International Journal of Communication 6 (2012), 669–688 1932–8036/20120669
[Publisher's erratum: An earlier version was incorrectly labeled as Vol.5 (2011)]

IJoC
Piracy Cultures

Poisoning the Affective Economy of RW Culture: Re-Mapping the Agents

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Piracy culture as a concept is organized around a series of widely accepted facts: for example, that copyright infringements are widespread, that the entertainment industries have to do something about this, and that ordinary users wanting a share of "remix" culture are getting caught up in this. This article accepts that "Read/Write" culture is a useful formulation and then seeks to remap the relationships among key agents in piracy culture as a field of specific practices. It is suggested that several mutually dependent fantasies lock these agents together. Recent research on technical activities in the area of filesharing reveals what this article characterizes as a deliberate poisoning of the affective economy on which both "piracy" and a creative "Read/Write" culture depend, and the article detects quantitative evidence that this phenomenon has been widespread.

The Jekyll and Hyde of Piracy Culture

> Piracy today produces a series of anxieties in states, transnational capital, and media industries and even among some liberal proponents of the public domain. The efflorescence of nonlegal media production and circulation exists as a series of publicly articulated facts, constantly referred to in media panics, national security discourses, and everyday conversations (Sundaram, 2010, p. 106).

The principal purpose of this article is to rearticulate some of the facts evoked by Sundaram around a remapping of agents whose activities constitute the field of piracy culture, and, in doing so, to shift the grounds for anxiety.

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Date submitted: 2011–08–16

Lawrence Lessig's use of the term "RW" or "Read/Write" culture (Lessig, 2008, pp. 28–29, 51–83, 106–108) has several virtues, among which is an inherent refusal to discriminate a priori between content-independent RW activity and the creative deployment of such activity in the form of content-specific "remix" practices, around which a kind of social imaginary has grown up. Koepsell (2000) argues that the latter demands a "new ontology of cyberspace" because such practices can be likened to cookbooks. It would be possible for an empire of litigation to be constructed around recipes and their protection, but, almost unnoticed by cultural theorists, this has not happened. Recipes are routinely "stolen," adapted, recombined, and represented, and a whole industry of glossy cookbooks and television food shows sustained. The recipes themselves are not, by and large, protected as intellectual property despite being in a sense the core content where value resides. This is because considerable creative and commercial value has been shifted onto their "embellishment . . . with pictures, celebrities, anecdotes, jokes, and so forth" (Koepsell, 2000, p. 101). In short, the cookbook exists as a prototype form of remix culture—appropriately enough, if we stop to think about it. And "embellishment" of that sort feels very much part of the general style embraced by the Facebook generation, while optimistic cultural commentators, Lessig among them, imagine in all of this an emergent grass-rooting of creativity in everyday life.

Of course, as the etymology of "RW" as "Read/Write" in data transfer systems tells us, RW culture is technologically based, and this is where most of the current tension arises in relation to "RO" or "Read Only" cultural practices, which dominated the last century of media forms and relations. The very technologies needed to energize and sustain creative RW cultures have as part of their indivisible character the capacity to "read" and "write" (that is, redistribute) any content, including that in which copyright is invested. Thus "piracy culture" as the Hyde to creative RW culture's Jekyll. Filesharing is the principle at the heart of this conundrum. It is easy to get distracted by particular implementations of filesharing, of which Napster (for MP3 music files) was the early notorious example, as if the specific incarnation is the thing itself. The Pirate Bay takes on that role at the moment. So too with the filesharing protocols on which such implementations are based, where BitTorrent currently remains the cleverest. But protocols and services come and go, while the principle of sharing files transcends them because it is now the routine, everyday basis of RW culture, as seen most obviously in YouTube and its associated utilities, such as the RipTiger software and its lookalikes that render technically trivial the act of grabbing, saving, and redistributing any video that appears there. This writer is certainly not alone in now needing two backup external hard drives attached to the computer on which he is writing this, just to store the sheer volume of downloaded music and video he has accumulated.

Suddenly, though, we have a new factor to consider. A recent body of work in computer and information sciences (Cuevas et al., 2010; Kong, Cai, & Wang, 2010; Liang, Naoumov, & Ross, 2006) is revealing, on a technical level and on a global scale, the "poisoning" of BitTorrent as the most prevalent filesharing system. We will come back to the nature of this "poisoning." First, a fuller description of its context (and some quantitative evidence of its presence) may be called for.

Protocol Class	Southern Africa	South America	Eastern Europe	Northern Africa	Germany	Southern Europe	Middle East	South-western Europe
P2P	65,77%	65,21%	69,95%	42,51%	52,79%	55,12%	44,77%	54,46%
Web	20,93%	18,17%	16,23%	32,65%	25,78%	25,11%	34,49%	23,29%
Streaming	5,83%	7,81%	7,34%	8,72%	7,17%	9,55%	4,64%	10,14%

Figure 1. Proportions of Internet Traffic (by deep packet inspection), 2008 (Schulze & Mochalski, 2009, p. 2).

BitTorrent is the most elegant system to date for direct peer-to-peer filesharing, that is, for not needing a "hosting" service to which files are uploaded and from which they are then downloaded. P2P technology, typically through open folders on users' computers, creates a virtual swarm of data and file-sharers. One indication of the scale reached by P2P use globally came from Schulze and Mochalski (2009). Their research, in the notoriously challenging field of deep packet inspection (DPI), was carried out for the Leipzig-based firm ipoque, a highly regarded provider of DPI analysis for European Internet service providers and institutions. Figure 1 extracts the top three lines from their 2008 study of "protocol class proportions," that is the proportional volumes of Internet traffic using the various available transport protocols (of which the web's HTTP is only one, though widely and erroneously assumed to be synonymous with the Internet). The unreproduced lower lines on this list include other transport protocols such as voice-over-IP (such as Skype), and various "tunneling" protocols used, for example, by business conferencing, but the top three lines account for the bulk of Internet traffic. This survey's automated monitoring captured low-level data about protocol usage from some 1.1 million Internet users in a sample of eight global regions. Germany appears as the only country specifically identified, because that is where the research originated. A valuable aspect of this research is that it excluded the United States and China and, therefore, gives an unusually clear global picture, in contrast to most estimations of this sort, which are usually skewed toward the behaviors of American or Chinese Internet users. Pulling a large and much more diverse sample out of the shadows of those national datasets makes the information especially informative. The picture presented in 2009 seems to be very clear on this evidence.

