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Notes for a Sociology of P2P Networks

I

Culture is increasingly mediated by digital technology; culture is even, for many people nowadays, primarily experienced through digital technology; and many cultural forms are increasingly beholden to, or entirely dependent on, this technology. Different cultural forms have diverged in the extent of their adaptability to digital technology. Certain pre-digital forms have shown a high degree of adaptation (recorded music, literary forms, film and video, television). For others, digital technology has proved less relevant (dance, painting). Still others even could not have emerged without this technology (e.g., video games and other computer software). The importance of the Internet as distributor and medium of certain cultural forms cannot be exaggerated; this importance is both cause and effect of the prominence of digitally-mediated cultural forms. The Internet, however, despite its naturalized appearance as mere repository or conveyance of digital and digitized culture, is not neutral; rather it is a structured space, constructed through the activities of individuals, governments, corporations, and other institutions. Cultural forms are therein made available in varied and ever-changing ways dependent on the interactions between users, programmers, and various legal, business, and social entities. The evolution of Internet filesharing has been largely determined by two often conflictual factors: the desire for ever faster and more convenient ways of distributing and procuring data on the one hand, and the legal and commercial interests of corporations on the other. The current outcome of this evolution—of the reciprocal interaction of these factors—has been a highly decentralized and depersonalized system in which filesharing takes place over what are generally known as peer-to-peer (P2P) networks. The most popular of these networks use a protocol known as BitTorrent. This protocol has particular social significances, which are

investigated here.

II

Alongside the long-dominant capitalist mode of procuring goods and services—i.e., with the mediation of money—there have existed other modes. Though these modes may have existed in isolated everyday situations (e.g., in the doing of "favors" and in charity), they have been more pronounced in the very specialized if informal interactions among members of subcultures. This can be seen especially in various "collecting" groups, organized partly as barter economies. Though the goods collected were often the products of capitalist production, and though their exchange was partly determined by their monetary value in the larger economy, a good deal of the value of these objects was determined subculturally, by the specific interests of the collectors which might differ considerably from the interests of mainstream consumers. Bootleg recordings, for example, existed outside the monetary economy and typically had no commercial value; their "trade" value was determined contextually and contingently (though some bootlegs eventually became commodities in the more usual sense). Of course, until very recently all goods were of material substance—and all services were rendered through face-to-face or material interactions—and were thus limited even if not completely unique, necessitating (except, at least ideally, in the case of charity) some sort of personal reciprocity or mutual exchange. This situation has changed dramatically.

Through the convergence of technologies of digitization with electronic networks (i.e., the Internet) the commodification of culture has become, to a large extent, unnecessary—at least to many it has come to seem unnecessary. It has become possible for digital versions of cultural products, or cultural products that are digital, to be distributed quickly and—aside from costs borne by individuals to connect to networks—freely. Such products are no longer "unique" or limited; in fact many cultural forms now exist in a state in which the conceptual distinction

between "original" and "copy" has no meaning—they are precisely the same. One work, one chunk of digital information—a picture, a text, a recorded sound—can be replicated infinitely and effortlessly. To purchase these infinitely available virtual objects, these copies of simulacra, with *money*—something *not* infinitely available to the individual—comes to seem absurd.

In earlier ages a product, when exchanged for money, passed from the possession of one person into that of another. Even if the seller had ten or 10,000 objects that were virtually identical, after the sale she had one less; this gap could only be filled by expending labor or purchasing a replacement elsewhere. In our current situation a seller begins with an infinite number of identical objects; if she sells one she still has an infinite supply—but that is not the end of it, for the object she has sold also becomes *an infinite supply of itself*. The concepts of "exchange" and "commodity" begin to break down in this relation, and our society is still flailing towards a solution to this "problem." The always conditional affinity between the Capitalist and Technological modes of operation seems increasingly fragile.

