The Basement Interviews
Freeing the Code

Richard Stallman, founder of the Free Software Movement, speaks to Richard Poynder

Published 21st March 2006[1]

Richard Stallman was born in Manhattan, NY, in 1953. An only child whose parents divorced when he was nine, Stallman led a solitary childhood. Talented in math and physics, and with a fascination for reading about ancient civilisations, he became obsessed with computers long before he had access to one, and at the age of nine he was writing computer programs on paper.

His mother remarried, but Stallman never felt he truly had a home until he attended Harvard, where he studied for a degree in physics. In 1971, while still a freshman, Stallman began working at the MIT Artificial Intelligence Laboratory,[2] where he became a "hacker",[3] and took part in the development of the AI Lab's fabled operating system, the Incompatible Timesharing System[4] (ITS).

It was at the AI Lab that Stallman developed his ideas about Free Software — a process kick-started by his failed attempt to adapt a Xerox printer to automatically alert users when their print jobs had completed. To do so Stallman needed the printer source code.[5] This was denied him, on the grounds that it was proprietary information.

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[1] The interview took place in June 2005 (http://poynder.blogspot.com/2006/03/basement-interviews.html)

[2] The MIT Artificial Intelligence Laboratory was an interdisciplinary research entity at MIT which became one of the most influential and accomplished in the fields of artificial intelligence and robotics. Research at MIT in the field of Artificial Intelligence began in 1959. In 1963, the (then) "AI Group" was incorporated into the newly-formed Project MAC, only to split off again in 1970, as the MIT Artificial Intelligence Laboratory. http://en.wikipedia.org/wiki/MIT_AI_Lab

[3] A hacker is a person who creates and modifies computer software and computer hardware, including computer programming, administration, and security. In computer programming, a hacker is a programmer who hacks or reaches a goal by employing a series of modifications to exploit or extend existing code or resources. In computer security, however, a hacker is a person able to exploit a system or gain unauthorised access through skill and tactics. Thus for many the word has taken on a negative connotation that earlier hackers like Stallman resent. Stallman has written on the "true" meaning of the word hacker, and how the media has overly focussed on the negative meaning at: http://www.stallman.org/articles/on-hacking.html

[4] ITS, the Incompatible Timesharing System, was an early, revolutionary, and influential MIT time-sharing operating system; it was developed principally by the Artificial Intelligence Laboratory at MIT. In the spirit of hacker humour it was called the Incompatible Timesharing System — a reference to the earliest MIT time-sharing operating system, the Compatible Time-Sharing System, which dated from the early 1960s.

[5] The human-readable source code is necessary in order to modify software programs since the computer-executable code generated from "compiling" the source code is inexplicable to humans. Decompilation is very difficult. Moreover, a great deal of the original programmer's instructions, including commentary, notations, and specifications, are not included in the translation from source to object code during compilation.

Angry that without it he was unable to make things better for his colleagues, Stallman began pondering on what he calls "the ethics of the issue." His conclusion: sharing information is an important way in which humans co-operate, so anyone refusing to share source code is committing a hostile act.

But it was a subsequent event that was to prove the real incentive for founding the Free Software Movement. In the early 1980s MIT decided to license the LISP system[6] it was developing to two spin-off companies set up by ex-hackers.[7] One of these companies, Symbolics, later announced that it would not allow MIT to copy across to its own system any of the improvements and additions made to the software by Symbolics.

Interpreting this as an aggressive attempt to kill off the MIT system, and so make the AI Lab dependent on Symbolics, Stallman embarked on a legendary hacking campaign, independently replicating on the MIT system all the improvements made by Symbolics (and also passing them on to the competitor spin-off company LMI). Stallman's efforts were later memorialised by author Steven Levy in his book *Hackers.*[8]

Eventually the AI Lab switched to a newer Symbolics machine — a machine on which the MIT software Stallman had been working on couldn't run. Concluding that the MIT system was now "non-free software", and convinced that his community had been "destroyed", Stallman decided to launch a project devoted to writing "free software", and in January 1984 he left the AI Lab in order to do so.