By 2008 filesharing would appear to have overtaken the viewing of web pages in terms of the sheer volume of data being transported by the Internet. Schulze and Mochalski broke this down by specific implementations of the P2P protocol, and BitTorrent emerged, in the period examined, as the most heavily used system for filesharing. That system had begun to look, in short, like a main constituent in the glue that may have been holding an online piracy culture together. However, when we examine the latest figures three years on, a more complex picture emerges. The Sandvine Network Demographics surveys (Sandvine, 2011) have the virtue that they break these proportional figures down into "upstream" and "downstream" activity, broadly reflecting the practices of file uploading and downloading, respectively.

	Upstream		Downstream		Aggregate	
Rank	Application	Share	Application	Share	Application	Share
1	BitTorrent	52.01%	Netflix	29.70%	Netflix	24.71%
2	HTTP	8.31%	HTTP	18.36%	BitTorrent	17.23%
3	Skype	3.81%	YouTube	11.04%	HTTP	17.18%
4	Netflix	3.59%	BitTorrent	10.37%	YouTube	9.85%
5	PPStream	2.92%	Flash Video	4.88%	Flash Video	3.62%
6	MGCP	2.89%	iTunes	3.25%	iTunes	3.01%
7	RTP	2.85%	RTMP	2.92%	RTMP	2.46%
8	SSL	2.75%	Facebook	1.91%	Facebook	1.86%
9	Gnutella	2.12%	SSL	1.43%	SSL	1.68%
10	Facebook	2.00%	Hulu	1.09%	Skype	1.29%
	Top 10	83.25%	**Top 10**	84.95%	**Top 10**	82.89%

SOURCE: SANDVINE NETWORK DEMOGRAPHICS

sandvine

Figure 2. Proportions of North American Internet Traffic (Upstream/Downstream Statistics Voluntarily Submitted to Sandvine by Internet Service Providers), 2011 (Sandvine, 2011, p. 6).

	Upstream		Downstream		Aggregate	
Rank	Application	Share	Application	Share	Application	Share
1	BitTorrent	59.68%	BitTorrent	21.63%	BitTorrent	28.40%
2	Skype	7.16%	HTTP	20.47%	HTTP	18.08%
3	HTTP	7.02%	YouTube	14.13%	YouTube	11.93%
4	PPStream	3.64%	RTMP	4.58%	RTMP	3.90%
5	Spotify	2.91%	Flash Video	3.99%	Flash Video	3.38%
6	SSL	2.66%	iTunes	3.65%	SSL	3.09%
7	eDonkey	1.76%	SSL	3.18%	iTunes	3.07%
8	YouTube	1.76%	NNTP	2.73%	Skype	2.44%
9	Facebook	1.42%	Facebook	1.71%	NNTP	2.30%
10	Teredo	1.18%	Skype	1.42%	PPStream	1.77%
	Top 10	89.19%	Top 10	77.49%	Top 10	78.36%

SOURCE: SANDVINE NETWORK DEMOGRAPHICS

sandvine

Figure 3. Proportions of European Internet Traffic (Upstream/Downstream Statistics Voluntarily Submitted to Sandvine by Internet Service Providers), 2011 (Sandvine, 2011, p. 14)

For both North America and Europe, the Sandvine findings reflect Schulze and Mochalski's major revelation—that P2P and especially BitTorrent had captured major proportions of Internet traffic, although there has been a decline from the 2008 peak. But the breakdown between "upstream" and "downstream" traffic reveals an extraordinary—and initially inexplicable—disparity, with "upstream" P2P filesharing traffic massively outweighing in volume the "downstream" accessing of files. For example, in North America (Figure 2), BitTorrent has more than a 50% share of "upstream" Internet data but only just over a 10% share of "downstream" traffic back to the users. In Europe (Figure 3) the imbalance is less extreme but just as apparent. (The current North American data reveals the meteoric rise there of Netflix, a predominantly one-way streaming service for movies and TV shows, while Schulze and Mochalski's 2008 figures for streaming suggest rather slower increases in streaming volumes elsewhere since then.)

Bracketing off Netflix's particular recapturing of viewers for online RO culture in the United States, why should so many more people in the filesharing world apparently be uploading material than are downloading, if this is indeed what the figures are showing? Who has been doing all that "upstream" activity? Before approaching this question, it should be noted that many current sources of statistics about the relative protocol proportions of Internet traffic seem to be heavily skewed toward "downstream" activity. For instance, Labovitz, Iekel-Johnson, McPherson, Oberheide, and Jahanian (2010) found P2P data as a proportion of "payload" or transported content to be only 18.32% of the total traffic in their study (Figure 4), a figure that is much closer to the Sandvine report's "downstream" figures on their own. Indeed the data of Labovitz et al. on protocol as identified by port (or logical data connection in and out of a computer, of which there are several that are favored differently by the various protocols) suggests at first sight a dramatic decline in P2P traffic, until one notes that Labovitz et al. described 37% to 46.03% of the traffic monitored by port as "unclassified," rendering this information of dubious value overall.

