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THE ROMANTIC SELF AND THE POLITICS OF INTERNET COMMERCIALIZATION

Abstract

This essay looks at some examples of ways that certain pre-existing imaginary forms of 'selfhood' have been culturally mapped onto historically pivotal moments in the Internet's development. It focuses less on how technologies have shaped culture than on the reverse: on certain ways that culture has shaped society's embrace of the Internet. What the Internet is and will come to be, the essay suggests, is partly a matter of who we expect to be when we sit down to use it. Specifically, it looks at two key examples of ways that certain pre-existing imaginary forms of selfhood – ways of understanding oneself as a self – have been culturally mapped onto historically pivotal moments in the Internet's development: the initial explosion of the Internet in the early 1990s and its supporting ethos exemplified by *Wired* magazine, and the Open Source Movement in the late 1990s. The essay suggests that significant parts of the culture of computing have been not only individualist, but also composed of two distinct if intertwined strands of individualism, romantic and utilitarian, and that their difference has political significance. Like its ancestor, the 1960s counterculture, the case of the computer culture suggests that romantic individualism stands in a tangential relation to capitalist property relations (and the utilitarian 'I' they imply), sometimes working in concert with markets and privatization, as was the case in the early 1990s, and sometimes working to call them into question, as was the case towards the end of the 1990s.

Keywords

computers; Internet; identity; culture; open source; romanticism

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WHO ARE YOU WHEN, on an ordinary day, you use the Internet? Are you a technician? A manager? A citizen? A consumer? An artist? Are you looking for the familiar, or are you hoping to be surprised? Are you trying to control something, to reaffirm who you are, or are you hoping for some self-transformation?

The notion that computers are in some sense identity machines has generated a lively body of discussion, often inflected with postmodern enthusiasms.[1] Yet, experiments with online gender-bending and the like should not encourage us to succumb to the notion that computers provide a world apart, that they create a separate sphere of social relations. As fascinating as the more radical instances of identity play can be, even these experiments are taking place, not exclusively within the 'world' of the Internet, but within a history and social relations in which networked computers play a part. And the vast majority of computer use – functionally speaking, computers remain to this day largely a kind of office machine – involves practices that are considerably less dramatic but perhaps tied to deeper currents in the culture.[2]

This essay, then, focuses not on radically new identities enabled by computers but on identities that people have brought to computers from the culture at large. It focuses less on how computer technology has shaped culture than on the reverse – on certain ways that culture has shaped society's embrace of the Internet. Specifically, it looks at two key examples of ways that certain pre-existing imaginary forms of selfhood – ways of understanding oneself as a self – have been culturally mapped onto historically pivotal moments in the Internet's development: the initial explosion of the Internet in the early 1990s, and the Open Source Movement in the late 1990s.

Most of the literature along these lines has focused on the computer culture's tendency towards a naive abstract individualism or libertarianism, towards a view of selves as naturally and preferentially isolated and autonomous. Paulina Borsook (2000) has argued in *Cyberselfish*, for example, that this abstract individualism often aligns itself with a myopia towards social conditions, and with the conventional conservative notion of freedom as purely negative, as freedom *from*, not freedom *to*. And she and others have expressed concern that the Internet and the related institutions of the 'new economy' became associated with an avoidance of the political, of interconnectedness, of the unpredictability and unknowability of relations with others that comes from being social creatures (Ullman, 1999). Indeed, beginning in the early 1980s, as the computer became a symbol of what is good about the market in many a policymaking mind around the globe, a powerful fusion between the computer culture and neo-liberalism, the global enthusiasm for markets and privatization, was forged.

Yet, the nature of this fusion should not be oversimplified. Indeed, for some, playing with a computer in fact has come to *feel* like an escape into another, more autonomous world, into a kind of freedom. But it is probably not coincidental that this feeling happens to mostly white, mostly male, mostly educated and

middle- and upper-middle class people in the USA. How a culture comes to associate a shared experience – the dreamlike isolation of web surfing, say, or the more obsessive, out-of-time absorption of programming – with a political philosophy like abstract individualism is clearly complex. Gender is a factor, for example. Software engineer Ellen Ullman (1996) has explored what she calls 'a male sort of loneliness that adheres in programming'. Yet, she hints at the layers of complexity in the phenomenon when she quips, 'Fifteen years of programming, and I've finally learned to take my loneliness like a man'.

This essay addresses some of the complexity of the association between computer networks and individualism by suggesting that it is composed of two distinct strands, romantic and utilitarian, and that their difference has political significance. In particular, it calls attention to the importance of the romantic individualism, which holds that people are inherently expressive and self-transforming, and on the tension between this form of selfhood and the utilitarian, market-oriented one that assumes that people are rational and utility maximizing. It looks at the role of the romantic self in the expansion of the Internet and the Open Software Movement, partly because these two events have been significant in the development of the contemporary global economy and partly because they indicate the conflicting directions in which this cultural pattern can operate.

