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Open Networks, Distributed Identities: Cory Doctorow and the Literature of Free Culture

There is something infectious about Cory Doctorow's writing. A London-based Canadian writer, Doctorow is also an erstwhile San Franciscan member of the Electronic Frontier Foundation, an activist blogger on *boing boing* (the self-titled "directory of wonderful things"),[1] and (according to Bruce Sterling) an "all around Renaissance geek".[2] His novels and short stories explore the places where cultural value is measured by access to information, where property is traded for forms of common ownership, where networks are both the catalyst for, and the object of, social intervention, and where the human becomes an indefinable category. Often associated with the literature of the postcyberpunk age, Doctorow's work does not offer a hypertextual alternative to the printed novel, an image of the post-corporeal and cyborganic self, or a sense of the consensual emergence global technoculture – tropes that often characterise literary responses to technology in the 1990s. As much as his writing gravitates thematically towards these issues, it is, this essay argues, concerned more to identify attempts to harden corporate and governmental information monopolies and to explore resistances that are emerging from the disjunctive spaces between control and resistance, the virtual and the actual, and cognition and the inarticulable. In particular, it considers how Doctorow's fiction finds utopian possibilities in the new modes of social organisation that are developing around open source and free software communities. But, this essay argues, Doctorow's writing contrasts with the speculative idealism that associates digital culture with a smooth entry into inclusive technological systems, the epochal arrival of networked informationalism, or the transcendence of social power. Rather, for Doctorow future systems of proprietary exchange – and, as a consequence, alternative models of cultural identification and social action – can arrive only if new systems of control, which seek to inhibit, manage, and regulate the distribution of information, are identified and contested.

I

What is infectious about Doctorow's writing is its sense of the impure – of information as an invasive force, of the body instrumentalised, of cultural location tainted by network transterritoriality – that enhances the human through the transformative corruptions it effects. While this might suggest a familiar and excitable version of the technocultural postmodern, it is important to note this fiction's deep inscription by the material locations – the physical, corporeal, legal, governmental, social, and corporate contexts – in which information culture is situated. Certainly, in Doctorow's work, the

notion of a datasphere that progressively enables collective belonging (rather than triggering social fragmentation and an ensuing collapse of the public sphere) features as prominently in his writing as it does in the work of Ken McLeod, Dan Simmons, or the later Bruce Sterling. In this manner, *Eastern Standard Tribe* tracks the faltering emergence of almost-imperceptible and loosely-identified groups whose interactions are governed by a shared agenda and peer-regulated network affiliation – "Not because of xenophobia, but because of homophilia"[3] - and who function beyond the limits of both geographical regions and time zones.

However, if on such occasions Doctorow images the transformation of the social by the ineluctable and contaminating force of virtuality then he also views it as infected by the ineradicable presence of the real. The 2007 short story collection *Overclocked* is perhaps most immediately notable for its sense of these new materialities, rather than the detachments and disembodiments, that network culture is initiating. "I Row-Boat" imagines a near future in which consciousness – animal, vegetable, mineral, and mechanical – has ascended to post-terrestrial constellations of data, though uploading here requires both the downloading of intelligence to non-human entities (so that they too can attain transcendence) and the supplementation of the discarnate noosphere by downtime in non-sentient meat hosts. "Anda's Game" takes the practice of gold farming in video games as the motivation for a story about exploitation in the information economy and the capacity for online communities to confront imbalances in the global marketplace. And "When Sysadmins Ruled the World" imagines the consequences of a co-ordinated attack by infoweapons and bioagents. In the aftermath of such a viral disaster, Doctorow suggests, it will be systems administrators who, working in the filtered and contained clean rooms of data centres, are best equipped to survive; as "the custodians of a deathless, monstrous, wonderful machine, one with the potential to rebuild a better world",[4] these survivors are able to form a new social sphere using Firefox, Google, Wikipedia, chat rooms, and newsgroups as their principal organisational resources. This strange reversal is also to be found in the departure from the technoscapes of science fiction in Doctorow's fiction, and its preoccupation with the abject fabulations and estrangements of surrealism and magic realism – with what *A Place so Foreign* describes as the "interstitial moment, the hot second when the world slides from fantasy to reality."[5] Dramatising such a transition, "Return to Pleasure Island" in this collection pictures the clandestine spaces of a prodigious theme park where the pursuit of pleasure results in children metamorphosing into donkeys, and which is staffed in part by a family of workers whose members reproduce themselves by tearing out or biting off parts of their own bodies which are then grown as offspring. After indulging his vices and succumbing to the temptations offered by Pleasure Island's management, one family member himself becomes part of the herd. Exploring the limits of "the human" and allegorising the deceptions of popular entertainment and mass culture, this suggests that even the authors of dissimulation find the artifice of illusion inescapable and are trapped within various states of the monstrous.

