

The Popularisation of the Hacker Ethic

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Abstract

This thesis documents three major phases in the development of the Hacker movement and its ethic. Showing how the popularisation of the ethic has broken the Marxist Labour/Exploitation framework most often used to discuss its rise, the author suggests looking at the relationship between Hacker and wider society through Hannah Arendt's framework of Labour, Work and Action. Through this model it is the author's assertion that the popularisation of the Hacker ethic can be seen as a reawakening of a more general, suppressed human desire.



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Introduction

The etymology of the term ‘hack’ in relation to computing and technology has traditionally suffered from the same ambiguity as the movement it has been used to represent. Initially, a hack was an elaborate prank orchestrated by Massachusetts Institute of Technology (MIT) students.¹ Then it became ‘a project undertaken or a project built not solely to fulfil some constructive goal, but with some wild pleasure taken in mere involvement’.² During the late 1980s and the dawn of computer crime these early uses were replaced by a news media definition of using ‘a computer to gain unauthorised access to data’,³ a definition that appears in the Oxford English Dictionary to this day. But as this thesis will show, in recent years the Hacker movement has undergone much unification and self-realisation. One of the by-products of this reassertion has been the repatriation of the term Hacker, away from its association with crime and back to its roots. In this way it refers to ‘any kind of expert, especially with the connotation of having particularly detailed knowledge or of cleverly circumventing limits’.⁴

As we will see, the Hacker movement emerged from the academic science communities of several American universities and thus utilised the traditional publishing and peer review model of scientific collaboration. It is from this background that the Hacker mantra: *all information should be free* originates. The requirement that information should be free relates to the paramount concern of the Hacker:

*By its very nature, the act of hacking overcomes the limits property imposes on it. New hacks supersede old hacks, and devalue them as property... This gives the hacker class an interest in the free availability of information rather than exclusive right. The immaterial aspect of the nature of information means that the possession by one of information need not deprive another.*⁵

This concern further implies the importance of two processes: Free Labour and Copyleft. Free Labour is the term given to the unpaid production of information-based commodity by society and comes from the transition from a material-centric to an information-centric economy - a transition that can be seen in all advanced capitalist societies.⁶ McKenzie Wark uses the term ‘vectorialist’ to describe the class, which grew out of the industrial revolution, to rule through the restriction of access to information.

*Information, like land or capital, becomes a form of property monopolized by a class, a class of vectorialists, so named because they control the vectors along which information is abstracted, just as capitalists control the material means with which goods are produced, and pastoralists the land with which food is produced.*⁷

Arising in opposition to the monopolisation of information, Copyleft is the process of applying Copyright law in order to protect the freedom to share information in the climate of increased Intellectual Property protection created by the vectorialist class. Since 1983, Copyleft has become the main means of protecting the central tenet of the Hacker ethic: that all information should be free.

In her book, *Network Culture*, Tiziana Terranova discusses three different positions from which to understand the Free Labour facilitated by the Hacker movement and its creations.⁸ The first position, as expounded by Richard Barbrook, is that Free Labour creates a ‘hi-tech gift economy’ that has the potential to replace capitalism with a new form of social democracy.⁹ The second position, that of John Norvath, is that Free Labour is a creation of advanced capitalism that allows for greater exploitation of society through what the Italian autonomists called the ‘society-factory’.¹⁰ Terranova explains that: “The ‘society-factory’ describes a process whereby ‘work processes have shifted from the factory to society, thereby setting in motion a truly complex machine’”.¹¹ The third position states:

*Free Labour is a desire of labour immanent to late capitalism, and late capitalism is the field which both sustains free labour and exhausts it. It exhausts it by undermining the means through which that labour can sustain itself: from the burnout syndromes of the Internet start-ups to the under-compensation and exploitation in the cultural economy at large...it is technically impossible to separate neatly the digital economy of the Net from the larger network economy of late capitalism...the Internet has always and simultaneously been a gift economy and an advanced Capitalist economy.*¹²

These three positions provide an overview of the major theoretical frameworks that have, so far, been used to dissect the Hacker as social entity. Terranova’s discussion of these positions centres on the exploitation of Free Labour by advanced capitalism; a position that is useful to dispel the idea that the Hacker movement is the dawn of a communist revolution that will supplant the current capitalist

system but does not provide us with the means to dissect the adoption of the Hacker ethic by the society factory. It is the assertion of this thesis that the Professional-Amateur¹³ or Recreational Labour mode of production that induces the majority of Free Labour nullifies the argument of exploitation and thus a new framework is necessary.

This thesis will document three major stages in the rise of the Hacker ethic in order to show how these break traditional relationships of Labour and Exploitation. Section 1 will cover the development of the Unix operating system that developed from a gift economy only to be exploited by those that subsidised the conditions for its existence. Section 2 covers the retaliation against this exploitation by the Hacker movement and the unification of the ethic through the Free Software Foundation and the Linux operating system. Section 3 covers the popularisation of the Hacker ethic through the mass adoption of Hacker technology, Open Source Software and the rise of Recreational Labour. Finally, in Section 4, Hannah Arendt's work is used to propose a new means of understanding the popularisation of the Hacker ethic. By drawing on Arendt's division of human output into 'Labour, Work and Action'¹⁴ the author aims to suggest a more applicable theoretical framework to understand the complexities of Free Labour, Recreational Labour and human desire.

The Realisation of the Hacker Movement

In 1969, the originally disparate Hacker communities of MIT, Stanford University and Carnegie-Mellon University were linked by ARPAnet, the experimental beginnings of the Internet. Through this connection, the Hacker communities at these three academic institutions, alongside those at XEROX PARC and Bell Laboratories reached critical mass and the Hacker movement was born. What can be seen from this point on is that the Hacker class, as explored through Marxist theory by Wark,¹ occupies a unique position as the only productive class that designs its own tools of production. It is thus a hybrid class, one that contains Artisan, Apprentice and Proletariat.² This added control has meant that throughout the history of the commodification of Hacker output, Hackers have always been able to steer development somewhat ‘their way’.

*The hacker class likewise struggles for autonomy in a world in which the means of production are in the hands of the ruling classes. But the difference is that the hacker class is also a designer of the very tools of production. Hackers program the hardware, software and wetware, and can struggle for tools more amenable to autonomy and cooperation than monopoly and competition.*³

As the communities mentioned above were encouraged by their employers, the universities and corporations, to experiment with ARPAnet they began to develop means of serving their own interests at the same time. From 1970 on, ARPAnet’s ability to support mailing lists was used not only for academic/commercial collaboration but also for socialising, the most popular list being SF-LOVERS, a list for science fiction fans. 1973-75 on ARPAnet saw the first remote collaboration on a text document – the first Jargon File, a slang dictionary of Hacker terms⁴ since published twice, once as *The Hacker’s Dictionary* and then again as a revised and expanded edition *The New Hacker’s Dictionary*.⁵ This dual development of personal and vocational interests intertwined within the same projects can be seen throughout Hacker history and, as we will see later, causes the Hacker ethic to flow through much of the consumer technology of the early 21st century.

The first version of the Hacker ethic that emerged from the social connection of these groups was not published until 1984 (at which point it became one of the unifying moments in the movement’s history) but clearly reflects the world of computing that existed at the time.

Access to computers – and anything which might teach you something about the way the world works – should be unlimited and total. Always yield to the Hands-On Imperative!

All information should be free.

Mistrust Authority – Promote Decentralization.

Hackers should be judged by their hacking, not by bogus criteria such as degrees, age, race, or position.

You can create art and beauty on a computer.