Romantic and utilitarian 'forms of selfhood', as I use the phrase, are *forms*, not types of individuals. They are discursive patterns embedded in institutions and historical processes that become available to individuals as ways of making sense of who they are in given contexts. They are longstanding varieties of what John Frow (1997: 187) has called 'the imaginary forms of selfhood through which we experience the world and our relation to it'. One never simply *is* a utilitarian or romantic self. Rather, most of us find it necessary or useful to adopt roles, to think and speak of ourselves in various established ways, at various moments in our lives. We often have to think of ourselves, for example, as alternately passionate and as administrators, one moment as caring individuals and the next as self-interested rational actors in a marketplace and after that as competent professionals with resumes. 'Imaginary forms of selfhood', then, are not fully-fledged 'identities', nor are they complete or determinate in some kind of mechanical way. They are plural and fluid, but not infinitely so; there are typically several forms available to any given individual in any given context, and it is possible, and probably sometimes necessary, to move between them.[3] We all regularly negotiate the tensions inherent in this situation in our own ways, of course, but the contingencies of social process and history provide us a shifting set of available strategies for accomplishing that negotiation.

The case of computers and the Internet provide an example of ways that the historical contingencies of selfhood can have material consequences. Just as the history of books is also the history of reading, the history of computers is also a history of the social context of their use. Visions of computers' purpose and

social capacities, this essay suggests, are bound up with competing constructions of self, motivation and social relations. However, the larger implication is in the fact that the visions that prevail at any given time shape how computers are designed, and so in a way become embedded in the computers themselves.[4] People who design, build and use computer networks, in other words, work with a variety of ideas about self in a variety of contexts as they do so; those ideas in turn shape both how emerging technologies are used and how they are constructed. What the Internet is and will come to be, then, is partly a matter of who we expect to be when we sit down to use it.[5]

Literary machines: the romantic self and technology

The standard histories tend to describe computers as either mathematical or logical devices, with the latter lending itself to the discourse of artificial intelligence, the idea that computers are thinking machines (Edwards, 1996; Rosenzweig, 1998). However, there exists a third way of thinking of computers that has not been discussed much in most of the potted histories of the field but in a way has quietly triumphed in their practical use: that is the notion that computers are writing machines, tools for communicating symbolically, whose history is better understood in the context of the histories of writing and reading – a tradition that sometimes goes under the heading 'the history of the book' – than in the context of histories of maths, engineering or cognitive psychology.

Here one can only mention a few key indicators of this third way of envisioning computing.[6] One is the fact that since about 1970, most computers have been used for non-computational purposes like databases, whose primary organizational system is the alphabet, not mathematics. Another indicator is the fact that since about 1980, by far the most common computer application has been word processing, followed closely by email. It is also evident in the tradition that emerged in the 1960s in the work of Douglas Englebart, the inventor of windowing and the mouse, and further developed by people like Andries van Dam and Theodor Nelson. That tradition was then pursued by Xerox PARC in the 1970s, copied from them by Apple computer in the early 1980s to make the Lisa and the Macintosh, and subsequently copied by Microsoft to make Windows (Hiltzik, 1999). The under-acknowledged character of this tradition is evident in the fact that, over and over again in the history of computers – from the Internet to microcomputers to the Macintosh to Prodigy to the World Wide Web – communities of computer designers have been taken off guard every time people seem to use computers mostly as literary machines.[7]

Elsewhere I (Streeter, 1999) have argued that the specifically romantic individualist strand in the history of computing is well illustrated in the influential writings and career of Theodor Nelson, who coined the word hypertext. Nelson was an early champion of personal, easy-to-use, graphics-based

computing. His magnum opus, the 1974 self-published *Computer Lib*, presciently promoted all these ideas by essentially transposing the style, format, and counter-cultural iconoclasm of the *Whole Earth Catalog* into the world of computers. It is apparently not unusual to encounter computer professionals who say that '*Computer Lib* changed my life'.[8] Nelson is frequently credited as one of the first to envision a system of interlinked electronic texts like the one we have in the World Wide Web: in 1974, he proposed a hypertext system called 'Xanadu', named after the exotic 'pleasure palace' in Coleridge's opium-induced poem Kubla Khan, and in the early 1980s published a book on hypertext computing called *Literary Machines*.[9] Nelson is a little bit like a libertarian, computer-philic version of the early romantic poet William Blake: both are witty, aphoristic, philosophically sweeping, economically inauspicious writers and self-described radicals, who do their own illustrations and are given to endless neologisms. And both are captivated with the idea of unmediated, personal control over the process of producing texts for the purpose of self-expression – in Blake's case, via hand-coloured etchings; in Nelson's, via networked computers.

The story of Theodor Nelson's contributions to personal computing and the Internet is indicative of a larger pattern. The inevitably dry, technical and bureaucratic detail that makes up the history of computing since 1970 is peppered with moments of rebellion, personal revelation and utopian vision. The influences of the 1960s counterculture within the computer culture have been observed in the development of the microcomputer and the Internet.[10,11] With the appearance of *Wired* magazine, which was self-consciously modelled on the early *Rolling Stone,* they became near-mainstream (Keegan, 1997).[12]

Of course, there is something comic about the idea of people sitting at computer consoles imagining themselves as Byronic heroes. One has to approach this with a sense of irony and scepticism; the feminist critiques of Internet culture are a necessary starting point here (e.g. Cherny and Weise, 1996). One way to make sense of this is to think of romanticism as a social formation, not just an aesthetic or a philosophy, and so to think not just of people like Byron and other romantic figures, but of the readership of Byron, more than a few of whom were in a sense bored bureaucrats, people with relative material security suffering from alienation in their narrow, specialized and technical professions, dreaming of a different life. (I suspect one might be able to trace a fairly direct line from some of the earliest masculine heroes of romantic literature – Goethe's young Werther, say – onward to the protagonists of cyberpunk novels, who are typically 'geeks' who have spent a large part of their lives sitting at computer consoles engaged in narrow, technical tasks, but then in the course of the story have dramatic adventures.)