From that point on Stallman has dedicated his whole life to the cause of Free Software. In 1984 he launched the GNU Project,[9] with the aim of developing a free UNIX-like operating system[10]; in 1985 he founded the Free Software Foundation so that programmers could be employed[11] to help write the GNU

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[6] Originally specified in 1958, Lisp is the second-oldest high-level programming language in widespread use today; only Fortran is older. Like Fortran, Lisp has changed a great deal since its early days, and a number of dialects have existed over its history. Today, the most widely-known general-purpose Lisp dialects are Common Lisp and Scheme.
http://en.wikipedia.org/wiki/Lisp_programming_language

[7] Symbolics, Inc and Lisp Machines, Inc. (LMI) were spun out of the AI Lab and staffed by ex hackers, including Russell Noftsker and Bill Gosper (Symbolics),and Richard Greenblatt and Thomas Knight (LMI) http://en.wikipedia.org/wiki/Symbolics

[8] *Hackers, Heroes of the Computer Revolution*, Steven Levy, Penguin, 1984. Stallman's hacking efforts are covered in a chapter called "The last of the true hackers".

[9] The name GNU is a recursive acronym for "GNU's Not UNIX", which was chosen because its design is UNIX-like, but it contains no actual UNIX code. The plan for the GNU operating system was announced in September 1983 and software development work began in January 1984. The project to develop GNU is known as the GNU Project, and programs released under the auspices of the GNU Project are called GNU packages or GNU programs. Prominent components of the GNU system include the GNU Compiler Collection (GCC), the GNU C Library (glibc), the GNU Emacs text editor, and the GNOME graphical desktop.

[10] Unix or UNIX is a computer operating system originally developed in the 1960s and 1970s by a group of AT&T Bell Labs employees including Ken Thompson, Dennis Ritchie, and Douglas McIlroy.
http://en.wikipedia.org/wiki/Unix

[11] The Free Software Foundation (FSF) is a non-profit organisation founded in October 1985 to support the Free Software Movement and in particular the GNU project. From its founding until the mid-1990s FSF's funds were mostly used to employ software developers to write free software. Since the mid- to

system; and in 1989 he created the General Public Licence, or GPL[12] — a revolutionary new type of copyright licence that he dubbed "copyleft".

What is revolutionary about copyleft is that it exploits traditional copyright law — whose very *raison d'être* is to make creative expression proprietary — to achieve the opposite effect. By attaching a copyleft licence to their software, developers are able to assert ownership, but then give away some of their rights — particularly the right to copy and modify the software in order to allow others to build on it. In doing this, rather than simply placing the software in the public domain, they (the creators) are able to stipulate the terms on which they are making the software freely available, and so control how it is used by others.

To better express his vision, Stallman articulated the “Four Freedoms of Free Software". These are: the freedom to run a program as you wish; the freedom to study the source code and change it to do what you wish; the freedom to make copies and to distribute them to others; and the freedom to publish or, more generally, distribute modified versions.

“I don’t believe that software should be owned," Levy quotes Stallman as saying in 1983, because the practice "sabotages humanity as a whole. It prevents people from getting the maximum benefit out of the program’s existence.”

Nevertheless, Free Software has been widely misunderstood: As Stallman frequently has to stress, Free Software does not imply software that is "free of charge", but software that users are free to run, study, copy, and redistribute modified versions of. As such, its source code must always be freely available, and it must never be made proprietary.

For this reason the GPL doesn’t only specify that software licensed under it must be free, but that the software code must remain free even when it is modified and redistributed. This latter characteristic is often described — to Stallman's ire — as having a viral effect, since it encourages the proliferation of Free Software.[13]

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late 1990s there are now many companies and individuals writing free software, so FSF's employees and volunteers mostly work on legal and structural issues for the free software community. Financial figures available via Guidestar indicate that gross receipts in 2004 were $1,030,490, of which $619,148 was from gifts and grants. FSF currently employs nine people.
http://en.wikipedia.org/wiki/Free_Software_Foundation

[12] GNU General Public License (GNU GPL or simply GPL) remains the most popular free software license. The latest version of the license, version 2, was released in 1991. GPLv3 is currently being developed (http://gplv3.fsf.org).

[13] As Stallman commented to me in 2003 after reading an article I had written. "To compare anything to a virus is extremely unfriendly. As regards the GPL, it is also inaccurate. The GPL's domain does not spread by proximity or contact, only by deliberate inclusion of GPL-covered code in your program. It spreads like a spider plant, not like a virus. People who hate the GPL have the right to say that it "contaminates" other software; that's misleading, but they have freedom of speech. However, if you don't hate the GPL, would you please not use smear words like "viral" and "contaminate" to describe it?"