III

The history of the Internet is in part a history of the free replication and distribution of culture. In the early days this was mainly a sharing of expertise (knowledge) and of works created without commercial intent: graphics, poetry, music, free software applications—all created by individuals for their own satisfaction and for the enjoyment of others. As Internet connections became faster and compression algorithms more advanced, it became possible to share larger and larger files, and to share commercial works along with the noncommercial. After all, a work that could be digitized, or already existed in digital form, only needed to be purchased once in order to potentially belong to everyone. At first this "sharing" was still of a rather limited nature. To access certain kinds of material—in particular copyrighted material—prior to P2P networks required a certain technical expertise and an ability to operate within certain Internet

subcultures. One had to know who to ask for permission to access private servers, one had to gain the trust of others—pirated works could not just be made available to anyone. After P2P this began to change. Servers were no longer controlled by a few individuals or groups—everyone connected to the network was a server. Thus everyone's digital goods—whether they had been purchased in the traditional manner or constructed through personal effort—could be made available to everyone else with little effort and at virtually no cost. One could easily share the goods one enjoys, and discover new goods. Exchange-value became meaningless except in a very generalized sense where users might contribute goods to help perpetuate the community. Use-value in this context becomes foregrounded, at least ostensibly, as users only acquire goods they presume will be useful in and of themselves, and not as holders of monetary or exchange-value.[1] These goods cannot be "resold," they cannot be exchanged, they cannot appreciate in value, they cannot be pawned, they cannot be "donated" in the usual sense (since even if we give them away they can still remain in our possession)—in short, they can only be *used* or else left to languish invisibly in forgotten spaces on a hard-drive.

<div align="center">IV</div>

Internet filesharing, of which BitTorrent is the latest method, has historically tended to become both more efficient and democratic but also more impersonal. In earlier days, when filesharing took place through Internet relay chats (IRCs), users, though they may never have met in the real world, had to interact with each other to exchange files—through textual communication they personally acknowledged each other's existence and relevance. Often within these systems there developed hierarchical systems of prestige and complex systems of trade. Files were exchanged directly between users' computers, or users downloaded particular

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1   This was not necessarily the case prior to P2P networks. For example in IRC-based virtual communities, members would sometimes acquire digital goods in order to trade them for other goods (Cooper and Harrison 2001).

files from a central server. The availability of files was sporadic and based on the expressed

wishes and goals of the community. Early P2P systems such as Napster leveled filesharing

hierarchies and reduced personal interaction in that users were able to easily see what files

resided on each other's computers, and, if they so desired, could acquire those files

"anonymously" without interpersonal communication. Later developments—principally

BitTorrent, which might more accurately be labeled a peers-to-peers system, rather than peer-to-

peer—pushed this even further: Users were even more estranged from each other as their contact

was mediated by the "torrent" file, and the primary method of file transfer was no longer to

download a single file from a single other user, but to download different fragments of a single

file from multiple other users. Users could no longer "see" into each other's machines, but only

became aware of them through their own machine's steady accumulation of data and through an

ever-shifting readout of IP addresses (displayed in a window in most torrent clients[2], which *can*

be viewed but is not necessarily). We see a shift from a more intimate technological (serial)

monogamy (i.e., peer-to-peer) in which machines were connected for the length of the file

transfer, to a flitting technological promiscuity (i.e., peers-to-peers).

Through BitTorrent-style P2P sharing then a strange sort of sociality takes place. A

human has a desire to obtain a particular digitized work. This human, by means of a machine,

begins to search for a file; she instructs a software program to find this file; this file she seeks—

the torrent file—resides on a server somewhere, but it is not equivalent to the work she originally

desires; rather it is a set of instructions, metadata, pointing a software program on the user's

machine to where the desired work, or at least pieces of it, may be found—that is, on other

machines operated by other individuals. This program, independently of the user, then

coordinates with these other machines, copying little pieces of the desired file onto its own

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2   A torrent client is a software program that a user interacts with to download a file.

hardware. Concurrently, while fragments of the desired work are being copied onto the first individual's machine, other individuals are giving instructions to their programs that may cause these programs to copy fragments of files from the former's machine onto their own machines (assuming the first individual has instructed her software to "share"). None of the human individuals involved in this interaction need necessarily know anything of each other; this is a highly mediated sort of contact. Yet it is also an intimate sort of contact. Our computers—our "personal" computers, which sometimes even sit on our laps—are important additions to our selves—the virtual repositories of our memories, commodities, thoughts, etc. They are our interface with much of the world. Through P2P networks, as we search out into the digital world, we allow others to penetrate into us, and there is a great deal of trust on both ends that the files being transmitted and received are legitimate (lest we receive a "virus" or other unwanted software). Of course we do not achieve knowledge of others in this way, nor do they achieve knowledge of us. It is, rather, our machines producing and receiving this reciprocal knowledge. But through this knowledge unknown to us we are able to grasp that which we desire.