Rank	Application	2007	2009	Change
1	Web	41.68	52.00	+10.31
2	Video	1.58	2.64	+1.05
3	VPN	1.04	1.41	+0.38
4	Email	1.41	1.38	-0.03
5	News	1.75	0.97	-0.78
6	P2P	2.96	0.85	-2.11
7	Games	0.38	0.49	+0.12
8	SSH	0.19	0.28	-0.08
9	DNS	0.20	0.17	-0.04
10	FTP	0.21	0.14	-0.07
	Other	2.56	2.67	+0.11
	Unclassified	46.03	37.00	-9.03

(a) Port / Protocol

Average Percentage	
Web	52.12
Video	0.98
Email	1.54
VPN	0.24
News	0.07
P2P	18.32
Games	0.52
SSH	N/A
DNS	N/A
FTP	0.16
Other	20.54
Unclassified	5.51

(b) Payload Matching

Figure 4. Top Internet Application Categories (By Port-Related Protocol and Payload) (Labovitz et al., 2010, p. 82)

Labovitz et al. (2010, p. 83) make the important point that they might have been encountering the effects of "stealthier P2P clients and algorithms" at work, and thus not showing up identifiably in the port-related analysis. None the less, if we take their 18.32% for P2P payload as likely reflecting a predominantly "downstream"-oriented figure, falling as it does within the 10.37–21.63% range covering North American and European "downstream" usage in the Sandvine statistics, we seem to be seeing elsewhere a significant if sometimes "stealthy" volume of "upstream" P2P traffic that, if present on this scale, must have contributed significantly to the massive peak first identified by Schulze and Mochalski in 2008. Before trying to figure out what this means, and whether it might have something to do with the "poisoning" flagged previously, we must sketch a still wider picture.

From Crisis Mentality to Plan X

Raymond Williams' *Towards 2000* was criticized for seeming "to raise agents, relationships and events to its own imperious level of abstraction" (Gorak, 1988, p. 120) and this was certainly true to a degree with the book's vision of Plan X, Williams' memorable evocation of the élite strategies in "high-capital" advanced societies that, while positioning themselves as constantly one clever step ahead of crises, roll over the top of the "mere habits of struggling and competing individuals and families" (Williams, 1983, p. 247) in the interests of always maintaining advantage and controlling the future. And yet those words, written in the early eighties, had come by the first decade of the next century to seem extraordinarily prescient, and Williams' hopes for improved means of sustaining cooperative relationships in the face of Plan X with its standby "scenarios of response" must surely have found some cautiously small purchase in the vitality of Internet-based relationality, had he lived to see it develop as it has.

Of course, in terms of our particular interest here, the first decade of the 21st century began with Napster and ended with The Pirate Bay, both phenomenally popular filesharing services of a sort that, by decade's end, were handling movie files as well as music thanks to increased network speeds and bandwidth. So the relationships mediated by Internet-based filesharing were no less mediated by an ongoing enchantment with the stuff of commodified popular culture, which might look like a distraction from the new medium's radical potential except that the "mere habits" of people are precisely where Williams' new structures of feeling develop; where new forms of relationship discover their potential irrespective of any particular content carried. Looked at in this way, peer-to-peer filesharing, the socio-technical foundation of so much contemporary "piracy culture," is a form worth watching. Its mere habits, for many millions of users, have taken on the aspect of yet another "crisis" for those agents of Plan X vested with so much of the power to shape global cultures—in other words, the entertainment industries.

So the question of how Plan X is playing out in those corporate boardrooms is more than a matter of idle curiosity. If nothing else, Williams' grand abstraction encourages us to remember that there will be a plan, that the uneasily shifting relationships between Lessig's RO (Read/Only) and RW (Read/Write) cultures will not be left to other forces and energies to determine, that there almost certainly has been a "Plan X" strategy taking shape out there where high-capital interests and crisis mentalities converge and a control strategy emerges, as it always does. The very slippery thing to be grasped here is the relationship

between remix-based forms of creativity, the basis of Lessig's emerging RW culture, and filesharing as a socio-technical form adopted by the "mere habits" underpinning that culture. At that level of habit, the same form of relationship and exchange is what sustains today's piracy culture whether or not, at a higher level of cultural evolution as it were, those behaviors mutate into forms of creative practice. Howkins captures that mutation very nicely:

> It [creativity] is now the favored activity of millions of people and can be found almost everywhere: at home, at work, in schools, in small groups, on the street and, of course, in cyberspace. The numbers of people thinking about and using other people's ideas and creating their own ideas—ideas that may be copyrightable and patentable—can no longer be counted in thousands but in many millions. (Howkins, 2007, p. 11)

If the freer circulation and the easier reuse of creative materials is a prerequisite of furthering the remix culture that has already developed, then the consolidation of filesharing activities as a widespread norm brings with it the ongoing and unresolved conundrum of what to do about the routine, noncreative sharing of proprietary content as a simple alternative to paying for it.

That we are in fact dealing with a norm here becomes clear from the utterly casual endorsements that pepper even the most solidly and respectably utilitarian of Internet blogs, lists, and forums, from which we can lift just one absolutely typical example. This is new media "industry guru" Dave Taylor, a Silicon Valley professional who turned his hand to journalism and eventually blogging, accumulating along the way a large and loyal following who evidently find his experienced advice valuable. Taylor is, on this occasion, explaining how different file-sharing systems work:

> First off, you are aware that a significant percentage of the content you'd get from any peer to peer network is probably illegal, right? Downloaders who are involved with these various systems are also right in the crosshairs of the Recording Industry Association of America and the Motion Picture Association of America. By percentage, of course, the chances of you getting busted is essentially nil, but "essentially nil" isn't "zero," so beware and go in with your eyes open. (Taylor, 2007)

On a mundane level, this bespeaks a structure of feeling, an attitude that in its very casualness and expression of a norm must send collective shivers through the boardrooms of those corporations represented by the RIAA and MPAA. It also, as an aside, suggests something of the difference between "old" media and "new" media, where the former as predominantly content industries based on copyrightable expressive content now have to cohabit in a complex media ecosystem with the inventors and operators of (patentable) technical delivery systems that inherently upset the old models of controlled content delivery. Whatever the many and varied alliances that operate in practice across this distinction, with differing interests invested in copyrights and patents, respectively, there is always scope for contradictions to arise. So on the surface, the most notable thing about Plan X in this realm might seem to be its relative incompetence to date. Chasing down individual filesharing violators of copyright, an early part of the apparent strategy, flies in the face of the percentage game indicated by Taylor. "Symbolic" prosecutions self-evidently do little if anything to alter "the chances of you getting busted." Chasing down

the middlemen, as first with Napster and then (neatly bookending the decade) with The Pirate Bay, only takes out specific implementations of the filesharing systems (see Halliday, 2010). One implementation quickly replaces another, as The Pirate Bay did with Napster (and, indeed, it is not even clear that jailing The Pirate Bay's founders will have any effect on its essentially decentralized continuing operation).