By the early 1990s the GNU operating system was practically complete. However, following the repeated delay of its kernel — the GNU Hurd[14] — the system lacked a vital component. Into this vacuum flowed Linux, a free kernel developed in Finland by Linus Torvalds.[15]

Since Linux was also UNIX-based, it was compatible with the GNU system — so hackers began to combine Linux with the GNU components to create a complete operating system, and a plethora of GNU/Linux "distributions" quickly spread around the world.

To Stallman's growing dismay, however, these distributions were increasingly referred to not as GNU/Linux, but simply Linux — a shortening that not only ignored Stallman's pivotal role but, to his frustration and anger, the philosophy behind Free Software.

To his further dismay, in 1998 the Open Source Initiative was launched.[16] Adopting a more pragmatic and business-oriented approach, open source advocates played up the technical benefits of the GNU/Linux system, and downplayed Stallman's concepts of freedom. In short, the very community he had set out to help was undermining Stallman's aims.

Non-cognoscenti often struggle to understand the subtleties between Open Source and Free Software. After all, both groups believe that the source code of computer programs should be freely available, and most open source software is still licensed under Stallman's GPL.

In those subtleties, however, lies an ideological gulf. On the open source side the emphasis is on creating better, cheaper and more efficient software. Free software advocates, by contrast, continue to stress the philosophy of the four freedoms outlined by Stallman — for FSF advocates it is an issue of ethics and ethical behaviour, not technical superiority.

Open source advocates also highlight the merits of the new software development model pioneered by Torvalds when creating Linux (and

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[14] The GNU Hurd is the GNU project's replacement for the UNIX kernel. The Hurd is a collection of servers that run on the Mach microkernel to implement file systems, network protocols, file access control, and other features that are implemented by the UNIX kernel or similar kernels (such as Linux). Development on the Hurd began in 1990. By the early 1990s, it was the only major part of the GNU OS that was incomplete. Today no official release of the Hurd has yet been made, and the system is currently unstable.

[15] In the narrowest sense, the term Linux refers to the Linux kernel, but it is commonly used to describe entire UNIX-like operating systems that are based on the Linux kernel combined with libraries and tools from the GNU Project and other sources.

[16] The Open Source Initiative (OSI) is an organisation dedicated to promoting open source software. It was founded in February 1998 by Bruce Perens and Eric Raymond when Netscape Communications Corporation, published the source code for its flagship Netscape Communicator product as free software, due to lowering profit margins and competition with Microsoft's Internet Explorer software. OSI came about when a group of people interested in free software and GNU/Linux decided to introduce a new marketing term for free software, seeking to position it as business-friendly and less ideologically loaded. This led to creating the term "open source" and a schism with Richard Stallman and his Free Software Foundation. Eric Raymond was president of OSI from its founding until February 2005.

compellingly articulated in 1997 by Eric Raymond in his essay *The Cathedral and the Bazaar*[17]).

In short, by exploiting the Internet, Torvalds was able to organise and co-ordinate thousands of geographically dispersed volunteer developers to write software code in a new and more efficient manner than had historically been possible. Raymond characterised this as being like a bazaar, in which a babble of different agendas and approaches is — somewhat counter-intuitively — able to produce a better end result than the top-down approach famously enunciated in 1975 in by Frederick Brooks in his book *The Mythical Man-Month.*[18]

Brooks' view was that writing software is like building Reims Cathedral.[19] As such, he argued, its design "must proceed from one mind, or from a small number of agreeing resonant minds". Raymond, however, argued that the Bazaar approach developed by Torvalds both speeds up development time, and reduces the number of bugs. As he put it: "Given enough eyeballs, all bugs are shallow."[20] In other words, given a large enough pool of peer reviewers, every problem will be obvious to someone, and so fixed.

Since Free Software is about ethics, not efficiency, for Stallman such technical benefits are merely a bonus, not an essential requirement. Moreover, he argues, focusing on technical superiority distracts people from the underlying philosophy of Free Software.

But asked to choose between Free Software and Open Source software, and often struggling to understand the philosophy of Free Software, hackers increasingly embraced the Open Source vision — which rapidly acquired greater mindshare than the more rigorous ethical approach promulgated by Stallman.