A recent line of scholarship produced by a collaboration between literature and law professors has pointed out that one of the ways in which these stories about selves have force – one of the ways they articulate with material

institutions – is through intellectual property law, which in an odd way tends to rely on a romantic notion of individual genius, on something like Foucault's author-function, to draw the line between original works and ideas and imitative ones. The image of the romantic self, in other words, is being called upon to draw the property boundaries in cyberspace (Woodmansee, 1984; Frow, 1988; Jaszi, 1991; Boyle, 1996). Theodor Nelson, in fact, has long favoured copyright protection of software, but in contrast with figures like Bill Gates, Nelson's arguments are not so much about business models or efficiency. His concern for property rights has been about securing a kind of perfect authorial identity wherein acts of expression are permanently and unalterably linked to their creators, unmediated by publishers, editors or bureaucratic institutions.

The remainder of this paper will suggest that the connection runs deeper than just property law. This will be illustrated by tracing these ideas in two contexts: the first is the context in which the program Mosaic, one of the first web browsers, appeared on the Internet, and the second is the context of the more recent Open Software movement.

The moment of *Mosaic*

The first version of *Mosaic* for Unix was released by the National Supercomputing Center at the University of Illinois in January 1993, and the PC and Mac versions were released in August of that year. *Mosaic* was not the first web browser, really, but it was the first that worked on a fully point and click basis and the first that easily displayed images. Among the small but rapidly growing groups of people with Internet access – at the time mostly in universities and high tech corporations – *Mosaic* was a smash hit, the kind of thing you'd call a colleague about and tell them, 'you gotta try this thing'. *Mosaic* quickly became known as the 'killer app' of the Internet, and it indeed had that effect, generating a flurry of interest in the Internet that took it out of the realm of technical experts into broad popular consciousness. One of the companies founded to produce a commercial version of *Mosaic*, Netscape, would go on to astonish the world with the largest IPO in history, establish a new model for high tech investing, and thus serve as the opening gong in the period of irrational exuberance in the stock market. Within a few short years of this initial breakthrough into public visibility, the Internet would become *the* network of networks and URLs would begin appearing in ads for soft drinks.

Why did this happen? As always, there are multiple factors. Crucially, the Internet became a craze and then accepted as the inevitable networks of networks *before* anyone was successfully making a profit selling via the Internet and even before Internet access was all that widely available. Most of these changes, then, happened *before* the technology had a chance to have much concrete effect at all and *before* traditional market mechanisms could exert

influence. So it is not a question of real market pressures or of technical efficiency: no one was making any money to speak of, and *Mosaic* was a slow and cumbersome way to get information, particularly on the graphics-impaired computers of the first years.

Mosaic was not a case of desire satisfied, but of desire provoked. The excitement around the Internet of the early-to-mid-1990s was very much *anticipatory*; excitement based on what people *imagined would happen*, not what had already happened. *Mosaic* was not so much efficient as it was pleasurable and it provided pleasure of a specific type. Surfing the web using *Mosaic* in the early days shared certain features with the early stages of a romantic affair or the first phases of a revolutionary movement: the dreamlike experience of pointing, clicking and watching images slowly appear generated a sense of anticipation, of possibility. It was not the content *per se*, which was quite limited at the time, but the hope inspired by the content and the means of access to it.

In the early 1990s, then, the Internet did not so much cause new things to happen as it served to inspire people to *imagine* that new things would happen. In this sense, the Internet's effect was more like the effect of poetry or fiction than like, say, technological advances such as the mass-produced nail or the discovery of oil. The Internet suggests the power of the 'desire to desire' even in the supposedly pragmatic managerial worlds at the heart of the global political economy.

The 'information superhighway' as a political economic mid-life crisis

In the heat of the moment, romances and revolutions feel like they come from nowhere, like they are their own explanation and driving force. Of course, psychologists of coupling and historians of social change caution that this is too simple: in retrospect, there is generally some set of exterior factors at work setting the conditions for the fervour, like a mid-life crisis, a frustrated and underemployed middle class, etc. The same is true of the Internet fervour: it came in a very particular context. The early 1990s was characterized by a lull of uncertainty in the winds of dominant political economic philosophy in the USA. Specifically, the faith in markets and new technology so characteristic of the 1980s had lost some of its energy.