*Computers can change your life for the better.*⁶

Here we can see the first statement relating clearly to the Hackers’ perception of those that controlled access to the early computers that they longed to use.⁷ Also, through the last two statements we see an attempt to shatter, what were then, public preconceptions on the role of computers in the world. Up to this point computing was seen wholly as a science with discrete examples of effective software and hardware combinations – the science was in discovering the most efficient means of programming a specific machine to do something. To the Hackers the computer was clearly more. It was this belief and the development of faster hardware that saw the next development in the history of the Hacker – Unix.

Unix: The Designing of a Community

The development of the Unix operating system actually occurred alongside the development of ARPAnet from 1969 onwards. Whereas ARPAnet was allowing the disparate Hacker class to realise its common aims, Unix was changing the very emphasis of computer programming. Unix aimed to hide the complexity of an operating system from the user, making the operation of the computer and further programming much easier. This is the first fundamental change in the ‘science’ of programming,

changing the goal from computational efficiency to ease of use (at this stage, for computer programmers). This switch was only possible because Ken Thompson and Dennis Ritchie, the developers of Unix and the C programming language realised that computer hardware and compiler technology had become advanced enough for an operating system to be written in a higher-level, less efficient language. By writing Unix in C, the first machine-independent operating system was born and along with it the ability for Hackers to move chunks of working code from machine to machine, project to project. In design terms Unix is one of the greatest leaps in software design, it completely shifts the emphasis away from the science of machine-dependent performance to several of the new Hacker aims – decentralisation, access to computers and creativity through computing. Eric Raymond's book *The Art of UNIX Programming* states:

*Much of Unix's stability and success has to be attributed to its inherent strengths, to design decisions Ken Thompson, Dennis Ritchie, Brian Kernighan, Doug McIlroy, Rob Pike and other early Unix developers made back at the beginning; decisions that have been proven sound over and over. But just as much is due to the design philosophy, art of programming, and technical culture that grew up around Unix in the early days. This tradition has continuously and successfully propagated itself in symbiosis with Unix ever since.*⁸

A quote from Ritchie, included in Raymond's book, really allows us to see how the philosophy behind Unix was totally different to any other major operating system that had come before:

*What we wanted to preserve was not just a good environment in which to do programming, but a system around which a fellowship could form. We knew from experience that the essence of communal computing, as supplied by remote-access, time-shared machine, is not just to type programs into a terminal instead of a keypunch, but to encourage close communication.*⁹

Raymond continues: "The theme of computers being viewed not merely as logic devices but as nuclei of communities was in the air...The theme of 'fellowship' would resonate all though Unix's subsequent history".¹⁰ At this stage in the development of the Hacker movement the intended audience that would make up the Unix 'fellowship' was still seen as Hackers themselves. In 1969, operating systems were still designed for computer operators; affordable Personal Computers were still at least 6 years away.

Within Unix, therefore, we can see a clear implementation of the early Hacker ethic: The importance of modularity within Unix promotes decentralisation; a standardised means of inter-application communication encourages programmers to think beyond their own needs and facilitate other programmers' use of their programs; Unix's reliance on open standards and interoperability is an embodiment of the 'computers can change your life for the better' rule – the more people that can use your work the better computers will be and the better life will be; and finally, relating to both the first and last rules of the ethic, Unix's platform independence means it can run on more computers facilitating greater access to computing.

The Hacker Gift Economy

Between 1974 and 1979 many universities contributed to the operating system, building in features that served their requirements and sharing them with others.¹¹ Of this period, Doug McIlroy writes:

*Peer pressure and simple pride in workmanship caused gobs of code to be rewritten or discarded as better or more basic ideas emerged. Professional rivalry and protection of turf were practically unknown: so many things were happening that nobody needed to be proprietary about innovations.*¹²

This co-development of Unix by academics around the world began as an extension of the academic gift economy that had evolved from the scientific process of peer review. An economy that rewards the public sharing of information with greater individual reputation:

*...academics acquire intellectual respect from each other through citations in articles and other forms of public acknowledgement. Scientists therefore can only obtain personal recognition for their individual efforts by openly collaborating with each other through the academic gift economy. Although research is being increasingly commercialised, the giving away of findings remains the most efficient method of solving common problems within a particular scientific discipline.*¹³

But like scientific research, which is made up of results and methods, computer software is made up of an executable and source code. The executable file is equivalent to the results of an experiment; it is the final output of the program code – a set of files that are executed to perform a task. Source code is similar to scientific method, it is the human readable code that describes how the result, the executable is made. During the initial stages of the Unix gift economy, source code was shared freely allowing Hackers to see each other's methods. This created, what was in the social climate of the 1960s, a utopian, gift economy that when merged with the flourishing ARPAnet community would continue growing to this day.¹⁴

Unix and the Internet

The merging of the Unix and ARPAnet cultures occurred in 1983 with the completion of a Unix implementation of the TCP/IP protocol.¹⁵ This finally allowed the Unix Usenet community to join the fledgling Internet and infuse it with their ethic. In an incredible show of foresight, DARPA, the body funding ARPAnet, chose to move the infrastructure of the network to Unix in order to remove any dependence on a single, closed source, software provider.¹⁶ With this move the Hacker ethic was planted directly at the core of the soon to be Internet where its principles of open design, decentralisation and free access to information would spread with every extension of the network itself.

In *The Hi-Tech Gift Economy*, Barbrook documents how the New Left political moment laid claim to this early Internet, promoting it as proof that an anarcho-communist society could exist without state or market. This is one of many occasions when a politicised group have attempted to lay claim to the product of the Hacker movement and fallen foul of its decentralised nature¹⁷, as Barbrook points out:

Contrary to the ethical-aesthetic vision of the New Left, money-commodity and gift relations are not just in conflict with each other, but also co-exist in symbiosis. On the one hand, each method of working does threaten to supplant the other...Yet, on the other hand, the gift economy and the commercial sector can only expand through mutual collaboration within cyberspace. The free circulation of information between users relies upon the capitalist production of computers, software and telecommunications. The profits of these commercial Net companies depend upon increasing numbers of people participating within the hi-tech gift economy¹⁸

Engrained in this subsidised gift economy though was the idea of the unknown audience. The open sharing of information encouraged Unix programmers to make their software more interoperable, to dispel ideas of 'one true way'¹⁹ and to design for an unknown future. With the merging of Unix and ARPAnet cultures this process spread to information beyond that used by programmers. With it, the emphasis of the 'unknown' as recipient of the 'gift' is the beginning of the nullification of the exploiter in the traditional Labour-Exploitation relationship. It is not that Free Labour's altruistic methodology cannot be exploited; it is that it becomes an accepted risk. As in scientific research before commercialisation, the public publication of methods is the only means of improving reputation. To not publish for fear of exploitation would be to join the vectorialist class that despises the idea that all information should be free. And besides:

Even selfish reasons encourage people to become anarcho-communists within cyberspace. By adding their own presence, every user contributes to the collective knowledge accessible to those already on-line. In return, each individual has potential access to all the information made available by others within the Net. Everyone takes far more out of the Net than they can ever give away as an individual.²⁰

As we will see in the next section, the tension between the gift and capitalist economies has been a driving force throughout the history of the Hacker movement. Thus, much writing on the movement is centred on this relationship. However, as the Hacker ethic becomes more and more popularised, expanding the gift economy, we will see the importance of wider human desire rise as an even more powerful driving force.

The Unification of the Hacker Movement

With the computer revolution well underway access to computers was increasing due to lower manufacturing costs and wider adoption. Thus, the first rule of the Hacker ethic was diminished in importance; it was also becoming widely accepted that computers *could* change your life for the better so the most important tenets of the Hacker ethic became:

All information should be free.