As a consequence, says Stallman, it is now hard to find a distribution of GNU/Linux that meets the FSF's definition of free, and "the goal of making a completely free operating system has been not just forgotten but almost totally cancelled."

Unprepared to compromise over the dilution of the free software philosophy, and a frequent critic of the Open Source Movement, Stallman has become a controversial figure.

Nevertheless, the GPL remains a core component of both the Free and Open Source software (FOSS) movements. Whether it can maintain this centrality,

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[17] *The Cathedral and the Bazaar*, Eric S Raymond, O'Reilly, 2001

[18] *The Mythical Man-Month and Other Essays on Software Engineering*, Frederick P Brooks, Addison Wesley, 1995 (Anniversary Edition)

[19] The Notre-Dame de Reims (Our Lady of Rheims) is the Cathedral of Reims, France, where the kings of France were once crowned.

[20] Raymond described this as Linus' Law, not least because it was based on something that Torvalds had said. More formally, Raymond expressed it thus: "Given a large enough beta-tester and co-developer base, almost every problem will be characterised quickly and the fix obvious to someone." http://www.catb.org/~esr/writings/cathedral-bazaar/cathedral-bazaar/ar01s04.html

however, is debatable. Current attempts to develop Version 3.0 of the licence have attracted considerable criticism. Specifically, the new licence's attempts to prevent the merging of free and proprietary software into a single system, and its anti-patent and anti-DRM provisions[21] have not been well received by some. In January, for instance, Torvalds indicated that he did not intend to convert Linux to v3 because of its DRM provisions.[22]

Indeed, many are predicting that GPLv3 could further marginalise Stallman. Writing recently[23] in *c|net*, for instance, the president of the Association for Competitive Technology[24] Jonathan Zuck commented: "Stallman and the Free Software Foundation have every right to continue their ideological crusade against proprietary software, but will anyone follow?"

Few, however, dispute the seminal contribution Stallman made to what one might call the wider "free knowledge movement", and he remains a force to be reckoned with. The GPL has also been highly influential outside the software space. The increasingly popular range of Creative Commons[25] licences, for instance, is a direct extension of copyleft principles to other media, including text, video, and music.

In recent years, Stallman has also become a very effective campaigner against corporate and government attempts to allow software to be patented, and he is an energetic and constant critic of digital rights management,[26] which he prefers to call "digital restrictions management".

In 1990 Stallman received a $240,000 MacArthur Fellowship.[27] This ended in 1995, and today he survives courtesy of the constant speaking invitations he receives. He is, he says, now like a medieval king, who has to keep moving in order not to be too great a financial burden on his subjects.

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[21] This interview was undertaken before the process of drafting GPLv3 began. Consequently there is no discussion of it with Stallman. The new licence is expected to be completed by 2007.

[22] *Torvalds: No GPL 3 for Linux*, c|net Stephen Shankland, January 26th 2006. http://news.com.com/Torvalds+No+GPL+3+for+Linux/2100-7344-6031504.html?part=dtx&tag=ntop&tag=nl.e433

[23] *GPL 3.0: A bonfire of the vanities*, Jonathan Zuck, March 10th 2006 http://news.com.com/GPL+3.0+A+bonfire+of+the+vanities/2010-7344_3-6047707.html

[24] The Association for Competitive Technology is a Washington, DC-based trade group specialising in technology issues. ACT's membership roster has some 3,000 companies including Microsoft.

[25] Launched in 2002, Creative Commons offers a range of protections and freedoms for authors and artists based not on the "all rights reserved" of traditional copyright but on a voluntary "some rights reserved" principle. http://creativecommons.org/

[26] Digital rights management (DRM) is the umbrella term referring to any of several technologies used to enforce pre-defined policies controlling access to software, music, movies, or other digital data. DRM critics argue that the phrase "digital rights management" is a misnomer and the term "digital restrictions management" is a more accurate characterisation of the functionality of DRM systems. http://en.wikipedia.org/wiki/Digital_rights_management

[27] The MacArthur Fellows Program or MacArthur Fellowship (sometimes nicknamed the "genius grant") is an award given by the John D. and Catherine T. MacArthur Foundation each year to typically 20 to 40 citizens or residents of the USA, of any age and working in any field, who "show exceptional merit and promise for continued and enhanced creative work". According to the Foundation website, "the fellowship is not a reward for past accomplishment, but rather an investment in a person's originality, insight, and potential". http://www.macfound.org/site/c.lkLXJ8MQKrH/b.959463/k.9D7D/Fellows_Program.htm

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I catch up with Stallman in Brussels, Belgium, where he has come to attend a public demonstration against software patents.[28] He is ensconced in an apartment in the French quarter, across the way from a chestnut-tree-lined park that, on this sunny afternoon, is home to a medley of prams, dogs, bikes, and flies.

