs consisting of unlicensed sound recordings, or co-workers discussing the songs they have acquired via Gnutella. Social norms, therefore, provide satisfactory tools

to explain the apparent growing acceptability of file-swapping's manifestations in real space.

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-knit community of users on the file-swapping networks. 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. In a loose-knit setting - an environment characterized by user anonymity and a low likelihood of repeat player interactions - neither esteem theory nor signaling can explain this behavioral regularity. Classical economics is also at a loss.

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. 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." 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 A, or by helping C (a third party, albeit one who shares at least some relevant characteristic with A). 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. 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. If the file-swapping example is illustrative, these reciprocity norms 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." 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." 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." Conducting their own

experiment, the researchers determined that while subjects who had been helped by others but were unable to reciprocate reported feeling guilty, [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.

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. Research by Shumaker and Jackson's peers has resulted in similar findings. Indeed, the aversive effects of nonreciprocated benefits are likely to be particularly pronounced among anonymous strangers. 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. They derive satisfaction from maintaining these positive self-images.

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. 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 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." 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.

These studies of cooperation among anonymous strangers provide a persuasive psychological account of what motivates users of 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. 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. Cooperation tends to engender more cooperation, 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. 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. Relatedly, visible sharing can make sharers out of members who have just joined a network.

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

Third, increased cooperation among members of a network ordinarily engenders increased benefits for the cooperators. 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. 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.

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.

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. 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. 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. Perkins writes:

With the accumulation of conversation over time, certain college social events get the reputation (often encouraged by the sponsors) that "everyone goes" and "everyone gets smashed." Thus a sensationalized view of the college community emerges. This powerful mythology has a life of its own and actually encourages more students to attend parties and get drunk than might otherwise do so.

Misperceptions regarding levels of alcohol consumption therefore can become "self-fulfilling prophecies" and can snowball as visible intoxication fuels misperception, which in turn fuels more intoxication. 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.

### 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. Some individuals will have less well-developed senses of reciprocity; it is clear that individuals internalize and act upon even these widespread norms to varying degrees. 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. 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. 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. 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.

### 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. 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. 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.

Sharing a portion of one's MP3 collection is consistent with a reciprocity story, 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. As it happens, users do precisely the opposite. A common 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. 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.

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.

#### 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. ... [I now analyze] the aftermath of the Ninth Circuit's *A & M Records. v. Napster, Inc.* decision. Although the Napster decision was successful in purely legal terms - it established clear rules and largely resolved the dispute among the parties - it was unsuccessful in two respects: It evidently failed to rally the public around the cause of combating copyright infringement on the Internet; and it ultimately diverted Napster users to other file-swapping networks without making them second-guess the morality of their actions. ... [I] 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, 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. While the court's ruling may alter social norms in the long run, the early evidence should encourage supporters of file-swapping. What accounts for the apparent failure of the Napster decision to alter users' behavior?

##### 1. The Importance of the Injunction

While the Napster court devoted barely two pages of its opinion to questions involving the scope of the injunction, it was this aspect of the opinion, rather than its primary holding, that was most important in setting the tone for the events that followed.

After ruling that Napster had been guilty of contributory copyright infringement and that Napster's users were themselves engaged in copyright infringement, the Ninth Circuit elected to exercise restraint at the remedial stage. The court first faulted the district court for improperly allocating the burdens of ensuring copyright compliance. It then remanded the case to the district court for a reassessment of the proper remedies. 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.

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

## 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. 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.). 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 discussed not only various methods of getting around Napster's screening software, but also alternative file-swapping applications they would use in the event of Napster's ultimate downfall. 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, presumably based on concerns that such an injunction might not withstand First Amendment scrutiny. Because the injunction never 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. 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.

For younger Internet users, the rebelliousness embodied in the various efforts to circumvent the Napster injunction undoubtedly proved quite attractive. 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. 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, and all the social incentives pointed toward circumventing the newly announced law. Peer pressure and peer-to-peer norms were perfectly aligned.

The teenagers who playfully flouted the Ninth Circuit's injunction in the first weeks after its ruling and ultimately moved on to other file-swapping sites when the injunction was tightened undoubtedly drew a number of conclusions from the experience. On the basis of the injunction-circumvention experience, many of these teenagers have been socialized to believe that the copyright laws and 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.

#### 5. The Injunction in Retrospect

Today, it is fair to say that Napster was brought to its knees by the Ninth Circuit's injunction. 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. 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 actions against individual music listeners or politically powerful Internet Service Providers if they are to clamp down on illicit file-swapping effectively. The future for the recording industry portends significant legal costs as well as bruising public relations battles, as 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.

### 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. This could be accomplished rather easily. The RIAA versions, however, would be flawed in one of several respects: They might contain annoying pops, screeches, skips, and buzzes throughout the record; alternatively, the 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." 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. 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.

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 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.

## 2. Mischievous Misidentification

The self-help strategies need not be limited to providing users with inferior copies of content they actually desire. An even more mischievous strategy would misidentify certain relatively undesirable songs as popular songs. For example, by labeling various polka melodies as Britney Spears hits and distributing Mongolian throat singing MP3s as popular Celine Dion vocals, a few dozen mischievous uploaders could quickly undermine the trust that 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, 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 technology that allowed its users to rate a particular file's quality, the Kazaa network attempted to put such an infrastructure in place. On Kazaa, however, such a rating system required a user to report on the quality of the downloaded file. Because doing this was cumbersome, 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. The recording industry does not need to prevent all file-swapping; it only needs to make file-sharing more difficult and less attractive.

### 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.

The copyright industries enjoy the benefit of a sympathetic Congress and sympathetic courts, but they lack the popular support to enforce criminal or significant civil penalties against file-swappers. The copyright industries' various attempts to enforce their copyrights via what Dan Kahan calls "hard shoves" have been largely unsuccessful because of the lack of public support for harsh sanctions against individual copyright infringers. 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. 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. This fee need not be high. A charge of one dollar per 50,000 kilobytes would easily do the trick, especially in deterring students. 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." 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 content that has made the file-swapping networks possible. 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. 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. Reasonable people may well conclude that the tradeoffs involved exceed any anti-infringement benefits. 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. 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 magnified and uncooperative behavior is masked, then members of a community are more likely to cooperate. If the copyright industries could somehow magnify noncooperative behavior and mask cooperative behavior, they should be able to undermine cooperation and perhaps even trigger a cascade of noncooperative behavior. How might these goals be accomplished?

One strategy would be for the copyright 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. 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.

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. 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.

#### 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.

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

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.

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.

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