Thus, at the same time that digital technology allows a near instantaneous access to culture, and even a potential escape from its commercial aspects, it can also lessen the quantity and quality of our social experiences. The acquisition of goods in the traditional mode required an individual moving out into the "real" world, to deal with other humans face-to-face. The interactions arising therefrom were often enough superficial and instrumental, yet they also had the potential to turn into something meaningful in and of themselves. At the corner store there was always the potential to engage in "ordinary" sociality, to chat with the clerk, to run into an acquaintance. And each journey to the store was different—different people working each time, different customers inside, a different series of events along the way. We move about online in collective solitude, and the experience of acquisition is very often precisely the same. The

interfaces to both commercial and noncommercial sites rarely change; we do not know the individuals behind these sites in the first place (whose activities allow us to acquire certain goods and information), and we do not know if they change; nor do we know of other people interacting with the same site, or, indeed, whether there *are* other people interacting with the same site at the same time (the exception, of course, is sites with a social networking component): "I won't find another person on the Web, I'll only find the traces they left behind" (Lysloff 2003: 24).

<p style="text-align:center">V</p>

The torrent files that refer to the actual files we desire can be found on websites that index them. These websites also contain "forums" and comment sections to allow users to communicate with each other, and much P2P-derived "human-to-human" sociality now takes place therein. The types of interactions that can take place within the forums and torrent-comment spaces is fairly rigidly prescribed. Forums are highly structured internally and are usually policed by one or more moderators. Typically, just about any form of texted comment or query is allowed as long as it is made in the proper topic section of the forum—otherwise it risks censure by other users or removal by the moderator. The comment sections for individual torrents seem to be less policed by moderators, though it is generally understood that the comment section is for commenting on the technical quality of the digitized work, or for showing gratitude to the original uploader. Other types of comments, such as personal attacks on the uploader or other commenters, or even extended evaluations of the work *qua* work (e.g., of a movie as such), are treated with anything from tolerance to irritation to overt hostility by other users. Nevertheless, the types of interactions that take place in these spaces are where much of the work of "community"—such as it is—takes place. Technical problems are worked out, the quality of files is evaluated, legal issues are discussed, new members are educated—the norms

and tenor of the community are established and maintained. The value of individual site members to their community is also available for quantification in these spaces, and is measured in terms of "reputation." Members can receive positive or negative feedback to their comments in forums or in the comment sections, and thus achieve a numerical index of their perceived helpfulness and trustworthiness attached to their names—a reputation rating.

Although the particular ethical positions of P2P communities are worked out and debated in their internal forums, the ethics of P2P networking in general are alluded to in a common terminology. This terminology is laden with organic and utopic-economic metaphors. For example, a complete file is known as a "seed"; the process of sharing it is called "seeding" (which contributes to the "health" of a torrent). A user who only downloads, without sharing or uploading, is a "leech" (i.e., someone who doesn't "share"—is parasitic, anti-social).[3] One's "share-ratio" describes how much one has uploaded relative to the amount downloaded; this is also used specifically as a measure of good behavior under the somewhat rare "credit systems" where the amount uploaded determines the amount that can be downloaded (such systems are intended to eliminate leechers). One's "peers" are other members (or rather their computers) that are also downloading a particular file. The "swarm" is the total number of peers and seeds involved with a particular file at a given time. This terminology has a normative function in the community, indicating the behavior necessary for the community to survive. This is particularly important as there are no financial incentives for members to contribute to the community. It also evokes the P2P network as an ecological system that requires the maintenance of a certain optimal balance.[4]

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3   Or a "free-rider" in standard economic terms.
4   The organic imagery resonates with other common Internet terminology, e.g., "web," "virus," etc.

VI

Internet communities tend to operate within economies of prestige[5] and P2P communities are no different. However, because of the large size and diversity of the community (especially in members' levels of engagement) prestige can be difficult to come by. Thus it functions less as a mediator here than in other kinds of Internet communities. Most obviously prestige attaches to operators of torrent indexing sites and to those few consistent uploaders of commercial films. Otherwise the scene is too diverse for sustained hierarchies to develop; and in any case uploaders have little ability to cash in on any prestige they accrue since the illegal nature of their work requires extreme anonymity.