Doctorow's writing is, however, often most disturbing when it traverses literary modes, moving uneasily across technoculture and the absurd, between network radicalism and quixotic dramatis personae, blending human and chimera, and fusing everyday online cultures to counter-cultural activism. Such a slippage structures *Someone Comes to Town, Someone Leaves Town,* a novel in which the principal character, Alan, is born of a mountain and a washing-machine and becomes partner to a winged neighbour whose apparent normality can be maintained only through the repeated severance of her grotesque appendages; his brothers are an island, a decaying fratricidal living corpse, and a trio who, like babushka dolls, nest inside each other. Were this text's concerns to end here, it would perhaps add little to the tradition of novelistic fabulation that developed in the closing decades of the twentieth century. But alongside the blending of the mythical and the

everyday, the fantastic and the familiar, *Someone Comes to Town, Someone Leaves Town* raises a question that is distinctively post-millennial: how can information and communications technologies open up notions of property and enable forms of collective ownership? This question develops in Doctorow's novel after Alan's coffee shop encounter with Kurt, a communications and electronics obsessive dripping with geek attitude ("dressed in Kensington Market crusty-punk chic, tatts and facial piercings, filthy-gray bunchoffuckinggoofs tee, cutoffs, and sweaty high boots draped with chains")[6] and who harvests discarded components to feed his appetite to hoard hardware. Following this encounter, Alan and Kurt collaborate to establish "a city-wide mesh wireless network using unlicensed spectrum that will provide high-speed Internet connectivity absolutely gratis."[7]

II

Doctorow's fascination with the social opportunities afforded by network communications – indeed, with the network as a viral force that has the power to trigger equitable and inclusive forms exchange – evinces a wider engagement with models of non-proprietary production and distribution towards the end of the twentieth century. New modes of social engagement are often seen to be resulting from Internet culture and one ramification of this development, Yochai Benkler argues in *The Wealth of Networks,* is the promise of a non-hierarchised system of cultural production. It is in the authoring, distribution, and modification of free and open source software that *The Wealth of Networks* identifies the most dramatic shift away from the proprietary market principles that have conventionally governed the exchange of commodities, services, and information:

> Free software offers a glimpse of a more basic and radical challenge. It suggests that the networked environment makes possible a new modality of organizing production: radically decentralised, collaborative, and non-proprietary, based on sharing resources and outputs among widely distributed, loosely connected individuals who cooperate with each other without relying on either market signals or managerial commands. This is what I call "commons-based peer production."[8]