We might be forgiven, then, for thinking that Raymond Williams' abstraction in Plan X is an overstatement of strategic capability in this context, that "old" media have been overtaken, not just by the technologies created and blogged by Dave Taylor's generation, but by a "crisis" that the former are at a loss to control. Not so. The rather remarkable findings of several groups of technical researchers will suggest, if interpreted in the way that will be suggested here, a two-level structure to Plan X in the realm of piracy culture, of which only one level is publicly visible. The visible level is the criminalization of identified perpetrators, a component of the strategy that looks ultimately ineffectual in turning back the tide. Although it will be argued that this to all intents and purposes is a front, behind which a second dimension to the strategy is operating, it will be helpful to remind ourselves of the visible strategy first, not least because it is in its cracks and fissures that we start to see the signs of something else.

U.S. Senator Norm Coleman's widely reported remark in late 2003 that he "doesn't want to make criminals out of 60 million kids" (Harrison, 2003) still stands as both an early signpost to a then rapidly developing "crisis" mentality and a coded warning to the U.S. media content industries that they might not get things entirely their own way, as they embarked with intensified determination on highly visible legal measures to crack down on copyright infringements by individual users. No one was by then denying that copyright infringements were rapidly becoming widespread, and on a massive scale, although the argument by Koepsell (2000) that the ontology of cyberspace was different and required a rethinking of terms such as copyright was self-evidently not going to get much attention in an atmosphere of growing corporate panic between 1999 (Napster's launch) and 2003, when Senator Coleman spoke out. What prompted him to do so was, of course, the now emblematic moment in September that year when music industry lobby group RIAA issued 261 lawsuits, predominantly aimed at individual peer-to-peer filesharing of digital music files. It would be three more years and on the other side of the planet before somebody was actually jailed for a filesharing copyright infringement, but in the United States that September the single-parent mother of 12-year-old New Yorker Brianna LaHara quickly paid US$2,000 to settle the lawsuit brought against her daughter by the RIAA, after paying US$29.99 for filesharing software KaZaa so that her daughter could get the music she wanted. Numerous others among the subpoenaed 261 reportedly followed suit and settled quickly for similar amounts. The RIAA simultaneously talked tough ("when your product is being regularly stolen, there comes a time when you have to take appropriate action," Fox News, 2003), while bowing to the sudden public disquiet by offering amnesties to filesharers who came forward and promised to desist in future. That was not, as we now know, an opportunity that anybody took seriously. Norm Coleman's own seeming disquiet at the RIAA's clumsy action was among the factors behind his chairing a U.S. Senate Hearing on September 30, 2003, on "Privacy and Piracy: The Paradox of Illegal File Sharing on Peer-to-Peer Networks and the Impact of Technology on the Entertainment Industry," where testimony was given by KaZaa's parent company as well as by entertainment industry executives and one of the other recipients of an RIAA subpoena—student Lorraine Sullivan, who had settled for US$2,500. Referring to the folder of downloads created on her PC when she installed peer-to-peer software, she was reported as saying, "I didn't know it but this folder was also open

to the world" (MyCE, 2003). Sullivan's remark, which would have been incomprehensible a decade earlier, is as good a piece of shorthand as we are going to get for the complex interpenetration of technology, globalization, and individual behavior that constitutes the contemporary conundrum of piracy culture.

The first decade of the 21st century represented, then, a phase of muscle flexing and strategy seeking on the part of the copyright owners of music and movies as the prime content at stake in the emerging piracy culture, exemplified by the shutdown of the original Napster filesharing service, the RIAA lawsuits, an increasing focus on the middlemen rather than individual users, and aggressive lobbying for legal changes internationally that would facilitate taxpayer-funded enforcement (where the 2003-style public relations risk to the corporations would be lessened). Pre-shutdown Napster's February 2001 peak of 26.4 million global filesharing users undoubtedly played a key role in inaugurating this phase, and its logical culmination came in Hong Kong in mid-decade, with a symbolic endpoint of sorts in November 2010, when the founders of The Pirate Bay lost their appeal in Sweden against jail sentences and seven-figure fines. Interestingly, The Pirate Bay was then boasting some 22 million regular filesharing users, not much changed from Napster's figures 10 years earlier, suggesting on the surface that behavior had not been much affected by industry countermeasures.

The Affective Economy of Filesharing

HKSAR v. *Chan Nai Ming* (2005), in which the Hong Kong Special Administrative Region prosecuted an unemployed Hong Kong resident, was a case that will be widely footnoted when histories of piracy culture in this period get written:

> The prosecution alleged that the defendant was responsible for distributing three films on the Internet using BitTorrent software which allows for fast and efficient downloading of large digital files such as films. The defendant is alleged to have been the seeder, that is that he installed the films on his computer in .torrent files (i.e., files with the extension ".torrent"), that he advertised the existence of those files through newsgroups on the Internet, and that he enabled others to download them. It is alleged that this amounted to distribution or an attempt to distribute. All the films were copyright works, so that their installation in his computer was an infringement of copyright, making them into infringing copies. The distribution of the infringing copies was done to such an extent, it is alleged, as to affect prejudicially the owners of the copyright; or that at least the defendant attempted so to do. . . . It is the prosecution's case, that a customs officer located the defendant's Internet (IP) address through a newsgroup and downloaded the three films which had been seeded by the defendant. His home address was located and raided. The computer in question, which the defendant was operating at the time of the raid, was seized; and, it is alleged, the defendant made admissions that he was the user of the Internet account in question, under the pseudonym "Big Crook"; and that he had uploaded the .torrent files in question.