Despite its diffuse and diverse nature, this system and its conditions (especially its lack of a money economy) have given rise to a peculiar sort of hero, a hero who provides a surprisingly legitimate analog of the masked superheroes of popular culture. This is particularly the case in regards to commercial film. Defeating the copyright protection of a commercial DVD (or other commercial film source) and transcoding it into a common format at a reasonable file-size require a certain amount labor and technical skill; and this activity is both legally punishable and can bring no material rewards. The "uploaders" of commercial films toil in anonymity, known only by strange aliases—aXXo, Klaxxon, FXG, VoMiT—but are spoken of (at times with irony) in terms of Robin Hood or David (as in "David and Goliath"). Like their comic book and movie analogs, these "pirates" operate outside the law; their "true" identities in are unknown; heroes to many, to some they are also villains/menaces, criminalized by the mainstream media; they possesses superordinary powers—in this case of the technical kind; their motives remain somewhat mysterious, though they often appear to be driven by a sense of righteousness and justice; their "good deeds" necessarily go unrewarded—the real persons who operate behind the

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5   See Cooper and Harrison (2001), Kollock (1999), and Lysloff (2003).

masks can receive nothing more than personal satisfaction from their labors, and the gratitude of the community.

Ultimately, why essentially anonymous individuals and groups continue to supply other anonymous individuals with digital public goods in a system of "generalized exchange" remains somewhat mysterious. This behavior may be partly explained by a combination of reputation and sense-of-efficacy based factors (Kollock 1999: 228): Contributors gain a positive reputation from their actions and the satisfaction of having an effect on a large number of people. The fact that they are anonymous, known only by aliases, does not necessarily mitigate their need to maintain their reputation. Consider aXXo, one of the most prolific, longevous, and beloved of Internet film pirates. Practically a brand-name of pirated film, aXXo famously went on tirades and conducted countermeasures against those who tried to arrogate or misuse his[6] name. And there are always rumors that aXXo merely repackages someone else's work in a user-friendly wrapper. Then there is the curious case of Klaxxon who appropriated the letter combination a-x-x-o to build his/her/its own brand (Walker 2008).[7] Such quarrels and allegations and appropriations—which are taken so seriously within the community—are marks of a community in which prestige (however diffuse) is the primary currency. Yet I feel somewhat dissatisfied with such explanations; I sense that this behavior is a continuation of a deeper tradition stretching back through the early hacker subcultures and through the 1960s counterculture movements before them …

VII

Navigating P2P networks one becomes aware of a truly staggering amount of freely available data as well as of its apparent variety. There is a very real question, however, about how many of the goods acquired in this way are really "used," or engaged with on a deep level,

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6   aXXo is usually considered to be a "he," though "his" real identity remains unknown.
7   Thus Internet searches for aXXo would also lead to Klaxxon.

by the acquirers; questions can also be raised about the true variety of the available goods. To speak first of the variety, it may be obvious that certain types of goods will be more widely available than others on these networks. They and their users are after all embedded within a larger and more pervasive market system. The availability of goods on P2P networks is to some extent dependent on desires created by users' movements through larger commercial cultures. Thus recent blockbuster movies tend to be easier to obtain than underground or independent films; academic books that are relevant to a wide variety of disciplines, or that represent the mainstream thought of major disciplines, have greater presence than tomes circulating in the more obscure reaches of the academy. Nevertheless, a variety of goods that failed in, or were never a part of, the commercial market can still be teased out.

Concerning quantity users can, with little effort, download and store a nearly unlimited number of files. Anything found on the network that catches their interest can be archived for eventual use. But it is all too easy to wind up with an overwhelming amount of data—endless libraries of music and movies and books, etc.—which is only ever picked over atomistically. The accelerating proliferation of objective culture is intensified by its extreme availability, and the powers of the individual subject to engage in this culture are quickly overburdened.

XIII

On P2P networks we find held out to us possibilities of decommodification, of freedom of information, of a utopic sharing of knowledge. But inevitably new freedoms bring new restrictions, new revealings create new concealings. Thus, on P2P networks we also find, as with much (post)modern culture, a numbing of the consciousness in the face of the escalating availability and demands of objective culture, the amplification of social distance and impersonality in the face of increasing technological intimacy and a democratizing of access.

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