For many commentators on free and open source software, this software commons is exemplified by GNU – a Unix-like operating system introduced in 1984 – and its widespread take-up following the 1991 Linux distribution.[9] Sponsored by the Free Software Foundation, GNU promotes unrestricted usage, adaptation, copying, redistribution, and access to source code. Linux too allows users to customise, copy and share its source code, developing as a result of what Benkler describes as "voluntary contributions and ubiquitous, recursive sharing."[10] Although both systems are free to download and share, they are not outside of legislative regulation, but remain copyrighted – or, more appropriately perhaps, "copylefted" – under the GNU General Public License (GPL) which allows software authors to be acknowledged and which prevents proprietary restrictions from being placed on any derived software. "To support 'open source and free software' is not to oppose copyright," Lawrence Lessig argues in *Free Culture,* "Instead… the copyright owners of free and open source software insist quite strongly that the terms of their software license be respected by adopters of free and open source software."[11] Within this context of collaborative software production and reproduction, and as a consequence of the licensing model that has emerged to protect it, unpaid and often anonymous contributors have enhanced the scope and complexity of GNU/Linux, confident that their labour, protected by the alternative legislative framework of the GPL will help to foster a community of open exchange and shared knowledge.

If such developments suggest that free and open source software represent an innovation in computing alone – the editors of the 1999 collection *Open Sources: Voices from the Open Source Revolution in this mode* claim that "Open Source development drives progress not just in computer

science, but in the computer industry as well" [12] - then its significance has also been extended beyond the technical and situated within social life more widely. "Rather than thinking of open source only as a set of software licenses and associated software development practices," Tim O'Reilly argues, "we do better to think of it as a field of scientific and economic enquiry, one with many historical precedents, and part of a broader social and economic story."[13] Certainly for Benkler, the ethic of collaboration that surrounds and energises GNU/Linux (and other peer-produced software) "presents a stark challenge to conventional thinking about the economics of information production."[14] What is perhaps less recognised, though, is that distributed and peer-to-peer networks are not just triggering different forms of exchange, but are also allowing both a different participation in the social and a different sense of the political. The significance of this software therefore extends beyond the noisy and polarised exchanges that are often troped as a Stallman vs. Raymond adversarialism, with the semantic value of "free" and "open" divided between egalitarianism and laissez-fairism.[15] Free software, according to such a dichotomy, is typically seen either to be animated by a politics of freedom or motivated by a naïve and outmoded counterculturalism; open source software is commonly viewed either as the dynamic emergence of a more effective form of software development or the betrayal of social interventionism. For *The Wealth of Networks,* such an agonic scenario is too straightforward, since free and open source software together point to a more complex transformation of the social sphere than earlier accounts of the information age have recognised. Incarnations of free and open software are now to be found not just in geek or hacker cabals, not only as a platform for counter-cultural intervention, and not simply confined to the peripheral systems or applications that are favoured by the technological elite: peer-produced, free, and openly distributed software is now being shared at the everyday level by individuals (within social networking tools) by businesses (through the building of bespoke systems), and governments (in the pursuit of cost-effective, reliable, and more secure technologies).[16] Free and open source software has therefore contaminated politics itself, Benkler suggests: "the importation of free software into the mainstream has not made free software less politically interesting, but more so."[17]

Doctorow too finds not only a dramatic shift in the functioning of the social following the arrival of the information economy, but also the basis for an alternative mode of cultural critique. Peer produced, modifiable, and open software – as well as free access to knowledge more broadly – is, across his fiction, journalism, and blogging, seen to provide an alternative to the closed, protected, and pecuniary character of systems packaged for the market. The GNU/Linux project, he argues, stands as "the forebear of today's free/open source movement,"[18] and in *Someone Comes to Town, Someone Leaves Town* this movement is embodied by PirateNet, the community network formed from dumped components and freely distributed software. Contesting the continued arrogation of power by corporatised telecommunications, PirateNet is established with the express purpose of providing free and unrestricted information which will enhance the public sphere. "It's all about serving the public interest," Alan insists in homiletic mode, "There's something fundamentally undemocratic about charging money for communications. It means the more money you have, the more you get to communicate."[19] However, if such comments suggest that Doctorow's text is more invested in countercultural insurgency than in grassroots defiance, then Alan and Kurt's meeting with developers at Bell Laboratories to discuss the future of wireless networks changes this novel's sense of the relationship between independent activism and corporate control. Significantly, Bell is seen no longer to be the telecommunications behemoth denounced in Bruce Sterling's *The Hacker Crackdown* – the late-1980s and early-1990s Bell which sought to control the electronic exchange of information through legislation and litigation. The Bell that Doctorow finds in the 2000s is one that absorbs hacker entrepreneurialism and is no longer threatened by (or at least has given up