The background against which *Mosaic* stood out, then, was a moment of uncertain groping among political and industrial elites, exemplified in the tired technocratic optimism of Al Gore's 'information superhighway' rhetoric. At the time *Mosaic* appeared in 1993, microcomputers had recently become ubiquitous in offices. By then a new computer was becoming a standard feature of a job offer at a university, for example. And as a result they had lost much of their sheen: the least glamorous of the 1980s microcomputer companies, Microsoft, had

achieved that much prized and much hated state common to technology industries, a practical monopoly. The 'microcomputer revolution', as it was called in the 1980s, was over. This happened at a time when neo-liberal economic policy – the fascination with markets, privatization and deregulation and a correlate antipathy to government regulation – seemed to be on the wane. After the Reagan years, deregulation had lost much of its appeal even to the business community: the stock market had crashed in 1987 and the US high-tech sector was threatened by the Japanese, particularly in the area of memory chip manufacture. As a result, consortia and business-government co-operation were coming back in fashion. Corporations were quietly moving back towards asking for government help to organize and stabilize industries; calls for government to intervene on behalf of things like 'level playing fields' and 'regulatory backstops' were becoming increasingly common. And in some circles, the invitation to reregulate was not euphemistic: for example, some representatives of high technology industries began calling for government co-ordinated 'technology policy', which was a vague term for the use of government to provide things like tax incentives, research money, and antitrust waivers. A US Congressman argued for government involvement in the creation of a US broadband network by saying, '[t]he Japanese will have an information superhighway by the year 2005 and the USA won't' (Stewart, 1991: 12).

It was in this context that Senator Al Gore sponsored legislation that funded the creation of NSFnet, under the heading of what he was then calling the coming 'information superhighway' and later the 'national information infrastructure'. The general principle was a variation on the Fordist theme characteristic of US high technology policy going back at least as far as WWII. Government sponsored research in sophisticated computer networking, the theory went, would yield practical benefits that would eventually be exploited by the business world. While this blurring of boundaries between public and private sectors has been politically problematic – 'military-industrial complex' is an epithet – over the last half-century, the pattern of developing technology with initial public money followed by commercialization has been well-tested: it has brought us satellite communication, microwave ovens, computers, jet airplanes and the Internet.[13] The NSFnet went on to become the backbone for the evolving Internet, which would explode on the national scene a few years later.

These efforts were what Gore was referring to when, early in the year 2000 presidential campaign, he said 'I took the initiative on the Internet'. In a classic case of sound bite politics, the statement was eventually twisted into the inaccurate claim that 'Gore said he invented the Internet'.[14] It is galling to many that the sound bite was so successful; it seems plausible that the 'Gore said he invented the Internet' quip did at least as much damage to Gore's final vote count as Ralph Nader. However, while it is factually untrue, the sound bite is funny. And it may be funny because it appeals to a common scepticism about the technocratic optimism and perhaps arrogance of the managerial mode of thought

associated with technology policy: it's common and it's fun to be sceptical of the overly optimistic visions of order and predictability that so often seem to motivate this kind of policy logic.

Contrast Gore's phrase, 'information superhighway', with the word 'cyberspace'. 'Information superhighway' sounds clean, obedient and orderly; it sounds a bit like a vision from 1950s futurology, found in pamphlets with pictures of smiling, clean, deliriously nuclear happy families out for Sunday drives in their flying cars. The connotations of 'cyberspace', in contrast, are darker, less regimented, more scary, more thrilling, particularly if one knows a little about the term's origin in the *ur*-cyberpunk novel, *Neuromancer*. It is not an accident that the word cyberspace has outlived information superhighway in popular usage.

However, back in 1992 and 1993, after Clinton was elected and Gore became Vice President, Gore's enthusiasm for technology in general and networking in particular turned the phrase 'information superhighway' into the slogan of the moment. Because of the rich mix of political and economic energy to which the phrase became attached, it developed a lot of momentum. Politicians sought to ride on its coattails and industry factions began to try to capture it; phone companies claimed they could provide the information superhighway, provided the government stayed out of it, thank you, and the cable industry countered by politically correcting the name of their newest technology from '500 channel TV' into cable's information superhighway. 'Information superhighway' became so common it sprouted its own metaphorical universe, engendering phrases like 'road kill on the information superhighway'. At the time, few people outside universities associated all this with the Internet. Huge sums were being spent at the time on completely private forms of computer networking, things like video on demand systems and private subscription services like CompuServe. Statements made by telecommunications executives tended to dismiss the Internet as a pure research tool, if they mentioned it at all.

The computer programmer as romantic hero: Netscape through the lens of *Wired*

It was in the early 1990s that *Mosaic* began wowing white-collar professionals across the USA and *Wired* magazine began to introduce these audiences to a counter-cultural view of computing; within a year it would have a circulation over 100,000 (Koenenn, 1994). A pivotal moment occurred early in 1994, when *Wired* published an interview with Marc Andreessen, the co-founder of what was to become Netscape (Wolf, 1994). The article appeared just as the Internet and *Wired* magazine itself were breaking into the mainstream and catching the attention of a business management already made curious about networking by the 'information superhighway' hoopla. The interview revealed that Andreessen

had just abandoned the public sector for the private one in pursuit of wealth and glory; after being a key figure in creating *Mosaic* while in graduate school at the University of Illinois, Andreessen then had been lured to Silicon Valley. The article, grandiosely titled 'The (Second Phase of the) Revolution Has Begun', was enamoured with this twenty-something young man full of adolescent bravado and driven by a blurry but intoxicating vision of simultaneously getting rich and heroically setting the people free by slaying the dragon of the Microsoft monopoly and ushering in a social utopia. This was not about industrial policy or technological improvements in communication; it was the computer programmer as Byronic hero.