Mistrust Authority – Promote Decentralization.

Hackers should be judged by their hacking, not by bogus criteria such as degrees, age, race, or position.

You can create art and beauty on a computer.

Along with the wider adoption of computers came a commercial interest in Unix and an opportunity for the universities to make back some of the money they had invested in the early Hacker communities. Unsurprisingly, this soon started to conflict with what was to become the most important rule of the Hacker ethic: All information should be free.

Protecting Free Software

It was in response to the commercialisation of Unix that Richard Stallman, in 1983, started a personal crusade to unite the Hacker community behind a public political rhetoric. The cause was the encroachment of Intellectual Property rights and the exploitation of the Unix gift economy:

In 1981, the spin-off company Symbolics had hired away nearly all of the hackers from the AI lab, and the depopulated community was unable to maintain itself...When the AI lab bought a new PDP-10 in 1982, its administrators decided to use Digital's non-free timesharing system instead of ITS.

The modern computers of the era, such as the VAX or the 68020, had their own operating systems, but none of them were free software: you had to sign a nondisclosure agreement even to get an executable copy.

This meant that the first step in using a computer was to promise not to help your neighbor. A cooperating community was forbidden. The rule made by the owners of proprietary software was, "If you share with your neighbor, you are a pirate. If you want any changes, beg us to make them."¹

The exploitation of the Unix gift economy is the perfect example for Norvath's argument that Free Labour is perpetuated by capitalism, in order that its product might be exploited. The incorporation of Symbolics by MIT created a business around the, then openly shared and built, Lisp software. A business that would eventually impose a restrictive license on what was once free software. This and the spread of proprietary operating systems was too much for Stallman. His response was an open letter to the Hacker community:

Starting this Thanksgiving I am going to write a complete Unix-compatible software system called GNU (for Gnu's Not Unix), and give it away free to everyone who can use it. Contributions of time, money, programs and equipment are greatly needed...

Why I Must Write GNU

I consider that the golden rule requires that if I like a program I must share it with other people who like it. I cannot in good conscience sign a nondisclosure agreement or a software license agreement.

So that I can continue to use computers without violating my principles, I have decided to put together a sufficient body of free software so that I will be able to get along without any software that is not free.²

To support the construction of GNU, Stallman created the Free Software Foundation (FSF).³ The FSF's ideology was the then unwritten goals of all Hacker ethic distilled into a set of rules for software

distribution, at its centre, that users should be able to examine, copy, manipulate and redistribute the source code used to create any piece of software. The inception of the Free Software Foundation is the next fundamental change to the methodology of the Hacker movement, it set in motion the transition of the Hacker movement from a relatively insular clique to a publicly facing politic, a politic whose basic tenet is the right to manipulate or hack and build on the work of others who believe the same.

The history of the FSF is of particular interest because it displays the intricacies involved in the unification of the Hacker movement – a movement with a unifying principle to ‘distrust authority’.⁴ Where the FSF succeeded was in its defence against the exploitation of Free Software by advanced capitalism, to accompany the construction of GNU the GNU/General Public License (GPL) was created. This software license was the birth of Copyleft – the process of protecting the right to share using Copyright law. Stallman saw only one way to stop his free software from being exploited by commercial whilst promoting the freedom of information: the GPL contains a ‘viral’ element that forces anyone using GPL licensed software to license any derivative work under the same license, thus, ever increasing the wealth of free information it covers. This license was a direct reaction to the commercialisation that was rising in the software industry and a means to protect and spread the freedom of information in a climate where authority (the employers) could not be trusted. The GPL is a move that strongly acknowledges an outside threat to the central tenet that all information should be free. In its choice of Copyright law as a means to protect freedom rather than enforce restrictions, it also acknowledges the growing adoption of Intellectual Property law by advanced capitalism.

The success of the GPL was heavily reliant on the fact that, for the majority of Hackers, technology was a way of life not just a job. Working outside of their funding establishments the Hacker movement would need to produce something so good that others would want to use it despite the viral nature of the GPL. Stallman thought the place to start was with a totally free operating system and he was right, what he wasn’t right about was the production method. The FSF failed to complete a full version of Unix due to its belief that, because it was run by Hackers, it could be an authority. Between the founding of the FSF in 1982 and 1991 its proponents produced many of the harder parts of a free Unix but had failed to complete HURD, their version of the Unix kernel, the central core of the operating system. It was not until 1991 and the birth of Linux that a new, decentralised model of production would unify and accelerate Hacker production.

Decentralising Production

To create Linux, a new free version of Unix, Linus Torvalds adopted a new mode of production that mirrored the global, post-modern ideology that the Internet and Hacker movement were spreading. The Internet had now matured into a global network with totally new gift economies emerging. Built not by Hackers but by the early adopters of the Internet, these new economies were using the open infrastructure that had been built through the early freedoms of the Hacker movement. Whereas Stallman’s FSF was steeped in the rhetoric of the 1960s hippie culture, Torvalds’ methodology imposed no political overtones – this was totally open, collaborative production for efficiency not politics’ sake.

Through his (self-purported) laziness Torvalds completely opened up the production of Linux to anyone who was interested and assumed the role of editor and distributor.⁵ This model was in complete opposition to that used by the Free Software Foundation for the development of HURD, their model consisted of a small group of developers working in a carefully coordinated way.⁶ Torvalds, however, forwent the fear of buggy releases in order to create a faster release schedule, this meant that any problems that appeared would be seen by as many people as soon as possible and thus be fixed much more quickly.⁷ By releasing at such an accelerated rate, Linux began to exceed everyone’s expectations especially those that thought something as complex as an operating system could never develop by being ‘casually hacked on by huge numbers of volunteers coordinating only through the Internet’.⁸ 1993 saw Linux compete with many commercial Unices and run far more software than any of them, it was also beginning to attract ports of commercial software. What Torvalds had shown was, that by opening up development to a large community and managing it much more loosely, development time was actually decreased and the quality of the work produced improved. To the traditional managers of software production, including the Free Software Foundation, this sounded crazy but with the market for Linux devices and software being \$11 billion in 2004 the evidence is hard to refute.

But Linux did have an advantage that the developers of HURD never had, the wider adoption of the Internet. Raymond believes that it is no coincidence that the maturing of both Linux and the Internet occurred at the same time, 1993-1994.⁹ Without the Internet, the development community for Linux

would have been much smaller and Torvalds' 'lazy' style of management may have failed. It is also, however, no coincidence that Hackers also built the Internet with a similar 'open' attitude that facilitated the necessary decentralised, mass communication.

The success of the Linux project marks the point in time that the most successful of Hacker production moved outside of the organisations that supported the growth of the software industry and fully into the Internet's gift economy. This shift in the centre of production relies not only on increased Internet access but also on the surplus society of the West's advanced capitalism. It is the surplus of advanced capitalist production that affords the Hacker the freedom to produce Free Labour without concern for exploitation. Thus, the Hacker movement's reliance on advanced capitalism, not only for surplus time but also for the infrastructure of the Internet is clear evidence for Terranova's belief that 'the Internet has always and simultaneously been a gift economy and an advanced capitalist economy'.¹⁰ There is a profound shift here, though, in the nature of Labour. As labour moves to surplus time it becomes regarded as recreation or Recreational Labour by the Hacker and, is thus, not the exploitable Free Labour of Terranova's argument. Under Copyleft and Recreational Labour capitalism cannot exhaust Free Labour 'by undermining the means through which that labour can sustain itself' for that would be to exhaust capitalism itself.¹¹ The next section of this thesis will document how and why this shift in production has fundamentally changed the software industry and is now being adopted outside of the Hacker movement.