This case is cited for several reasons: (1) It was the first instance of a jail sentence being handed down for what is now recognizably a "classic" peer-to-peer filesharing act of noncommercial piracy of the sort that millions of people are probably engaging in on an everyday basis; (2) it was symbolic of the hard-line attitude then taking shape in the entertainment industries, the view that, as Howkins succinctly expresses it, their assets "must be protected as much as possible and at all costs" (Howkins, 2007, p. 10); (3) it triggered some subsequent legal debate, especially when the defendant's appeal was turned down, about whether the 3-month prison sentence was "draconian" (for example, Weinstein & Wild, 2007); and (4) it established a precedent by characterizing "sharing" as "distribution," thereby threatening to collapse the differences between Chan's living room and any number of basement operations making counterfeit DVDs to sell on the street.

What nobody has taken the time to think about is why Chan called himself "Big Crook," not so much a "pseudonym" as the judicial opinion put it (where in law this term tends to connote an intent to disguise), but an Internet username that deliberately advertises one's adopted online identity. The original username also translates as "Master of Cunning." Even if we accept that the latter more adequately reflects Chan's self-naming intentions than does "Big Crook," it still suggests something fundamentally other than an effective disguise being adopted to cover criminal intentions.

So we have to conjure up, instead, the circumstances in which Chan was found at 7 a.m. on Wednesday, January 12, 2005, insofar as we can piece these together from the newspaper and court accounts. Chan's wife was leaving to go to work. Unemployed, he was in their living room at his computer when his wife was intercepted outside by search warrant–wielding Hong Kong customs officers who had been waiting there, one of them having previously discovered Chan's torrent files online and obtained his address from the Internet Service Provider. It evidently all happened very quickly that morning. A customs officer with a notebook secured oral agreement from Mr. Chan that he was "Big Crook" and that he had made available to online access from his computer the torrent files of three Hollywood films (*Daredevil*, *Red Planet*, and *Miss Congeniality*). It was made clear to Chan that his understandably upset wife would be allowed to go to work if he signed the officer's notebook page to that effect. From there stemmed the subsequent charge of three counts of "attempting to distribute an infringing copy of a copyright work . . . to such an extent as to affect prejudicially the owner of the copyright."

If the minutes following 7:00 a.m. on that morning rapidly criminalized Chan, we might usefully wind back the clock to the minutes before and ask ourselves what "Big Crook" or the "Master of Cunning" was actually doing. First, it is very difficult to believe that Chan Nai Ming was setting out deliberately to "affect prejudicially the owner of the copyright" even if that was the end result (itself a contested point to which we shall return) and there was no commercial benefit to himself in posting the torrent files in question. Like many millions of other BitTorrent users, and with plenty of time on his hands, he was much more likely to have been reveling in the sheer sociotechnical possibilities that the very smart BitTorrent protocol affords, with the three Hollywood movies he had to hand on VCD (Video CD) perhaps just a way to tap into these possibilities. Certainly the three titles do not look like a deliberate choice of "hot" recent properties for which there was going to be a big demand: two were by then over four years old, the other two years old, all well into their "long tail" phase in terms of revenue generation by then, with the legal DVDs already selling at heavily discounted prices or disappearing off the retail shelves given the rapidity

of turnover. Beyond the inherent pleasure of doing it because it was possible, however, it is worth considering the circumstances of a young unemployed man who turns to his computer as soon as his wife leaves for work in the morning. What does he find there? Endless opportunities for law-breaking? The Internet is now "a massive copying machine" (Howkins, 2007, p. 6) so those opportunities self-evidently exist, but one has to wonder whether Chan Nai Ming was not experiencing instead the machine's capacity for transcending the isolation that unemployment in any big city entails. The "Master of Cunning" sounds like nothing so much as a fantasy role-playing character, and the world that he was accessing via BitTorrent, in that light, becomes a special world of "similars and familiars," the other users out there to whom one becomes special through the potent combination of technical facility and having resources to share. At the same time, BitTorrent is all about a certain kind of anonymity as well, where one becomes a "seeder" and digital resources get cleverly split among a virtual crowd of "peers," the file parts electronically dispersed at speed and recombined (thus overcoming some of the bandwidth bottlenecks that very large audio-visual files still encounter on a network). So there is a sense in which something like BitTorrent says that even the most insignificant participant is in fact essential after all, because it is the sharing that matters. Looked at this way, it is not too difficult to surmise that putting three movies on BitTorrent simply *felt* good to Chan Nai Ming.

On the other hand, if we recast this story as fantasy on the perpetrator's part—the fantasy of mattering—we run the risk of slipping toward a problematic interpretive position broadly paralleling one constructed by some cultural studies of fandom: that of "trying to validate fan knowledge as part of a supposedly radical activity of 'textual poaching'" (Hunt, 2003, p. 185). Hunt's point about this, in the context of fan studies, is that it attempts to avoid dealing with the fact that so much fan interest in popular media operates at the level of trivia. Similarly, "radicalizing" noncommercial BitTorrent sharing of movie files seeks to elide the possibility that a trivial sort of mundane law-breaking is itself inherently the attraction, and that there is nothing more to it than that (other than an assumption that one is statistically unlikely to get caught). A key point, however, it that it is difficult for us to know one way or the other, since empirical evidence is not so much difficult to find as epistemologically elusive. As Martin Jay once wryly pointed out in relation to Paul Lazarsfeld's pressing of Theodor Adorno for evidence of the sort that Princeton's Radio Research Project in 1938 was looking for, "Adorno found it impossible to test his . . . insights about reification, commodity fetishism and false consciousness through questionnaires addressed to their victims" (Jay, 1984, p. 34). But the more important point is that this fantasy of radicalized "poaching," whether from texts in the form of fan knowledge or from producers and distributors in the form of ripped and shared files, is a mirror image of an existing fantasy: that of the criminalized perpetrator.