It was all deeply contradictory: Andreessen repeatedly denounced Bill Gates, but Netscape's strategies were not so different from those of his Microsoft adversary. His approach was commercial and proprietary after all and he was more interested in creating than conforming to standards; his goal was to dominate rather than share in the web browser market. But those contradictions were all very typical of *Wired*: computer technology coupled to libertarian values would allow anyone who was hip enough to see it coming to successfully meld dreams of wealth with dreams of freedom, utopia and individual heroism. At the time, this dream (or discourse, if you prefer) was as powerful as it was wrong-headed.

What this article, and the mode of thought associated with it, did was take the dry industrial policy of the information superhighway and turn it into an unpredictable and thus tantalizing cyberspace; it was a rich if contradictory fusion of romantic individualism with economic libertarianism. The article dubbed *Mosaic* the 'killer app' of the Internet, predicted another revolution in the computer industry on parallel with the microcomputer revolution, identified Andreessen's new company as the enterprise likely to dominate the new revolution – it was in fact not the only company trying to commercialize *Mosaic* at the time but this article may well have had the effect of a self-fulfilling prophecy so the other companies soon disappeared – and suggested that this represented the only possible threat to Microsoft's monopoly.[15] This *Wired* article – and the vision of which it was emblematic – thus arguably played a key role in the ensuing explosion of both the Internet and the stock market by providing a particular vision that fused a 1960s-styled romantic hope for radical change with pecuniary desire: those who regretted not investing in Microsoft in the 1980s might have a second chance. The article helped make markets hip, and made hipness a way to make new markets.

Importantly, the article did not just target a good investment or an exciting new technology or business as a normal trade magazine piece might have; it did not put Andreesen next to the senior partner of the company, Jim Clark, who was an experienced Silicon Valley executive. Instead, it separately interviewed the junior partner, Andreesen, and portrayed him as a subtle and potent mix of counter-cultural romantic hero and entrepreneur. This little bit of storytelling

in turn provided a compelling model of personhood, a way of thinking about the relation of self and society in capitalism, which could be picked up by computer programmers, executives and stock market investors alike. He wasn't the first business person portrayed this way: Steve Jobs and Wozniak had also been painted in a similar light in many a business profile. But it came at a crucial moment and it was coloured this time around by the figure of the arch-villain of Bill Gates, who was much respected for his business acumen in traditional circles but who had no counter-cultural cachet. It was a way to culturally rescue business activity from the dreary image associated with large corporations, an exciting alternative to the man in the grey flannel suit. This vision had quite an effect: this *Wired* article's representation of Netscape as not only a useful software tool but also as the 'next best thing' did much to override traditional managerial scepticism and set the stage for Netscape's record-setting IPO ten months later, which in turn served as the investment model for the Internet stock craze and the period of 'irrational exuberance' in the stock market.[16]

The moment of Open Source

Since the early 1990s, the Microsoft monopoly and the reaction to it in the rise of Open Software and Linux have changed the tone and economic reasoning surrounding computers and the Internet. As of this writing, it remains to be seen how successful Linux will be, and even if it does survive against – or even defeat – Microsoft, it is not clear that this would make much of a difference economically or institutionally by itself. However, Linux is interesting in terms of what it introduces into the contours of public debate. In particular, the Open Software movement is on the one hand a marked departure from the economic libertarianism that so far has dominated the intersections of the computer culture with the worlds of law and business. On the other hand, the success so far of that movement has depended on an effort to frame Open Software again in romantic individualist terms.

As usual, there are several overlapping strands in the recent intellectual history of the Open Software movement. There are of course software communitarians like movement founder Richard Stallman, whose arguments are frequently but not always of a fairly naive sort: software should be free because sharing is better than not sharing, both ethically and in terms of efficient software development. And the Microsoft monopoly is of course central: the monopoly made it so difficult to compete in traditional ways that companies like Sun and IBM were forced to wander far afield in search of solutions, and this economic desperation was often further fuelled by a widespread (and in many cases kind of adolescent) resentment towards Bill Gates among computer professionals. Another component of the movement's success so far is a set of justifications and self-descriptions that frame the movement in romantic terms.

The core piece here is an essay by a movement leader called Eric S. Raymond. His essay called 'The Cathedral and the Bazaar' (1999) circulated in 1997 and 1998 beyond the Internet into the offices of key business executives and copyright lawyers. This is the article that persuaded Netscape to open source its browser in January of 1998, and not long after that, Apple to base its next generation operating system on an open source foundation, and IBM and Sun Microsystems to adopt open sourcing as a key strategy (Moody, 2001).[17] These are all business strategies that would have been considered deeply irrational as recently as 1996.