The Popularisation of the Hacker Ethic

What started as the Hacker movement's retaliation against the imposition of Intellectual Property rights has spread across Western society as the desire to labour freely on the construction of a new information commons outside the reach of vectorialist control. The recent explosion of Recreational Labour facilitated by the Hacker movement's design of the Internet's infrastructure has led to what is sometimes referred to as the Pro-Am (Professional-Amateur) Revolution: The rise of professional level Recreational Labour.¹ This section will cover the shift of the Hacker movement's main audience from themselves to the wider public – a move that accelerated the adoption of the Pro-Am model, we will discuss that public's desire to labour freely in the next.

The Rise of Open Source

In 1998 Netscape Inc. was in trouble, providing the only real competition in the browser market found it targeted for destruction by Microsoft. Netscape's interests were, however, not in revenue from the browser itself but from its server technology. Realising that if Microsoft dominated the browser market they could lock Netscape out of the server market, Netscape needed a way to increase market share fast. It was at this point that some of the executives from Netscape saw Eric Raymond present his paper on the success of open production models, *The Cathedral and the Bazaar*. Netscape announced, on the 22nd January 1998, that they would release the source code of the Netscape browser onto the Internet.

Raymond soon realised that a concerted effort would be needed to take full advantage of this event – here was a Fortune 500 company publicly betting their future on the Hacker ethic.² At the centre of the marketing campaign that ensued was the re-branding of Free Software as the more business friendly Open Source Software and the creation of the Open Source Definition. What is most interesting about this time in Hacker history is how the community re-organised itself as a mass-marketing machine that launched a re-education offensive on corporate America. Led by Raymond, Tim O'Reilly, Torvalds and Bruce Perens, groups of Hackers used Linux to demonstrate the success of the new mode of production. Around 20 leaders of major Free Software projects agreed to adopt the Open Source term over Free Software and within six weeks the majority of the Hacker community were saying the same things about software production and using the same terms. With the majority of the community adopting the same terms, the marketing campaign could now advertise the following statistics:

*50% of the Internet's World Wide Web was being served via Open Source,
80% of all Internet e-mail was being routed by Open Source Software,
100% of the Internet's domain names relied on translation to IP addresses by Open Source Software.*³

The assertion to the business world was clear: 'These people have created products with dominant market share using only the power of their ideas and the networked community of their co-developers'.⁴ But this was still not enough, all of the claims for Open Sources benefits were still too opaque for the industry leaders that would push the change from the top down. Several leading software firms announced they were releasing their products on Linux but the campaign was moving slowly. In the end it was the fear of the greatest opponent of Open Source that triggered its wider adoption.

Microsoft's Halloween Documents were leaked in late October 1999 and outlined not only how much of a threat Open Source was to Microsoft but also how they intended to combat the movement by corrupting the open protocols that Open Source depends on.⁵ After massive press coverage it was finally Wall Street's decision to go to the Hackers – a select group of Merrill Lynch's major investors asked to confer with Raymond on the prospects of Open Source.⁶

In the six years since the 1999 Merrill Lynch meeting, we have seen the Open Source software market expand drastically to encompass even the most stanch opposition. Companies from IBM to Apple are realigning their businesses around Open Source and even Microsoft, despite multiple attempts to devalue Open Source, have just started including Open Source software in one of their products.⁷ At the centre of this expansion is the burgeoning Linux service industry and with it an understanding of the importance of user-centred design – with Open Source's success the Hacker movement realised the power an audience beyond their own could give them. From this point on the Hacker movement can be seen to develop many strategies to engage the wider public with their mentality. From the drive for usability in the Firefox browser, though the easing into network culture done by sites such as Flicker

and Blogger to the protection of the right to share though the ever-evolving Peer2Peer protocols we will look at how the Hacker movement has realigned itself to serve a wider audience.

Facing the Public Part One: Usability

The Mozilla Firefox browser provides an interesting case study as a Open Source project that is defining a second generation of working practices. Firefox was initially a small sideline project of the Mozilla Foundation's Mozilla Suite browser. After Netscape's revolutionary announcement that it would open up the source code of its Netscape browser, a series of misguided management decisions meant that the company failed to take advantage of its own decision and by the end of 1998 America Online (AOL) announced that it would acquire Netscape. AOL's decision to buy Netscape was based on a fear of reliance on Microsoft's Internet Explorer so when in 2001, under legal duress, Microsoft agreed to share some technologies with AOL and grant it a seven year distribution licence it was seen as the death of Netscape.⁸ In 2003, AOL did indeed announce they would no longer fund the Netscape project but would aid the creation of the Mozilla Foundation with the transfer of hardware, intellectual property, the funding of a small team for three months and the promise of \$2 million in donations over 2 years.

Initially the Foundation's remit was to develop the Mozilla Suite which contained what had been the Netscape Communicator browser: an e-mail client, HTML (Hyper Text Mark-up Language) editor, IRC (Internet Relay Chat) client and news group reader. As with many first generation Open Source projects the Mozilla Suite soon started to suffer from 'feature creep' – in order to serve the large development community the project leaders passed every feature that was requested. This resulted in an incredibly complex and slow, but fully featured application. Responding to their dislike of the over complication, Dave Hyatt and Blake Ross began an experimental branch of the Mozilla project. Initially called Phoenix, then Firebird, then Firebird browser, then Mozilla Firebird and finally Mozilla Firefox, the Firefox browser launched in 2004 and was designed to be a pared down, simple and fast web browser. To date the Firefox browser has been downloaded nearly 90 million times and is providing the only real competition to Microsoft in the browser market.⁹ It has become one of the most publicised Open Source projects and more importantly has taught the Open Source community several incredibly important lessons about its new, wider audience.

When the popularity of Firefox took off it became undeniable how bad the original Mozilla Suite had been and sparked massive debates on usability design within Open Source projects. The community was shown for the first time that their projects could attain mass appeal and popularity and is still wrestling with the consequences. Even Raymond himself came under fire in an online essay by John Gruber that pointed out that most people within the Open Source community seemed to look down on usability design:

Raymond writes as though they're almost there, but just need, you know, the finishing touches. The extra yard. The cherry on top. The pièce de résistance. I.e., We've got the hard part done — the under-the-hood foundation — now we just need a better UI and we'll be set.

But this is not a radical new direction for open source desktop software. What Raymond is proposing, in fact, is no change at all. This idea, that the hard work of development is in building the underlying foundation, and that the easy part is writing a "GUI wrapper", has been the Linux/Unix way all along.

Raymond's proposal is predicated on the idea that good UI design and development is easy, that developers simply need to keep dear old A.T. [Aunt Tillie] in mind and the design will fall into place.¹⁰

But programmers are not usability or interface designers and with the absence of these disciplines working on Open Source, programmers *are* learning these skills. Though the Open Source community seems to be discussing this fact, it is not yet apparent how the design community will react. Usability, though, is only part of the equation.

Facing the Public Part Two: Overcoming Pre-Conceptions

Through an informal sociological experiment conducted by the author and sociologist Kris Cohen, several negative preconceptions of open, networked publishing systems were identified.¹¹ Centring on the online photo sharing website Flickr.com, the preconceptions fell into three distinct categories,

Personal, Professional and Political. It is these preconceptions that the Hacker movement will need to dispel if it is to expand its audience beyond the Copyleft literate.