fighting) small-scale competitors who inhabit the grey hinterland of communications legislation: "these people weren't nearly hostile enough to their ideas,"[20] the novel's narrator remarks. Indeed, Bell is not only less hostile than Alan and Kurt expect; its representatives both praise the gimcrack devices that allow PirateNet to function and admire Alan and Kurt's initiative in solving the problem of information exchange in their neighbourhood. Ultimately, though, Bell offers them little in the way of material support, not because of concerns about legality but because of reservations about practicability and marketability. In the absence of implementation problems, Doctorow suggests, PirateNet would have been exactly the sort of small dotcom start-up that Bell would have wanted to acquire. The ethico-juridical principles that might once have divided an organisation like Bell from hacker culture are, in Doctorow's novel, therefore seen to have been superseded by business priorities that have been built on mainstreaming the informational counterculture. Alan and Kurt's interlocutor at Bell, described as "good at making geeks and telcos play together,"[21] freely admits that such a shift has occurred. "We've got a lot of smart hackers," he observes, and his resistance to PirateNet rests solely on objections to its feasibility, not to its legitimacy: "From the outside," he concedes, "it's easy to mistake 'slow' for 'evil'."[22] Bell therefore points to the wider reshaping of corporate cultures in the 1990s and 2000s, seeking to monetise information and to profit from communications hardware. What Doctorow suggests, though, is that the energy that drives information culture cannot be fully captured within a commercial system of values, but interrupts proprietary logic even as it becomes subject to the market's appropriating gaze.

III

Doctorow's fiction certainly highlights a disjuncture between peer production and commodity innovation, one which suggests the irreducibility of free and open source software to corporate or market culture. But it also begins to question the fascination with motivation among those who seek to explain the incentives of programmers who develop not-for-profit and distributed software. For Karim Lakhani and Robert Wolf, "Understanding the motivations of F/OSS developers is an important first step in determining what is behind the success of the F/OSS development model in particular, and other forms of distributed technological innovation and development in general."[23] Anticipating the significance of this question for those who seek to define the shape of free and open source software, the editors of *Open Sources* in 1999 argue that "The answer lies, in part, in thinking beyond conventional notions of work and compensation. We are witnessing a new economic model take shape, not just a new culture."[24] Work in this vein typically offers analyses of the various social, ethical, and personal benefits that structure the new economy of production, distribution, and exchange. Often, these motivations are seen to include altruism, reputational promotion, intellectual stimulation, technical self-advancement, creative self-expression, political protest, and, in an apparent paradox, paid work (which allows the incidental writing of software that is then freely shared).[25]

But such attempts to understand the incentives and inspiration for free software communities remain problematic. Guiding this drive to account for the principles that animate unpaid programmers is a positivist sense of a condition and a community awaiting full delineation. However, slippages in this logic constantly frustrate analytic attempts to determine the free and open source "movement," suggesting that this motivational miscellany persistently defies reduction to a finite cause. "Most models of FLOSS development assume one or another of these motives as the key driver," Rishab Aiyer Ghosh observes, "In fact, it turns out, the truth is all of the above, combined in different proportions for different people."[26] Indeed, recognition that neither the structural shape nor the

social significance of peer production communities can be fully captured repeatedly haunts many of the claims that a finite analysis is both possible and can produce a conclusive sense of distributed network's determining causality. For Weber, determining the causes that drive the production of this software is undermined by the fact that "a great deal of human behaviour is not motivated by narrow rationality concerns."[27] And, after outlining a set of hypotheses that speculate on the general condition of free and open source software, he concludes that:

> These are expansive hypotheses: the parameters in many instances would be hard to measure and specify *a priori.* As is the case for many such hypotheses about social processes, they are broadly indicative of the kinds of conditions that matter. They tell you where to look, and even more so where not to look, for answers.[28]

For Benkler, the terms in which such research into motivation has been conducted are, despite their hesitations and qualifications, ill-conceived because they attach a questionable chronology to the production of free and open source software. Rather than locating its originating impulse in the programmers who produce it, and rather than viewing the principles that guide these programmers as structurally unprecedented, *The Wealth of Networks* argues that network culture allows the pursuit of an altruistic ethic and the realisation of social relations that existed in more basic forms before the emergence of recent network technologies. "We need to assume no fundamental change in the nature of humanity; we need not declare the end of economics as we know it," Benkler writes; "We merely need to see that the material conditions of production in the networked information economy have changed in ways that increase the relative salience of social sharing and exchange as a modality of economic production."[29] The motivations of those who produce free and open source software are not, then, particular to programmers, but constitute part of a wider pursuit of social engagement and equity. And it is not the agency of socially-committed coders that results in the production of distributed and peer-produced software, but the emergence of free and open source software that allows coders to express their altruism in technologised media. In other words, prior to the production of this software there was a context and a set of social relations that shaped the conditions for its production.

One of Benkler's innovations in theorising digital culture is to argue that motivation-centred readings of nonmarket and peer produced software over-emphasise the role of coders as the initiators of a cultural moment that has become socially engaged and politically animated by new modes of knowledge production and distribution. Such a position might suggest that *The Wealth of Networks* finds an alternative ontology – as well as a different governmental, economic, and legislative order – in network culture, with the sovereignty of the coder displaced onto the impersonal structures of informational connection that are now shaping network consciousness. But Benkler is eager to distance himself from such a suggestion, arguing that although individuals are not the source of non-hierarchical systems of production, they are nevertheless the beneficiaries of such systems. Network collectivity for him allows the self, until recently poorly articulated and badly realised, finally to be actualised as an agent capable of transformative action. In "the new information environment," he argues, "individuals are free to take a more active role than was possible in the industrial information economy of the twentieth century;"[30] peer production allows "the rise of individual practical capabilities"[31] and depends on "individual action that is self-selected and decentralised, rather than hierarchically assigned."[32] And, *The Wealth of Networks* insists, it is as a result of the new materiality, rather than an escape into virtuality, that network ecology is creating greater freedoms for individuals to act:

> Ubiquitous low-cost processors, storage media, and networked connectivity have made it practically feasible for individuals, alone and in cooperation with others, to create and exchange information, knowledge, and culture in patterns of social reciprocity, redistribution, and sharing, rather than proprietary, market-based production. The basic material capital requirements of information production are now in the hands of a billion people around the globe who are connected to each other more or less seamlessly. These material conditions have given individuals a new practical freedom of action.[33]

Conceiving the networked public sphere according to such a humanist politics, one avowedly "rooted in the deliberative strand of democratic theory",[34] is only possible, however, through a disavowal of the notion that digital culture has exposed the sovereign subject as a historical simplification and a nostalgic fantasy. Indeed, Benkler promptly dismisses recent theoretical work that questions both the conception of the self as a sovereign agent that is capable of deliberative judgement and the modelling of the social as an aggregation of subjects who possess the capacity for collective action.[35]