It is important that the essay's arguments are not communitarian; Raymond dismisses altruism out of hand. The central rhetorical accomplishment of the piece rather is to frame voluntary labour in the language of the market: the core trope is to portray Linux-style software development like a bazaar, a real-life competitive marketplace, whereas Microsoft-style software production is portrayed as hierarchical and centralized – and thus inefficient – like a cathedral. The metaphor of the market is thus associated with voluntary labour and dissociated from conventional capitalist modes of production.

Part of what makes this curious reversal work is Raymond's focus on programmers' motivations. For an essay about such a dry and technical topic as the management of software development, there is an awful lot of reference to the internal feelings, psychological makeup and desires of programmers. (Subsequent discussion of Open Software seems to have maintained some of this focus [e.g. Taylor, 1999].) Almost like an *Entwicklungsroman*, Raymond presents a first-person account of his own experiences in software development, during which he tells the story of how he became converted to the Open Software model. This narrative of personal revelation is interspersed with numbered principles or aphorisms, the first of which is: '*Every good work of software starts by scratching a developer's personal itch*'.[18] Because Raymond's audience is in the worlds of business and law, he immediately sets out to reconcile his psychologically tainted portrayal of motivation with a utilitarian one. 'The "utility function" Linux hackers are maximizing', Raymond continues, 'is not classically economic, but is the intangible of their own ego satisfaction and reputation among other hackers'. Raymond goes on to draw analogies with fan subcultures, wherein the enhancement of reputation among the other members of the community is understood as a key motivation.[19]

Raymond thus frames the motivation to write software as something born of a not entirely rational fascination or ambition (an 'itch'), of a desire to have one's accomplishments recognized not with money but with the psychological satisfactions of acclaim and a desire to be open to transformations of self. One could of course criticize this as both an empirical description and as a philosophical argument, but what is significant to my argument is first, how the dream of having one's 'itch', one's inner passions, acknowledged by a community of the like-minded is a characteristically romantic structure of feeling, and second, how

much Raymond's statement of the problem, whether or not it is philosophically coherent, has resonated with the computer culture at large and had some impact on the larger business culture in a way that communitarian or managerial arguments have not. It is important that, in the minds of quite a variety of people, this vision of passionate programmers provides a much more appealing way to deal with the perennial industrial problem of monopoly than something like industrial policy or antitrust law.

The first sentence of Raymond's essay is, 'Linux is subversive'. Of course, that is not true. Open Software is already being treated by many as just another business model, and by itself is unlikely to change things dramatically. That opening sentence and its absurdity nicely captures yet another example of the grandiosity of the computer culture. However, it is not coincidental that there is something vaguely Byronic about that grandiosity: it is connected to a deeply rooted cultural tradition.

Conclusion: culture, subjectivity and the making of markets

Like its ancestor, the 1960s counterculture, the case of the computer culture suggests that the romantic 'I' stands in a tangential relation to capitalist property relations (and the utilitarian 'I' they imply), sometimes working in concert with markets and privatization, and sometimes working to call them into question. The shifting articulations of romantic forms of selfhood in the computer culture lend weight to various schools of thought that explore the intersections of culture with the commodity form and its institutional supports in law and technological systems. John Frow (1996: 217), for example, has argued that it is at the level of everyday life – that moment of experiencing the world – that the logic of commodity culture and the logic of gift cultures interact most dynamically and contradictorily. Similarly, the case of the computer culture lends weight to the analysis of Colin Campbell's (1987) neo-Weberian book, *The Romantic Ethic and the Spirit of Modern Consumerism*. The book is problematic in several ways but its general argument is a compelling one: that the consumer culture is romantic in its structure, that the forms of individualism it encourages tend to be more about self-transformation and anticipatory pleasures – about the desire to desire – than about the satisfaction of utilitarian needs. And he suggests that romanticism is both a necessary condition to capitalism as we know it and a common feature of many substantial movements of *resistance* to capitalism, the paradigmatic case being the 1960s counterculture. It is not just long hair and beards that the computer counterculture shares with the 1960s, then: it is a structure of feeling characterized by an expressive, individualist understanding of self.

The case of the computer culture also helps foreground the question begged by most popular accounts of markets: the question of how markets come to be

in the first place. As the field of economic sociology has taught us, markets are created by way of variable social and institutional processes that are prior and crucial to the character of markets that emerge. Markets are made not born and they can be made in any number of ways with any number of different consequences; making markets is a social, and typically political, act. The existence and stability of markets is not a fact of nature, in other words, but is rather something that needs to be explained by looking at prior or exterior institutional, political, and cultural processes (Polanyi, 1971 [1957]; Zukin and Dimaggio, 1990).

This is partly a matter of inquiring into what conventional economists too often assume to be self-explanatory market preferences: people's preferences are often not fixed but learned, and bound up with various ideas of themselves or subject positions. In other words, it is certainly true that people often act out of self-interest, but first they have to learn who their selves are and what they are interested in, and that happens through culture. In some ways, it is also the Weberian question, first raised in *The Protestant Ethic*, about explaining the relations between culture and the economy in terms of the moral fabric that undergirds market relations. For markets and property relations to exist, they have to make sense to people, they have to seem fair and legitimate. Market legitimacy, furthermore, is not just a matter of broad worldviews or 'official' ideologies, but of complex moral textures or architectures experienced on the level of everyday life and common sense. In particular, people have to make sense of working in a world of economic exchange while at the same time feeling, thinking and acting in ways that cannot be explained purely in terms of the marketplace itself.