HKSAR v. *Chan Nai Ming* was already part of a fantasy. It was and remains the fantasy, inaugurated in many ways by the successful lawsuits that closed down Napster, of being in a global war against piracy and of being able to defeat the pirates by hunting them down and punishing them, actually or symbolically. So, for example, we then have Adrián Gómez Llorente, a system administrator of a filesharing service in Spain, sentenced to a (commuted) six months in prison in 2009 (the service in question having been judged commercial because it supported itself by accepting advertising, though not benefiting directly from the file-sharing activity of its users). The complainants—the Spanish Association of Publishers and Distributors of Entertainment Software and the Spanish Videographic Union—clearly

intended this case to provide a precedent for further actions, given that a previous ruling by the Provincial Court of Madrid (in favor of the Sharemula online service) had established *any* commercial gain as the key criterion for judging actionable cases of file sharing. As Weinstein and Wild note, however, "the idea that locking up one or two infringers here and there will somehow stop the online deluge of filesharing of pirated movies and music is naïve"; they go on to say, "Prosecutions amount to a selective 'finger in the dam' solution," but then they veer into a third fantasy: that the "solution can only lie with the entertainment industry in developing anti-circumvention technology" (Weinstein & Wilder, 2007, p. 6).

So what we have here is a complex social imaginary constituted by three seemingly distinct but in fact mutually dependent fantasies: the fantasy of control through criminalization, the fantasy of "poaching" as a radical activity, and the fantasy that there may be technological advances that will defeat circumvention measures and simply make the problem go away. Stepping outside this tripartite imaginary construction of the "problem" has the virtue not just of suggesting that there may not be one unitary problem at all but also of impelling us to ask what alternative constructions might clarify things.

Lessig, in what is one of the relatively few recent genuinely measured accounts of the "problem," locates its construction as a problem squarely within the ultimately unhelpful metaphor of a war: "by which right-thinking sorts mean not the 'war' on copyright 'waged' by 'pirates' but the 'war' on 'piracy,' which 'threatens' the 'survival' of certain important American industries" (Lessig, 2008, pp. xv–xvi). In carefully developing his argument that "we should not be waging this war" (p. xvi), Lessig devotes a good deal of attention to emphasizing the ordinary and everyday activities that get reconceptualized as piracy. This approach benefits rhetorically from starting, not with a Chan Nai Ming, but with Stephanie Lenz, whose 2007 YouTube posting of impromptu camcorder footage of her infant son in her kitchen, dancing to a soundtrack by Prince, ultimately ran afoul of a roomful of corporate lawyers hired by Universal Music Group to protect the copyright of Prince as author and Universal's own investment in those rights. Lessig's depiction of the roomful of lawyers, replete with expensive suits, is both biting satire and a salutary reminder that such a meeting, with all its supporting apparatus, legal and corporate, unquestionably cost more than any conceivable cost to Universal of Stephanie Lenz's supposed infringement of copyright. As Lessig dryly points out, there must, therefore, be a principle at stake. So too, we should note, with Chan Nai Ming, Adrián Gómez Llorente, or any of the many other individual instances we might have cited, droplets in the oceans of data tracked by Schulze and Mochalski in the study that was cited at the outset.

To return for a moment to Chan Nai Ming, we can note Gething's unease that the judgment there rested in the end on the Hong Kong judge's "estimation . . . of the buying habits of imaginary recipients" (Gething, 2007, p. 372) for the three movies made available by Chan via BitTorrent. Perhaps unaware of the size of BitTorrent's user base, Magistrate Mackintosh's own estimation in fact ran to only a few score of likely recipients, and, given that the films in question had by then lost their retail shine and entered the DVD rental marketplace, a few score of lost over-the-counter rentals hardly amounted to an impact that would "affect prejudicially" the businesses of the movies' makers and distributors (even assuming that any of the potential recipients intended to go out and rent or buy the DVDs in question had they not found them via BitTorrent). A more realistic estimate of several thousand potential recipients in this particular instance does very little to alter the assessment of impact. So the prejudicial impact lay, instead, in the hypothetical scaling-up of the particular example: the multiplication into an innumerable horde of Chans

whose combined activities would ultimately have the feared impact. At precisely this point, a crucial aspect of the control fantasy, as we have characterized it, comes sharply into view. In this fantasy there is no difference worth considering among Chan Nai Ming, Stephanie Lenz, and anybody else engaged in "piracy." Because a supposed principle is at stake—much more so than any case-by-case assessments of actual damage—the relatively undifferentiated nature of the projected horde of pirates is key to understanding why Lessig's satirical caricature of the roomful of lawyers as "crazy" just slightly misses the point. There is a small but important adjustment of emphasis that we need to make here.

Where Lessig scratches his head quizzically and asks, "What has brought the American legal system to the point that such behavior by a leading corporation is considered anything but 'crazy'?" (Lessig, 2008, p. 4), we might think less about the insanity of pursuing Stephanie Lenz over the homemade video of her gyrating infant and more about the brutal rationality of projecting from that boardroom an image of an undifferentiated mass of unruly content appropriators whose nuanced and varied motives matter so much less than their sheer weight of numbers, at which point unfortunate Stephanie Lenz disappears as an individual to be replaced by (yes, it is a cliché) a faceless horde. It was indeed crazy of those expensive lawyers to be pursuing Lenz, but the suggestion here is that, in all likelihood, that is not what they thought they were doing. More likely, she had by then lost all individuality, if she ever had any when viewed from that corporate height, and from the point of view of a supposed war against a pirate horde, the action taken against her looks less irrational, if no less ill conceived.

Putting Plan X on the Map

It would seem to be imperative, therefore, to make some clear distinctions among the different kinds of activity involved in this "problem," if we are not to accept the "Plan X" projection of a largely undifferentiated horde. Enumerating the various agents more precisely has at least one new insight to offer, as we shall see when the term "poisoning" is eventually explained here.