If Benkler abjures challenges to the subject that are approximately contiguous with the emergence of network culture and new technologies for nonmarket production – challenges which suggest that it is not only production that becomes non-proprietary in network culture, but identity more fundamentally – then Doctorow's writing suggests that such a rejection is too hasty. This fiction is perhaps not immediately recognisable as the sort of ludicism that is often associated with the fiction of technoculture – Cadigan, Coupland, Danielewski, Joyce, Memmot, Rushkoff – but aspects of it nevertheless reveal the ontological displacements and the cultural disjunctures that saturate the information age. Doctorow's writing should not be treated simply as documentary literature, but as one marking a shift away from early claims that the internet provides a place in which social order is not only transfigured but transcended, a space not where boundaries are redefined but beyond spatiality itself, or an environment in which it is not only bits but identity that is accelerating away from structured systematicity. For example, "0wnz0red," one of the stories in *A Place so Foreign*, traces the biotechnological mutability of the body: one character here becomes modified by military bioagents which, transmitted like a virus, give him "At-will serotonin production. Mnemonic perfection. Endorphin production, adrenalin."[36] In *Someone Comes to Town, Someone Leaves Town*, Alan is not a coherent dramatis persona, but is variously named as Alan, Alex, Abe, and Albert. Elsewhere, Doctorow's reflections on narrative de-authorise his role as an autonomous creator: *Eastern Standard Tribe* in this manner slides from anonymous extra-diegetic narration to autobiographical self-representation, declaring that "In order to preserve the narrative integrity, Art ("not his real name") may take some liberties with the truth. This is autobiographical fiction, after all, not autobiography. Call me Art ("not my real name") I am an agent provocateur in the *Eastern Standard Tribe*."[37] The prefatory note to "0wnz0red" similarly describes Doctorow's stories as "derived works, tales made out of the bits and pieces of the stories that the writers who inspired me wrote."[38] But in addition to these thematic and reflexive challenges to the subject's self-identicality is the way that, with a greater sense of technological contexts that today shape literary production, Doctorow's fiction begins to detach authorship from property, writing from exegesis, the print novel from the illusion of textual totality. "Cory Doctorow is a science fiction author," Lessig observes in *Free Culture*, "His first novel, *Down and out in the Magic Kingdom*, was released on-line and for free, under a Creative Commons license, on the same day that it went on sale in bookstores."[39] Distributing his work for free in the form of e-books, Doctorow adopts the Creative Commons license – which is modelled on its antecedent, the GNU Public License – in order to mark his role as author, but without assuming ownership of what is, for him, a cultural object that originates and lives on in the public domain. Free

to download, modify, and distribute, this literature becomes radically non-proprietary shareware, not simply renouncing the established notion of the author as creative source, but allowing literature to persist as an infinitely writeable textuality. As Doctorow claims, "The thing about an e-book is that it's a social object. It wants to be copied from friend to friend, beamed from a Palm device, pasted into a mailing list. It begs to be converted to witty signatures at the bottom of emails. It is so fluid and intangible that it can spread itself over your whole life."[40]

IV

For Steven Weber, "The open source software process is not a chaotic free-for-all in which everyone has equal power and influence. And it is certainly not an idyllic community of like-minded friends in which consensus reigns and agreement is easy."[41] Benkler too distinguishes the transformation of social participation offered by network culture from that envisaged by early and overheated celebrations of the Internet as a fully-realised, open, and democratic public space. "We need to consider the attractiveness of the networked public sphere not from the perspective of mid-1990s utopianism," he argues, "but from the perspective of how it compares to the actual media that have dominated the public sphere in all modern democracies."[42] Although these utopian perspectives are not defined by Benkler, the exaggerated perception of networks' transformative potential to which *The Wealth of Networks* points can be readily identified in a range of social discourses. From technolibertarianism to mainstream notions of the technologically-enhanced self, established structures of power are seen to be inoperable in digital and online environments, an equitable and inclusive (non-)system of exchange is seen to shape the public sphere, and cultural content is seen to be overwhelmingly user-generated. The decentring of media discourses and the displacement of cultural authority onto the keyboards of those who traditionally would be merely subject to information is here, in other words, viewed as a monumental and comprehensive redistribution of cultural power.