Politically, romantic individualism is not much of a solution by itself; it can conceal as much as it reveals. By the same token, it need not be dismissed as a naive ideology either. With the rise of the Open Software movement, we have seen the appearance of a version of romantic selfhood in an economically and legally significant community that seriously conflicts with existing structures of commodification. Through 1998, the computer culture was an important source of apologias for an aggressive, neo-liberal expansion of property rights. Since then, if the Open Software Movement has any authority at all, that seems to be changing. If Linux itself is not subversive, useful lessons about how real change might come can be derived from its popularity. In particular, it suggests that, in public political and legal arguments, starting with the common lived experience of a contrast or tension between popular romantic ideals of self and the economic realities of our industries is in many cases likely to be a more fruitful approach, analytically and politically, than simply dismissing the follies of individualism wholesale.[20]

A case in point: towards the end of the *Wired* interview with Marc Andreessen, the interviewer, Gary Wolf, wrote that Andreessen, 'may have conjured the Bill Gates nemesis out of the subtle miasma of his own

ambivalence'. Wolf goes on to note the contradictions already mentioned and observes that Andreessen, 'is being forced by the traditional logic of the software industry to operate [in ways] distinctly at odds with the open environment of the Web'. When Wolf presses Andreessen on these issues, after some waffling, Andreessen replies: 'The overriding danger to an open standard is Microsoft . . . [but] One way or another . . . I think that *Mosaic* is going to be on every computer in the world'. Wolf waits for more. Andreessen repeats himself, 'One way or another'. That is how the article ends.

What is interesting here is the 'another' in Andreessen's phrase and the fact that Wolf highlighted it by making it the last line of the article. This is worth listening to. At the very moment he is fully enthralled by the logic of capital, Andreessen tells an interviewer – and the interviewer senses that this is important – that there is *not* just one way to do it; there is 'another'. This is a man who was at the centre of the stock market boom, of Internet commercialization, and a darling of the 'new economy', who has since become a captain of industry, saying in an influential article in the pages of a house organ of techno-libertarianism, that there is *not* just one way to make products and to organize the new media. There is another. There is another way.

Andreessen is no theorist of alternative modes of production. The point is rather that even someone like him, even magazines like *Wired* at the height of their influence, can express an awareness, however dim, that there are other ways to do things, that the existing market approaches do not always do the trick. In so far as democracy is about listening to others, it is incumbent on those of us concerned about democratic culture to take heed.

Notes

1 Sherry Turkle, for example, professed 'great excitement' over the fact that many of her subjects were using virtual reality environments and in the process 'exploring, constructing, and reconstructing their identities . . . in an environment infused with a postmodern ethos of the value of multiple identities' (Turkle, 1996: 365; also see Stone, 1995).

2 The predominant use of personal computers, and probably the predominant use of computers in aggregate, remains word processing, both in the office and at home (Richtel, 1998): 'Eight out of ten computer users employ them for word processing, far higher than the 51 per cent who perform calculations. Seven out of ten engage in "general business use"; six out of ten play computer games'.

3 At any given time and place, it is easier to adopt some forms of personhood than others. The pressures one feels to act as, say, a martyr for Allah, a profit-maximizing businessperson or a self-sacrificing parent vary according to time,

place and context; they are not determinate in a mechanical way, but are deeply shaped by forces of history and social relations.

4 The desktop metaphor, for example, has helped drive many of the technological developments in microcomputers over the last decade and a half, e.g. graphics chip sets and displays optimized for fonts, icons and scrolling windows.

5 Among technologies, the case for the socially constructed character of computer systems is relatively easy to make. To a significant degree, computers are whatever we make them. They are programmable; the same microprocessor or operating system can guide a missile, run a word processor or drive a home game console (which is why the US State Department has tried to limit the exportation of PS2 computer game machines – a machine intended as a toy – because of its potential military applications). And even if computers sometimes have unintended consequences, even if they surprise us, that surprise may be more about us than it is about anything inherent to the machines, about some kind of technological determinism.

6 For an analysis that provides one of the very few mainstream text-centred views of computing, see Brown and Duguid (2000).

7 To mention just a few examples: the Arpanet was created largely on the theory that it would expand access to large mainframe computers for scientific purposes but, early in its life, the dominant use unexpectedly became e-mail. The idea that computers were largely for numeric and database purposes is also the common explanation for why the large corporate computer manufacturers did not foresee the popularity of microcomputers, leaving the field wide open to entrepreneurial upstarts. The success of the Macintosh computer, originally introduced in 1984, was severely hampered because Apple computer reportedly told software developers not to waste time producing word processors for the machine. Prodigy was originally designed in a centralized, one-to-many structure that proved to be a problem when the dominant use became many-to-many email messaging.

8 Personally, I have met one such person; Nelson claims to have encountered at least fifty such individuals (in the 1987 edition of *Computer Lib*).