In the personal category fall the issues of privacy and self-depreciation – some interviewees expressed an absolute horror at the idea that photos of themselves could be published in the public domain and saw this as definite infringement of privacy. Others felt that they had nothing to offer others – that their data would not be interesting to anyone in any way.

Under professional concerns, we found that interviewees were worried about economics – the idea that ‘professionals’ don’t give their Intellectual Property away so, to publish into the public domain is to label oneself an amateur. This idea also followed though to the preconception that if content is free then it must only be the content of amateurs and thus must be ‘full of crap’.¹² A minority of the interviewees also had privacy concerns that would not allow them to publish openly; some were dealing with sensitive personal data and others with copyrighted data.

There was also one interesting political response to the idea of growing open systems: ‘what if you find you come up against capitalism and you can’t change it’.¹³ This statement alludes to the preconception that these systems cannot be capitalist or are, perhaps, seen as communist.

Already though, it is possible to see processes being developed that either dispel or slowly dissolve these preconceptions. Flickr for example, allows users to apply many levels of privacy and copyright to their photos whilst leaning towards public publishing under Copyleft licenses. This allows users to slowly ease themselves into network culture. Many of Cohen’s interviewees for his study of the effects of Flickr on photography talked about the stages of integration that occur after publishing your first public photos: First finding that people are looking at your photos; then that a friend has commented on one; and then, the first comment from someone unknown. This latter stage was seen as the most defining of the experience – the one that changes your perception of your photographs.¹⁴ The one that lets you know that perhaps what you thought was worthless is worth something to someone else.

It is this ‘easing’ into the networked community that has allowed Flickr to attain 606,921 users between February 2004 and June 2005.¹⁵ This process is also happening on the World Wide Web where Blogging software such as Movable Type, Blogger and Live Journal has removed the technical barriers to publishing text and images. As the popularity of Blogs rises we are seeing their adoption by authoritatively professional organisation such as the New York Times and The Guardian newspapers and the BBC, adoption that is starting to dispel the preconception that this kind of unedited publishing is amateur.¹⁶

Growth Indicators

All of the processes mentioned above, combined with the lessons learnt from the development of the Firefox browser, are encouraging more non-Hackers to produce Recreational Labour supported by the Internet and Open Source Software. But how influential has the popularisation of the Hacker’s means of production been? The Demos paper *The Pro-Am Revolution* goes so far as to say that ‘perhaps 58 per cent of the British population engage in some kind of activity that could be described as Pro-Am’ and that ‘[professional amateurs] can have a huge impact on politics and culture, economics and development. Pro-Ams can achieve things that until recently only large, professional organisations could achieve’.¹⁷ But as Kris Cohen points out: ‘At it’s most gaseously expansive, their account seems to include anyone with a hobby, and yet in the main, they don’t think it includes many women or working class folks’.¹⁸

Similarly, the expansion of the Copyleft movement through the Creative Commons organisation¹⁹ is evidence of an expansion beyond the software industry yet equally devoid of solid numbers. Since creating the original six licenses in 2001, Creative Commons have launched another six licenses for specific, non-computing fields but cannot give figures for their adoption:

We also offer a set of other licenses for more specialized applications. Sampling Licenses allow for snippets (not whole work) to be remixed into new works, even commercially. Our Public Domain Dedication lets you free works from copyright completely, and our Founders Copyright lets you do the same, but after 14 or 28 years. Musicians looking to share their work with fans might want to look at the Music Sharing license. The Developing Nations license lets you offer less restrictive terms to countries

*that aren't considered high income by the World Bank, and finally, for those licensing software, we offer the GNU GPL and GNU LGPL licenses.*²⁰

Instead, perhaps, a better gauge for the effect of the Recreational Labour movement comes from the reaction to it by publicly accountable organisations. At a debate funded by The Wellcome Trust in 2005, Ian Gibson, Chair of the House of Commons Select Committee on Science and Technology, presented the results of the report: *Scientific Publications: Free for all*.²¹ This report recommends that 'the UK Government act as a proponent for change on the international stage and lead by example' by mandating that researchers funded by 'the Research Councils and other Government Funders' establish 'institutional repositories on which their published output can be stored and from which it can be read, free of charge, online'.²² Although pressure for this move came predominately from librarians who could no longer afford subscriptions to the major academic journals, Gibson also stated that pressure was coming from the cost to the government of (re)educating the public post-media scares such as those over the MMR vaccine and overhead power lines near schools. It was hoped that by making all government funded research public that sections of the public could educate themselves to a sufficient level to debunk the unsubstantiated claims of a scientific minority or the media. Acknowledging the existence of the Pro-Am, Gibson stated that on the issue of overhead power lines many members of the public probably knew more than the members of parliament responsible for policy.²³ Similarly, in a move designed to pre-empt a Pro-Am backlash over the Television License fee, the BBC has recently announced the Creative Archive, a collaboration with Creative Commons to provide royalty free media clips for public reuse.²⁴ Designed to acknowledge public ownership of publicly funded production, both of these moves are indicators of an increasing Recreational Labour movement that subscribes to the Hacker mantra that all information should be free. Without an increasing audience that demands free access to information there would be no incentive to provide it.

There is also, one other phenomena that we can also use as an indicator for the adoption of the Hacker ethic but in doing so we must be careful not to equate the sharing idolised by the Hacker movement with the theft perpetrated using the same technology.

Mass Piracy and Peer2Peer

There is no territory that has been as heavily fought for between Hackers and vectorialists than that of the Peer2Peer protocols. With the popularisation of filesharing, by Napster, in 1999 came the greatest threat to vectorialist rule yet – a mass act of civil disobedience – the continual and growing dismissal of Intellectual Property rights through the theft of music. Napster's success was nothing but phenomenal but now pales into insignificance compared to the latest usage statistics for the modern Peer2Peer protocols. At the end of 2004, Peer2Peer represented 60% of all Internet traffic and outstripped every other communication and distribution protocol combined.²⁵

The continual legal attempts to shut down different protocols such as Napster, Grokster, Kazaa and BitTorrent have only served to accelerate the development of newer, faster, more intelligent and more anonymous protocols as the Hacker movement strives to defend, not their right to piracy, but their audience's right to share freely whatever they desire. While the Motion Picture Association of America makes statements such as: 'We're fighting our own terrorist war',²⁶ Lawrence Lessig provides us with a dissection of the complexities of music piracy that goes some way to temper the current legal hysteria. Lessig shows us that file sharing can be split into 4 classes and that only one of these is detrimental to the music industry, two are beneficial and one is actually legal.²⁷ He then goes on to say:

There are too many different things happening at the same time to explain these numbers definitively, but one conclusion is unavoidable: The recording industry constantly asks "What's the difference between downloading a song and stealing a CD?"—but their own numbers reveal the difference. If I steal a CD, then there is one less CD to sell. Every taking is a lost sale. But on the basis of the numbers the RIAA [Recording Industry Association of America] provides, it is absolutely clear that the same is not true of downloads. If every download were a lost sale—if every use of Kazaa "rob[bed] the author of [his] profit"—then the industry would have suffered a 100 percent drop in sales last year, not a 7 percent drop. If 2.6 times the number of CDs sold were downloaded for free, and yet sales revenue dropped by just 6.7 percent, then there is a huge difference between "downloading a song and stealing a CD."²⁸

If Lessig is right and the majority of Peer2Peer filesharing consists of the sharing of information that is of no economic value to society (music that is out of print and no longer sold, music recommendations that would never have been bought, a film that you would never have paid to see, etc.) then the sharing

that is often labelled piracy becomes the sharing of free information. Although this is not an account that any vectorialist would agree with, filesharing is now reaching levels that question the assertion that it is immoral.²⁹ Furthermore, with 30% of the software used in the USA and 90% in Asia infringing licensing standards, even illegal use of copyrighted material seems to have the potential to become a social norm.³⁰ Whether these widespread acts of illegality are perpetrated for political or financial reasons it appears that more and more people feel they have the right to ignore Intellectual Property law and a right to share information freely. Leaving us with an insoluble contention in the traditional capitalist/communist framework, what looks like the first stage of Marx's proletariat revolution (the dissolution of property rights) is in fact subsidised by the capitalist system we are told it threatens to overthrow.³¹ Surely, then, there must be another framework through which to view the relationship between free information sharing and society; one that acknowledges its popularity and reconciles the traditional exclusivity of capitalist exploitation and exploitation-less Recreational Labour.