Against – tacitly assumed and often partially articulated – informational idealism, against the mainstreaming of technolibertarianism, and against what Weber describes as "darkly dystopic visions of the Internet-enabled society as one in which computer code leads to a radically privatised, perfectly regulated, tightly controlled world,"[43] many recent attempts to theorise free and open source software offer a more sociologically circumspect assessment of its cultural significance. The capacity to govern the flow of information has indeed been radically compromised by the recent emergence of communications networks, Benkler maintains, though he is equally insistent that the authoritarian drive to preserve power remains, and it is open production and distribution that is now the battleground for social control. For Jussi Parikka, similarly, free and open source software should not be associated with the disruption of systemic order or the displacement of cultural location, since it is becoming yet another distributed system that the market is seeking to appropriate: "the Free/Libre/Open Source software (FLOSS) of recent years can be seen as being partially captured by those trends of information capitalism that aim to reduce maintenance and transaction costs."[44]

What such responses are in danger of overstating, however, is the intelligibility of free and open source software. Although documenting the social transformations that are effected by network culture and peer production, Benkler neglects the question of a corresponding decentring of cognition, denying that the cultural effects of free and open source software resist analytical exposition or are rewriting subjectivity in ways that escape familiar notions of the individual as social agent. By suggesting that network capitalism is now lubricated by free and open source software, Parikka appears to locate it not as another threatening and repressed virus that is spawned within

systemic order, but a part of the repressive apparatus which seeks to inoculate itself against infection. For Doctorow, however, there *is* something disobedient about this mode of production and distribution, something that cannot be reduced to an emerging system of exchange or apprehended as a recognisable polity. "Sharing produces its own kind of order," Christopher Kelty writes, and the openness this order promotes "is an unruly concept,"[45] shared and open source software, in other words, develops within systems of production and distribution as an immanent contaminant, turning the informational into a site of infection that heals human sociality by maintaining the presence of the pollutant, the dirty, the disease, the viral. Doctorow's fiction is infectious because it dramatises this corrupting presence, finding in shared software and open networks counter-narratives which are produced by, inhabit, and transform social ecology. Identity here has not given way to virtuality, materiality has not been sundered to digital transcendence, and corporeality – with all its impurities and vulnerabilities – persists in spite of the body's transfiguration. However, despite its disaffection for the abject and excitable fantasies of cyberutopian and infocalyptic narratives, Doctorow's writing does suggest that distributed networks and shared software trouble the market's proprietorial ethic and challenge familiar concepts of the human as an organically pure entity. And, perhaps more fundamentally, it is the concept of the human as a cognitively sovereign agent – and the notion that distributed networks constitute the new social extension of the sovereign subject – that Doctorow's fiction also begins to contaminate.