9 I have a 1983 copy of his self-published *Literary Machines*, which is described as a fifth edition.

10 Levy (2001 [1984]) details how many key individuals were influenced in various ways by the counterculture. Lee Felsenstein, for example, was and remains a product of 1960s utopian radicalism, which provided much of his motivation in helping create the microcomputer by helping to organize the Homebrew Computer Club that incubated the fledgling microcomputer industry in the mid-1970s. Throughout the book, Levy emphasizes how the loosely rebellious culture of hacking borrowed liberally from the 1960s counterculture, even among those with few political leanings.

11 Hafner and Lyon (1996) provide numerous anecdotes, such as the BBN programmers working on Arpanet who wore sneakers and anti-war pins to

briefings at the Pentagon in 1969 (1996: 112–13), or the appearance of a controversial, very early e-mail message in 1972 on Arpanet – which was then understood as primarily a military communication system – calling for the impeachment of President Richard Nixon (1996: 205). Abbate (2000) contains similar anecdotes, but with better attention to the broad shifts in social vision that went into the development of Internet technology. Others have noted the computer- and business-culture's borrowing from the 1960s counterculture, particularly Rosenzweig (1998), Barbrook and Cameron (1996) and Frank (1997). Theodore Roszak (1986) himself has noted the connection – see also Streeter (2000).

12 A key figure in popularizing and promoting the counter-cultural vision of computing is Stewart Brand, who created the counter-cultural compendium *The Whole Earth Catalog* in the late 1960s. Brand (1972) first brought the counter-cultural strains in computing to the attention of the wider world in a celebratory *Rolling Stone* piece. In the wake of the success of the *Catalog*, Brand helped create *Coevolution Quarterly*, which was guest edited by the Black Panthers in 1974 but, by the early 1980s, had evolved into the *Whole Earth Software Review* (Kleiner, 1986). *Coevolution Quarterly* staffers Art Kleiner and Kevin Kelley eventually became key figures at *Wired*.

13 Historian Thomas Hughes (1998) grumbles about the difficulties of convincing both the left and the right of the post-1960s generation that what he calls the 'military-industrial-university' complex was valuable.

14 The statement was first attacked in print by libertarian *Wired* magazine reporter Declan McCullagh in early 1999, and eventually morphed by various Republicans into the inaccurate sound bite that Gore said he 'invented' the Internet. For McCullagh's version of events, see Declan McCullagh (2000). For a more detailed account sympathetic to Gore, see Wiggins (2000).

15 In July of 1994, at least ten companies had licensed Mosaic from the University of Illinois for commercial development, including the well-connected Spyglass and Spry (Corcoran, 1994).

16 The argument, of course, is not that this one article had a linear, direct cause on all this, but that the vision that this article embodied and fostered was a condition of possibility for the subsequent self-fulfilling pattern of exuberantly high expectations that drove the economy for the next six years.

17 The argument here, again, is not that this single essay by itself directly caused major corporations to adopt new strategies; rather, Raymond's essay helped promulgate a way of understanding software development that played a key role in the corporate shift; it was a necessary but not sufficient part of the conditions of possibility of the move towards Open Software. Of course, these companies had an economic interest in the new strategy, especially given the Microsoft monopoly. However, the economic conditions behind the change had been in existence for several years; an economic explanation alone cannot explain why these companies made their policy changes all within a roughly one-year period (1998). Another key factor in the success of the Open Source

movement was the creation by Eric Raymond and others of the 'Open Software Initiative' shortly after Netscape's announcement that it would release its source code; the Initiative self-consciously sought to move away from the language of 'free software' because it was problematic to business executives and to use the language of 'open software' instead. See, 'A History of the OSI' at http://www.opensource.org/docs/history.html.

18 Several more of these aphorisms refer to internal states: '4. If you have the right attitude, interesting problems will find you', for example, and '18. To solve an interesting problem, start by finding a problem that is interesting to you'.

19 The piece does in various ways acknowledge and elaborate the obvious values of co-operation and sharing, and thus has to somehow distance itself from the more simplistic forms of romantic individualism. However, the idea of creativity is still very much heroic and Promethean. Consider this passage:

> The only way to try for ideas like that is by having lots of ideas – or by having the engineering judgment to take other peoples' good ideas beyond where the originators thought they could go. . . . Andrew Tanenbaum had the original idea to build a simple native Unix for the 386, for use as a teaching tool. Linus Torvalds pushed the Minix concept further than Andrew probably thought it could go – and it grew into something wonderful. In the same way (though on a smaller scale), I took some ideas by Carl Harris and Harry Hochheiser and pushed them hard. Neither of us was 'original' in the romantic way people think is genius. But then, most science and engineering and software development isn't done by original genius, hacker mythology to the contrary. The results were pretty heady stuff all the same – in fact, just the kind of success every hacker lives for! And they meant I would have to set my standards even higher.

20 One can see some of the different valences of these two strategies in the growing body of critical work on intellectual property. James Boyle's 1996 book articulately criticizes what he calls the 'author ideology', but that has resonated much less in many circles than Lawrence Lessig's *Code and Other Laws of Cyberspace* (2000), which makes similar arguments but tends to focus more on the *contrast between* romantic notions of freedom and corporate and market tendencies, rather than directly attacking the romantic notions themselves.

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