Conclusion

From its minute beginnings in the late 1950s culture of MIT, the Hacker movement has built and embodied its ethic within the deepest protocols of the Internet. We have seen how the early academic gift economy of this time was exploited to collapse by those subsidising it and the reactionary legal protection devised by the Free Software Foundation. From this nucleus, the principles of decentralisation and freedom of information can be seen to spread through the multitude of higher protocols out to the surface layers that interface with the non-Hacker public. Using public facing design methodologies, we have also seen the re-alignment of the Hacker movement to squarely target the adoption of its ethic by wider society. Thus, to talk of the Internet as a whole is to underestimate the complexity of layers facilitated by its core infrastructure, for it is these layers that have affected the world beyond the digital, in ways we are only just beginning to understand – from the mass production of Recreational Labour on the Web facilitated by Blogs and community sites such as Flickr to the dissolution of the Intellectual Property rights of vectorialist capitalism via Peer2Peer communication protocols.

Through this network, the Hacker design methodology and society's use of computing have come together to form a symbiotic relationship that helps each labouring party obtain its goals. On the one side the Hackers, striving for more information on which to build new hacks and the destruction of the hierarchies that corrupt their access to knowledge; on the other, the members of a surplus society with a human desire to create, publish and interact with others in order to define themselves.

To analyse the growth of this network society through Marxist theories of waged Labour and Exploitation is useful to understand the subsidisation of the Hacker movement or capitalist use of Free Labour on the Internet. But to analyse the relationship between Hacker and non-Hacker Recreational Labourers using the same framework removes the elements of human desire that have so strongly directed both towards each other. The autonomists go some way by replacing remuneration with desire as the primary impetus for labour, but still centre debate on an exploitation of this desire by capitalism. As we have seen, even though Recreational Labour may seem to be exploited by capitalism, for those that produce it, this exploitation simply does not exist.

As an alternative framework, this thesis would like to propose looking at Hannah Arendt's extension of Aristotle's work on human activity. Arendt provides us with the three following distinctions through which to analyse the human condition: ¹

Labor is the activity which corresponds to the biological process of the human body, whose spontaneous growth, metabolism, and eventual decay are bound to the vital necessities produced and fed into the life process by labor. The human condition of labor is life itself.

Work is the activity which corresponds to the unnaturalness of human existence, which is not embedded in, and whose mortality is not compensated by, the species' ever-recurring life cycle. Work provides an "artificial" world of things, distinctly different from all natural surroundings. Within its borders each individual life is housed, while this world itself is meant to outlast and transcend them all. The human condition of work is worldliness.

*Action, the only activity that goes on directly between men without the intermediary of things or matter, corresponds to the human condition of plurality, to the fact that men, not Man, live on the earth and inhabit the world. While all aspects of the human condition are somehow related to politics, this plurality is specifically the condition—not only the *conditio sine qua non*, but the *conditio per quam*—of all political life.²*

Using this framework allows us to separate the recreational form of Free Labour from the exploitable (Work) and define it as Action – human activity that is dependent on a network of others:

All human activities are conditioned by the fact that men live together, but it is only action that cannot even be imagined outside the society of men. The activity of labor does not need the presence of others...Man working and fabricating and building a world inhabited only by himself would still be a fabricator...Action alone is the exclusive prerogative of man; neither a beast nor a god is capable of it, and only action is entirely dependant on the constant presence of others.³

This, in turn, allows us to see the importance of Copyleft to Recreational Labour: The Recreational Labourer, adopting the Hacker ethic, seeks to add further value to their enjoyment of labour by providing its product to all who may desire it – a move that acknowledges the lesser value of the product of the labour to the labourer. Both Hackers and non-Hackers must then acknowledge and protect the public domain to attain reputation or to define themselves against others. Thus, the central tenet of the Hacker ethic interfaces with Recreational Labour to create a self-perpetuating cycle of ever increasing returns for both parties. To all Recreational Labourers (including Hackers) ‘there is no idea, however ancient and absurd, that is not capable of improving our knowledge. The whole history of thought is absorbed into science and is used for improving every single theory’.⁴

Incorrectly, the overuse of the capitalist/communist framework of Labour and Exploitation assumes that capitalism must disrupt and or corrupt the possibility of Recreational Labour and the Hacker ethic. Under Arendt’s framework though, these two ‘economies’ are not mutually exclusive. Yes, sometimes capitalism can be seen to exploit the product of Recreational Labour or, in fact, the labour itself but this does not destroy or replace the incentive for the production of Recreational Labour. And yes, perhaps late capitalism has created the incentive for the production of Recreational Labour in order to carry out this exploitation but Recreational Labourers feel no sense of exploitation as exploitation falls under the activities allowed by free use. Thus, exploitation is an acceptable, if odious, effect of the axiom that all information should be free. As you read the following quotes, ask yourself if these people sound exploited:

For me work is the oddity. Work is a kind of compromise. I do work which is as close as possible to my passions to make working tolerable. But I feel most myself when I am doing this open source stuff. When I am doing this and give it my complete and full attention then everything else around me fades away and dissolves and I become completely focused.

I’ve often thought I’d like to do it full time. But maybe I’m so enthusiastic because it’s not my day job. Maybe I’d lose something by going full time. Things you do in your spare time are always more exciting aren’t they?

When you are in the run up to an event you are working really intensively, the whole time. We are just organising for World Debt Day now and I am working seven days a week on it. But one of the benefits of being an amateur is that you can stop when you want to, which you could not do if it was a job or you were in an office. When it all gets too much I can take myself off to the allotment. It’s much more flexible like that.

They are professionals who are becoming amateurs to continue to do what they love doing. Amateurs do things for the love of it. And the advantage of doing something for the love of it is that it does not become a job. As a result, it stays more loveable. You do not have an agent to boss you around and you do not have to take parts you don’t really want because it’s your only source of income. As an amateur you have more choice about what you do. You only have to do what you love doing.⁵

Once we see the popularisation of the Hacker ethic as a product, primarily, of the human condition rather than that of either capitalist exploitation or communist revolution it becomes instantly apparent why this ideology is spreading with such fervour: Suppressed in favour of Work, so as to ‘bestow upon the realm of human affairs the solidity inherent in work and fabrication’, Action is reborn in the networked society.⁶ The popularisation of the Hacker ethic is the reawakening of the suppressed human desire to create and share. The Hacker ethic is a human ethic that needed to be threatened in order to be reborn.