1 http://boingboing.net/, (accessed 29 June 2011).
2 Bruce Sterling, "The Kingdom of Magic Junk," introduction to *Cory Doctorow, A Place So Foreign and Eight More* (New York: Four Walls Eight Windows, 2003), 1.
3 Cory Doctorow, *Eastern Standard Tribe* (New York: Tor, 2004), 113.
4 Doctorow, "When Sysadmins Ruled the World," in *Overclocked: Stories of the Future Present* (New York: Thunder's Mouth Press, 2007), *26.*
5 Doctorow, *A Place So Foreign, 99.*
6 Doctorow, *Someone Comes to Town, Someone Leaves Town* (New York: Tor, 2005), 55.
7 Doctorow, *Someone Comes to Town,* 122.
8 Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedoms* (New Haven: Yale, 2006), 60.
9 On the troubled relationship between GNU and Linux, and on the "GNU/Linux" controversy, see Sam Williams, *Free as in Freedom: Richard Stallman's Crusade for Free Software* (Sebastopol, CA.: O'Reilly & Associates: 2002), 142-54.
10 Benkler, *The Wealth, 66.*
11 Lawrence Lessig, *Free Culture: The Nature and Future of Creativity* (London: Penguin, 2004), 264-5.
12 Chris DiBona, Sam Ockman, and Mark Stone, eds., "Introduction," in *Open Source: Voices from the Open Source Revolution,* (Sebastopol, CA: O'Reilly Media, 1999), 17.
13 Tim O'Reilly, "The Open Source Paradigm Shift," in Joseph Feller et. al., *Perspectives on Free and Open Source Software* (Cambridge MA.: MIT Press, 2005), 479-80.
14 Benkler, *The Wealth s, 462.*
15 For a detailed discussion of the divisions – and, often, flame wars – that developed around Richard Stallman and Eric Raymond, see Christopher M. Kelty, *Two Bits: The Cultural Significance of Free Software* (Durham: Duke University Press, 2008), 97-117.
16 Some of the best-known examples here include Facebook, MySpace, Amazon, Google, the US Department of Defense, the Brazilian Government, and regional government organizations in France and Germany. Weber further points out that "If you saw the movies *Titanic* or *Lord of the Rings,* you were watching special effects rendered on Linux machines that are running at companies like Disney, Dreamworks, and Pixar." Steven Weber, *The Success of Open Source* (Cambridge, Mass.: Harvard University Press, 2004), 6.
17 Benkler, *The Wealth, 66.*
18 Doctorow, "Chris Anderson's Free adds much to The Long Tail, but falls short," *The Guardian,* 28 July 2009. http://www.guardian.co.uk/technology/blog/2009/jul/28/cory-doctorow-free-chris-anderson, (accessed 29 June 2011).
19 Doctorow, *Someone Comes to Town,* 129.
20 Doctorow, *Someone Comes to Town,* 123.
21 Doctorow, *Someone Comes to Town,* 128.
22 Doctorow, *Someone Comes to Town,* 127.
23 Karim R. Lakhani and Robert G. Wolf, "Why Hackers Do What They Do: Understanding Motivation and effort in Free/Open Source Software Projects," in Feller et al., *Perspectives on Free and Open Source Software,* 3.
24 DiBona, Ockman and Stone, "Introduction," 13.

25 In addition to Lakhani and Wolf, "Why Hackers Do What They Do," *passim,* and Rishab Aiyer Ghosh, "Understanding Free Software Developers," in Feller et. al. (eds), *Perspectives on Free and Open Source Software, passim;* also see Weber, *The Success of Open Source,* 128-56.

26 Ghosh, "Understanding Free Software Developers," 27.

27 Weber, *The Success of Open Source,* 226.

28 Weber, *The Success of Open Source*, 272.

29 Benkler, *The Wealth,* 91-2.

30 Benkler, *The Wealth,* 2.

31 Benkler, *The Wealth,* 20.

32 Benkler, *The Wealth,* 62.

33 Benkler, *The Wealth*, 462.

34 Benkler, *The Wealth,* 15.

35 He writes: "The twentieth century saw a wide array of critique, from cultural Marxism to poststructuralism and postmodernism. However, much of mainstream liberal political theory has chosen to ignore, rather than respond and adapt to, these critiques." Benkler, *The Wealth,* 279.

36 Doctorow, "0wnz0red," in *A Place so Foreign,* 233.

37 Doctorow, *Eastern Standard Tribe,* 16.

38 Doctorow, *A Place So Foreign,* 207.

39 Lessig, *Free Culture,* 284.

40 Cory Doctorow, "Giving it Away," in *Content: Selected Essays on Technology, Creativity, Copyright, and the Future of the Future* (San Francisco; Tachyon, 2008), 71-2.

41 Weber, *The Success of Open Source,* 3.

42 Benkler, *The Wealth,* 260.

43 Weber, *The Success of Open Source*, 7.

44 Jussi Parikka, *Digital Contagions: A Media Archaeology of Computer Viruses* (Oxford: Peter Lang, 2007), 89.

45 Kelty, *Two Bits,* 142-3.