Figure 5 offers one framework for the proposed mapping of agents. The axes are self-explanatory. Filesharing occupies the top right quadrant. It is blatant, it is free, and, as we have seen, it is widespread. However, the emergence of filesharing meta-sites has been a recent and growing phenomenon on the opposite side of the map. These pseudo-services offer users, for a fee, downloadable filesharing software (available elsewhere for free) and a portal onto filesharing indexes (also available elsewhere for free) and clearly aim to take advantage of the fact that, among the millions who have turned to filesharing, there are those who will be seduced by apparent one-stop-shops that seem to make the process even easier. Most of these are, in effect, scams, but marketplaces have always rewarded clever packaging, so it is not unlikely that they will survive and quite possibly prosper in one form or another. Zediva, however, is something else again. By hosting a massive bank of hardware DVD players at a central location, this service offers virtual video rentals. The paying subscribers get their chosen movie title streamed to them from a legally held DVD on a dedicated player at the hosting site, with the question of the legality of the stream itself still very much open to debate, especially since streaming content of this kind can be so easily grabbed, stored, and redistributed at the user's end. So, clearly, commercial

colonization of the "blatant" end of the scale is happening apace, and, while the names will come and go, the emergence of these agents is probably an irreversible trend.

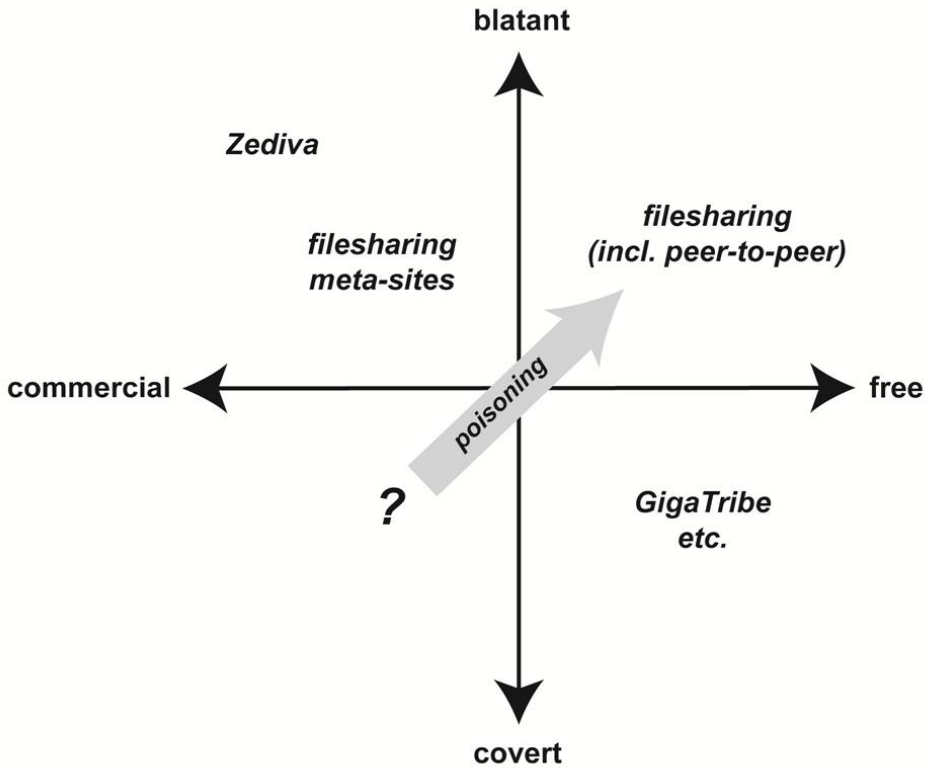

Figure 5. Mapping the Agents in the Field of Piracy Culture.

The agents operating in the bottom right quadrant are, by definition, harder to identify. But robust software such as GigaTribe exists for building private filesharing networks. So it would be naïve to think that such relatively closed networks do not exist. In the tribal world of the Facebook generation, it is a small step from open networks of virtual "friends" to large-scale private networks on the GigaTribe model. Again, it is probably reasonable to assume that this too is happening apace and that the emergence of these agents—covert filesharers—is probably also an irreversible trend. These will include, of course, sharers of illegal pornographic material. But some "normal" filesharers may be increasingly uncomfortable about accepting even the small statistical likelihood of prosecution for copyright infringements and so resort to more covert solutions.

The final quadrant in our map of piracy culture is the really intriguing one. At first glance it would appear to be where we will find all the old-style "pirate" activities, the criminally organized basement CD and DVD copying operations, their product ending up on market stalls across the world's cities. But the scope for transferring these operations into the online environment where the new piracy culture has developed is severely limited. A virtual market stall selling and shipping pirated copies of CDs and DVDs would be rapidly tracked down, and in any case that niche in the offline distribution and over-the-counter selling of physical copies remains a self-contained one where a degree of profitability is possible on a par with any other black-market economy in physical goods. So is this quadrant essentially unoccupied in the virtual realm? If we define "commercial" here as *any* activity pursued for primarily commercial reasons (not just the selling of something), then a different answer emerges.

Liang, Kumar, Xi, and Ross (2005) were the first to expose the detailed technical workings of what were then starting to become widespread "pollution" attacks on filesharing networks. In doing so, they employed the euphemistic term "pollution company" to identify the kind of agent involved:

> Here a "pollution company" first tampers with copyrighted content with the intention of rendering the content unusable. It then deposits the tampered content in large volumes in the P2P network. Unable to distinguish polluted files from unpolluted files, unsuspecting users download the files into their own file-sharing folders, from which other users download the polluted files. In this manner, the polluted copies of a given song spread through the filesharing system, and the number of polluted copies can eventually exceed the number of clean copies of a given song. The goal of the pollution company is to trick users into frequently downloading polluted copies; users may then become frustrated and abandon P2P file sharing. (Liang et al., 2005, p. 1174)

Liang and his colleagues made the inevitable assumption that the "pollution companies" whose technical handiwork they were detecting and reverse-engineering were in fact "new media" contractors to "old media" corporate giants with the resources to pay for this. (In fact, in October 2005, the O'Reilly Radar technology insight service reported in detail on HBO's polluting of BitTorrent with garbage data to protect its TV show *Rome*, see Torkington, 2005; the first and to-date most public exposure.) In a later paper (Liang et al., 2006), a technical drawback of the pollution attacks is identified, one that we can now bring to bear when interpreting statistics such as those produced by Schulze and Mochalski:

> A drawback of the pollution attack is that it requires significant bandwidth and server resources to be successful. In particular, in the early stages of the attack, when the title is just released, the attacker needs to make available corrupted copies of the title from many sources, all with high-bandwidth connections (in order to entice the user to download from the attacker); the attack servers must also respond to a flood of requests and perform expensive uploads. (Liang et al., 2006, p. 1)

There is then a compelling case for suggesting that pollution attacks of this kind contributed to the extraordinary surge in traffic on filesharing networks that Schulze and Mochalski among others have detected; that, ironically, it has been the deliberate polluting of those networks that has in part been

sustaining the apparent levels of bandwidth usage. If so, we could expect a tipping point to be reached in due course, when users' frustration with the levels of file pollution drives them away. In fact, the imbalance we have already noted between "upstream" and "downstream" traffic surely represents precisely such a point. This outcome is rendered more likely by the recent substitution of the cleverer "poisoning" attack for the resource-intensive "polluting" attack. Liang et al. (2010) again expose the technical details, which are fascinating on their own terms but largely irrelevant here. Their summary will suffice. Peer-to-peer filesharing requires indexes in order for the millions of widely dispersed files to be locatable by users. Napster maintained a centralized index, but later implementations disperse the index files in much the same way as content files are dispersed.

> The index poisoning attack is done by inserting massive numbers of bogus records into the index. Records can be poisoned in many ways, but one common method is to use randomly chosen file identifiers . . . which do not correspond to any existing files in the file-sharing system. When a user attempts to download a file with a randomly generated identifier, the file-sharing system fails to locate [the] associated actual file and displays in the GUI "more sources needed" or "looking . . ." The file-sharing system typically continues to search for the non-existent file. In response to "more sources needed . . . " the user may attempt to download the title with a different identifier (seemingly from a different location), which may again result in "more sources needed . . ." If the attacker succeeds in massively poisoning the index for the title, the user may try tens of identifiers without locating a copy of the desired title. If the user doesn't locate a file in its attempts, it will typically abandon the search. (Liang et al., 2006, p. 1)

Anybody who uses BitTorrent on a regular basis knows how frequently they are now seeing these "more sources needed" or "looking . . ." messages, which are indeed introducing a previously absent level of frustration into the system. Liang et al. go on to say, evincing a kind of technologist's admiration (note too their use of "it" above to describe the user from a technical viewpoint):

> One of the "beauties" of the index poisoning attack is that it requires substantially less bandwidth and server resources. Specifically, with index poisoning, the attacker does not need to transfer files; instead it simply deposits large numbers of bogus text records in the index. Thousands of bogus records per title, all with different identifiers, can be deposited into the index from a single attack node. Currently, the copyright industry is deploying in concert the index poisoning and the pollution attacks. (Liang et al., 2006, p. 2)

This revealing work has been taken up by, among others, Kong et al. (2010) and Cuevas et al. (2010). Kong and colleagues, who work in the School of Computer Science and Engineering at Northwestern Polytechnical University, Xi'an, China, seem especially excited by the technical possibilities of poisoning and evaluate its effectiveness in the BitTorrent (or filesharing "swarm") environment. Their highly technical paper reports research (funded by a Chinese government research grant) to develop and evaluate an improved poisoning technique: "The result of the evaluation shows that index poisoning can prolong the connection time in the swarm significantly" (Kong et al., 2010, p. 386). For "prolong the

connection time" we can substitute "intensify the user's frustration." Cuevas et al. developed a measurement method to gauge the level of "fake" publishing on BitTorrent and reached the conclusion that 30% of the total data now originates from such sources. This will inevitably include malicious individual users, of course, but in light of the other work that suggests a sustained, well-funded, technically sophisticated program of "upstream" polluting and now poisoning, it is not unreasonable to suppose that a good proportion of such interference with the filesharing networks originates from corporate sources. Indeed Cuevas et al. conclude that this has the characteristics of a strategic "attack" (Cuevas et al., 2010, p. 12).

With a clearer map, therefore, of the various agents at work within the overall framework of contemporary piracy culture, we can reach some conclusions. Lessig suggests that there are two economies at work here, the "commercial" and the "sharing." It can be argued, however, that the circumstances described require a third term, the notion of an "affective economy" to adapt Grossberg's formulation (Grossberg, 1984, p. 101). Filesharing has emerged as one of the most popular dimensions of the new affective economy, in which it simply *feels* good to share and then it feels even better to embellish, remix, and share again. What we have mapped in Figure 5 is perhaps the largest and most determined effort currently imaginable to poison this affective economy, and it seems to be happening covertly, for commercial reasons, and on a very large scale. It is, in short, the missing dimension to Plan X.

The poisoning of the affective economy of filesharing is of course directed primarily at stopping copyright infringements in the filesharing environment. But as is so often the case in these "wars," the collateral damage may be significant, since the strategy is simply to drive as many people as possible out of that environment whether they are themselves engaged in copyright infringements or not, and to do so by approaching it as neither a commercial nor a sharing environment per se but as an affective environment where how people feel about being there is the most important thing. Ironically, piracy culture has become this affective battleground at precisely the moment when intelligent solutions to the copyright infringement problem in a sharing economy had already been proposed. The Fisher and Netanel solutions (Fisher 2004; Netanel 2003), not dissimilar in their proposals to establish levies to compensate producers for endangered revenue streams, both offered elegant analyses and even more elegant ways forward. Both were largely ignored by those for whom they were proposing solutions. Those solutions, or some hybrid thereof, would have largely decriminalized Senator Coleman's 60 million kids, while permitting copyright owners to continue pursuing organized illegality instead.

The long-term consequences for RW culture that will stem from the attempted poisoning of filesharing environments remain to be seen. The effective (because ultimately affective) poisoning of BitTorrent seems likely. If the poisoning strategy successfully adapts to whatever new systems develop to sustain filesharing, then one prediction would be that the sharing economy will be driven back toward the commercial economy and RW culture's creative energies will be sent shopping there on Netflix and the like, amidst a still predominantly RO culture, for only partial and creatively impoverished solutions to satisfy its cravings. Equally possible is an ultimate hardening of piracy culture around its less genuinely creative routines.

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