Notes

Introduction

- ¹ Levy, Steven, *Hackers: Heroes of the Computer Revolution*, Penguin Books, New York, 1994, p. 23
- ² Levy, Steven, *Hackers: Heroes of the Computer Revolution*, Penguin Books, New York, 1994, p. 23
- ³ Soanes, Catherine, ed., *Paperback Oxford English Dictionary*, Oxford University Press, Oxford, 2001, p.372
- ⁴ This definition comes from Wikipedia (itself an artefact of Hacker Culture). See: http://en.wikipedia.org/wiki/Hacker_culture (19th August 2005)
- ⁵ Wark, McKenzie, *A Hacker Manifesto*, Harvard University Press, Cambridge, Massachusetts, 2004, paragraph. 80
- ⁶ Terranova, Tiziana, *Network Culture: Politics for the Information Age*, Pluto Press, London, 2004, pp. 73-97
- ⁷ Wark, McKenzie, *A Hacker Manifesto*, Harvard University Press, Cambridge, Massachusetts, 2004, paragraph. 29
- ⁸ Terranova, Tiziana, *Network Culture: Politics for the Information Age*, Pluto Press, London, 2004, pp. 73-97
Creations here includes: the Internet, Free Software, Open Source Software, the Creative Commons Licences and Peer2Peer software.
- ⁹ Terranova, Tiziana, *Network Culture: Politics for the Information Age*, Pluto Press, London, 2004, p. 77
Barbrook, Richard, *The Hi-Tech Gift Economy*, First Monday, http://www.firstmonday.org/issues/issue3_12/barbrook/index.html (12th September 2005)
- ¹⁰ Terranova, Tiziana, *Network Culture: Politics for the Information Age*, Pluto Press, London, 2004, p. 74
- ¹¹ Terranova, Tiziana, *Network Culture: Politics for the Information Age*, Pluto Press, London, 2004, p. 74
- ¹² Terranova, Tiziana, *Network Culture: Politics for the Information Age*, Pluto Press, London, 2004, p. 74
- ¹³ Leadbeater, Charles and Miller, Paul, *The Pro-Am Revolution*, Demos, London, 2004
- ¹⁴ Arendt, Hannah, *The Human Condition*, The University of Chicago Press, Chicago, 1958

The Realisation of the Hacker Movement

- ¹ Wark, McKenzie, *A Hacker Manifesto*, Harvard University Press, Massachusetts, 2004
- ² The terms Artisan, Apprentice and Proletariat here refer back to Marx's work on Labour and Exploitation. Before the Industrial Revolution, Artisans, skilled labourers who owned their own tools and thus the mean of production, were the dominant producers of goods. Apprentices were trained in a craft by an Artisan, thus passing skill on as a commodity. Post the Industrial Revolution, the skill in work was reduced by machines and the means of production moved into the hands of, first capitalist and now, vectorialists.
- ³ Wark, McKenzie, *A Hacker Manifesto*, Harvard University Press, Massachusetts, 2004, paragraph 120
- ⁴ Raymond, Eric, *The Cathedral & The Bazaar*, O'Reilly, California, 2001
- ⁵ Raymond, Eric, *The Cathedral & The Bazaar*, O'Reilly, California, 2001, p. 5
- ⁶ Levy, Steven, *Hackers: Heroes of the Computer Revolution*, Penguin Books, New York, 1994, p. 40-45
- ⁷ In *Hackers: Heroes of the Computer Revolution* Steve Levy writes about the tactics used by the early MIT Hackers in order to get their hands of precious computer time:

As a general rule, even these most privileged of acolytes [those officially allowed to submit data to the machines] were not allowed direct access to the machine itself, and they would not be able to see for hours, sometimes for days, the results of the machine's ingestion of their "batch" of cards.

This is something Samson knew, and of course it frustrated the hell out of Samson, who wanted to get at the damn machine, For this was what life was all about.

- ⁸ Levy, Steven, *Hackers: Heroes of the Computer Revolution*, Penguin Books, New York, 1994, p. 19
- ⁹ Raymond, Eric, *The Art of UNIX Programming*, Addison-Wesley, Boston, 2004, p. 5
- ¹⁰ Ritchie, Dennis, *The Evolution of the Unix Time-sharing System* quoted in Raymond, Eric, *The Art of UNIX Programming*, Addison-Wesley, Boston, 2004, p. 31
- ¹¹ Raymond, Eric, *The Art of UNIX Programming*, Addison-Wesley, Boston, 2004, p. 31
- ¹² Due to the outcome of a 1958 antitrust hearing against AT&T (the parent organisation of Bell Labs), the version of Unix that Ritchie and Thompson had created couldn't be turned into a product – AT&T were legally forbidden from entering the computer market. This meant that Thompson could quietly distribute copies of Unix that built on the then existing 600 installations.
- ¹³ McIlroy, Doug, *Unix on My Mind* quoted in Raymond, Eric, *The Art of UNIX Programming*, Addison-Wesley, Boston, 2004, p. 32
- ¹⁴ Barbrook, Richard, *The Hi-Tech Gift Economy*, First Monday, http://www.firstmonday.org/issues/issue3_12/barbrook/index.html (12th September 2005)
- ¹⁵ Barbrook, Richard, *The Hi-Tech Gift Economy*, First Monday, http://www.firstmonday.org/issues/issue3_12/barbrook/index.html (12th September 2005)
- ¹⁵ The TCP/IP protocol suite consists of the Transmission Control Protocol (TCP) and Internet Protocol (IP). Together these two protocols create the protocol stack on which the Internet runs. The multiple layers in the TCP/IP stack provide an open infrastructure upon which new communication protocols can be created. For a

full break down of the layers and in which layer the different protocols run see:

<http://en.wikipedia.org/wiki/TCP/IP> (25th September 2005)

¹⁶ Raymond, Eric, *The Art of UNIX Programming*, Addison-Wesley, Boston, 2004, p. 36

¹⁷ Due to its decentralised nature the Internet/Unix/Hacker cultures are incredibly amorphous. Unlike traditional movements where membership is through subscription to a central aim these movements rise out of the aggregation of thousands of individual aims. It is only when a critical mass of consensus is reached that an ethic is formed. Thus, these movements rise wholly from the ground up. Due to this dynamism the imposition of political ideologies frequently fail indicating there is something more generic that causes these associations to form.

¹⁸ Barbrook, Richard, *The Hi-Tech Gift Economy*, First Monday,

http://www.firstmonday.org/issues/issue3_12/barbrook/index.html (12th September 2005)

¹⁹ Raymond, Eric, *The Art of UNIX Programming*, Addison-Wesley, Boston, 2004, p. 24

²⁰ Barbrook, Richard, *The Hi-Tech Gift Economy*, First Monday,

http://www.firstmonday.org/issues/issue3_12/barbrook/index.html (12th September 2005)

The Unification of the Hacker Movement

¹ Raymond, Eric, 'The GNU Operating System and the Free Software Movement' in DiBona, Chris et al., *Open Sources: Voices from the Open Source Revolution*, O'Reilly, California, 1999, p. 54

² Stallman, Richard, *Initial Announcement*, <http://www.gnu.org/gnu/initial-announcement.html> (9th September 2005)

³ It is common misconception that the Free in Free Software Foundation stands for monetarily free, since its conception it has been meant to refer to user freedom.

⁴ Levy, Steven, *Hackers: Heroes of the Computer Revolution*, Penguin Books, New York, 1994, p. 23

⁵ Raymond quotes Torvalds: 'I'm basically a very lazy person who likes to get credit for things other people actually do.' in *The Cathedral & The Bazaar*, O'Reilly, California, 2001, p. 27

⁶ Raymond, Eric, *The Cathedral & The Bazaar*, O'Reilly, California, 2001, p. 127

⁷ The term 'buggy' used to describe errors in computer software is often thought to derive from malfunctions in early computer hardware caused by insects interacting with circuit boards. It can, in fact, be traced back further, to 1878, when Edison wrote:

It has been just so in all of my inventions. The first step is an intuition, and comes with a burst, then difficulties arise—this thing gives out and [it is] then that 'Bugs'—as such little faults and difficulties are called—show themselves and months of intense watching, study and labor are requisite before commercial success or failure is certainly reached.

http://en.wikipedia.org/wiki/Computer_bug#Etymology (24th September 2005)

⁸ Raymond, Eric, *The Cathedral & The Bazaar*, O'Reilly, California, 2001, p. 16

⁹ Raymond, Eric, *The Cathedral & The Bazaar*, O'Reilly, California, 2001, p. 51

¹⁰ Terranova, Tiziana, *Network Culture: Politics for the Information Age*, Pluto Press, London, 2004, p. 74

¹¹ Terranova, Tiziana, *Network Culture: Politics for the Information Age*, Pluto Press, London, 2004, p. 94

The Popularisation of the Hacker Ethic

¹ Leadbeater, Charles and Miller, Paul, *The Pro-Am Revolution*, Demos, London, 2004

² Raymond, Eric, *The Cathedral & The Bazaar*, O'Reilly, California, 2001, p. 173

³ Raymond, Eric, *The Cathedral & The Bazaar*, O'Reilly, California, 2001, p. 182

⁴ Raymond, Eric, *The Cathedral & The Bazaar*, O'Reilly, California, 2001, p. 182

⁵ <http://www.opensource.org/halloween/> (16th September 2005)

⁶ Raymond, Eric, *The Cathedral & The Bazaar*, O'Reilly, California, 2001, p. 184

⁷ <http://www.eweek.com/article2/0,1895,1859439,00.asp> (25th September 2005)

⁸ http://en.wikipedia.org/wiki/Netscape_Communications_Corporation#Acquisition_by_America_Online (16th September 2005)

⁹ <http://www.spreadfirefox.com> (16th September 2005)

¹⁰ http://daringfireball.net/2004/04/spray_on_usability (1st September 2005)

¹¹ Kris Cohen is a research fellow at the University of Surrey's technology and ethnography incubator, Incite.

For information of the collaboration see: http://incite.surrey.ac.uk/activities/events/rca_incite_collab/ (16th September 2005)

For information on Incite see: <http://incite.surrey.ac.uk> (16th September 2005)

For information on Kris Cohen's research project see: <http://photosleavehome.blogspot.com> (16th September 2005)

¹² N.P. in interview with Kris Cohen and George Grinsted, 5th May 2005

¹³ N.W. in interview with Kris Cohen and George Grinsted, 3rd May 2005

¹⁴ Kris Cohen in conversation with the author 4th May 2005

¹⁵ <http://www.flickr.com/groups/central/discuss/32723/#comment223135> (16th September 2005)

- ¹⁶ <http://www.nytimes.com/technology/poguesposts/> (16th September 2005)
<http://blogs.guardian.co.uk/> (16th September 2005)
<http://www.bbc.co.uk/scotland/islandblogging/> (16th September 2005)
- ¹⁷ Leadbeater, Charles and Miller, Paul, *The Pro-Am Revolution*, Demos, London, 2004, pp. 29 and 12
- ¹⁸ <http://photosleavehome.blogspot.com/2005/05/am-pro-am.html> (26th May 2005)
- ¹⁹ Founded by Laurence Lessig in 2001, the not-for-profit organisation provides an easy way of building a Copyleft license that grants to the public (or retains for the owner) the most popular legal rights. Due to its ease of use it has been a major factor in the promotion of Copyleft and has been awarded the Golden Nica and Prix Ars Electronica awards.
- ²⁰ <http://creativecommons.org/license/meet-the-licenses> (26th September 2005)
- ²¹ *Open Science*, Institute of Contemporary Arts, London, 20th January 2005
- ²² House of Commons Science and Technology Committee, *Scientific Publications: Free for all?*, vol. 1, 2004
- ²³ *Open Science*, Institute of Contemporary Arts, London, 20th January 2005
- ²⁴ <http://creativearchive.bbc.co.uk/> (26th September 2005)
- ²⁵ http://www.cachelogic.com/research/2005_slide07.php (16th September 2005)
- ²⁶ <http://www.nytimes.com/2002/01/17/technology/circuits/17VIDE.html> (16th September 2005)
- ²⁷ The four groups identified by Lessig are:

A. There are some who use sharing networks as substitutes for purchasing content. Thus, when a new Madonna CD is released, rather than buying the CD, these users simply take it. We might quibble about whether everyone who takes it would actually have bought it if sharing didn't make it available for free. Most probably wouldn't have, but clearly there are some who would. The latter are the target of category A: users who download instead of purchasing.

B. There are some who use sharing networks to sample music before purchasing it. Thus, a friend sends another friend an MP3 of an artist he's not heard of. The other friend then buys CDs by that artist. This is a kind of targeted advertising, quite likely to succeed. If the friend recommending the album gains nothing from a bad recommendation, then one could expect that the recommendations will actually be quite good. The net effect of this sharing could increase the quantity of music purchased.

C. There are many who use sharing networks to get access to copyrighted content that is no longer sold or that they would not have purchased because the transaction costs off the Net are too high. This use of sharing networks is among the most rewarding for many. Songs that were part of your childhood but have long vanished from the marketplace magically appear again on the network. (One friend told me that when she discovered Napster, she spent a solid weekend "recalling" old songs. She was astonished at the range and mix of content that was available.) For content not sold, this is still technically a violation of copyright, though because the copyright owner is not selling the content anymore, the economic harm is zero—the same harm that occurs when I sell my collection of 1960s 45-rpm records to a local collector.

D. Finally, there are many who use sharing networks to get access to content that is not copyrighted or that the copyright owner wants to give away.

Lessig, Lawrence, *Free Culture*, The Penguin Press, New York, 2004, pp. 68-69

- ²⁸ Lessig, Lawrence, *Free Culture*, The Penguin Press, New York, 2004, p. 71
- ²⁹ Remember, immorality is relative to the accepted standard of morality, a standard created by public consensus.
- ³⁰ <http://www.technewsworld.com/story/33327.html> (2nd October 2005)
- ³¹ Rius, *Marx for Beginners*, Patheon Books, New York, 2003, p. 112
http://news.com.com/2102-1041_3-5514121.html?tag=st.util.print (6th October 2005)

Conclusion

- ¹ Aristotle, *Nicomachean Ethics*, Dover Publications, Inc., New York, 1998
- ² Arendt, Hannah, *The Human Condition*, The University of Chicago Press, Chicago, 1958, p. 7
- ³ Arendt, Hannah, *The Human Condition*, The University of Chicago Press, Chicago, 1958, p. 22-23
- ⁴ <http://www.marxists.org/reference/subject/philosophy/works/ge/feyerabe.htm> (15th September 2005)
- ⁵ All quotes taken from: Leadbeater, Charles and Miller, Paul, *The Pro-Am Revolution*, Demos, London, 2004
- ⁶ Arendt talks in great depth about the Platonic suppression of Action with Work, a notion that can be traced to the present day and, amongst many others, Adorno's theories on the Cultural Industries. The rise of action can thus be seen as a reawakening of this suppressed third of the *Vita Activa*. See Arendt, Hannah, *The Human Condition*, The University of Chicago Press, Chicago, 1958, pp. 220-230 and Adorno, Theodor, *The Culture Industry: Selected essays on mass culture*, Routledge, London, 1991

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