Stallman himself answers the door. Without his shoes on, he is considerably smaller than I envisaged. His long curly black hair, now going grey, and untidy shaggy beard make him the very picture of what my wife's Scottish Aunt Nonie would have called a "Heery Oobie" [aka hairy hippie].

His green eyes meet mine unemotionally; they seem almost puzzled. As he appears unsure of the formalities I push my way in and shake his hand. We climb a flight of stairs and walk into a long room with a wooden parquet floor partially covered with red rugs.

At the stair end is a wooden table and benches. On the table is placed a bottle of red wine, some cheese and a bag of chocolate chip cookies. At the other end of the room is a long green wooden bay window. Positioned around the room are several pieces of antique wooden furniture, possibly walnut. In one corner is a large TV; in another a hi-fi system. On the floor is a very large toy bear.

We move across to the window end where two large sofas are positioned beside each other to form an L-shape, both also covered with red rugs. A nearby coffee table is heaped with books and paper.

Stallman sits on a sofa with his back to the window, a laptop computer whirring beside him. I perch on the other sofa, beside a beautiful black cat that sleeps throughout the interview. Stallman is wearing a red T-shirt that sits uncomfortably on his potbelly. I note that half way along his forearm, up and over his elbow, is a long scar — a remnant of several painful operations following a bad fall in an icy airport in Finland.

I have already had a couple of phone conversations with Stallman, during which he revealed himself to be a somewhat bad-tempered interviewee. An odd mixture of the amiable and the irascible, he is willing to share oceans of time with journalists and email enquirers, but snappish and irritable when answering their questions.

[28] Not without effect perhaps. Shortly after this interview European politicians threw out a controversial bill — the Computer Implemented Inventions Directive — that would have allowed software to be patented in Europe. Specifically, in July 2005 The European Parliament voted 648 to 14 to reject the Directive. http://news.bbc.co.uk/1/hi/technology/4655955.stm

Today he is especially crotchety. As he talks his voice oscillates between a pleasant Jack-Nicholson-like baritone and the peeved falsetto of a frustrated adolescent; the latter occurring whenever he concludes that his interlocutor is being obtuse, or asking stupid questions.

Before we start Stallman walks to the hi-fi and inserts a CD. It turns out to be The Antenna Repairmen,[29] an "experimental percussion trio" with a passion for ceramic instruments; these range from udu drums[30] and bowls, to tubes, vases, and ghatams.[31] As a consequence, our conversation is interspersed with odd percussive noises, and the muffled rattle-and-cracking sound one might envisage emanating from the kitchen of an inebriated chef. All in all, it seems an appropriate accompaniment to Stallman's querulous mood.

For the first part of the interview Stallman lounges on the sofa minutely examining his split ends, and picking at his hands and T-shirt. Every now and then he sits upright and snaps: "That is total confusion; I can't answer that"; or: "I don't understand what you are talking about." At one point he accuses me of misrepresenting something he said; another time he complains that my questions are driving him "nuts".

When I counter that he is a somewhat combative person he gets up from the sofa and spends the rest of the interview on his feet, occasionally taking sauntering walks to the further reaches of the room to grab a chocolate chip cookie, now and then throwing out his feet in small dance kicks. (In his younger days, Stallman was a folk dancing aficionado.) At one point he begins playing with and pummelling the large toy bear on the floor.

Two hours later the black cat sleeping next to me gets up, stretches, and starts to scratch the rug on the sofa. I take this as a signal for me to depart.

As I am about to leave, however, Stallman engages me in conversation again at the stair head. Having earlier refused to comment on anyone from the Open Source Movement, he now invites me to sit at the wooden table at the end of the room, and turn my tape recorder back on. Then, between mouthfuls of cheese, he starts to complain about how Eric Raymond always exaggerates his early contribution to Free Software. Raymond does this, Stallman asserts, in order to give his later apostasy greater weight.

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[29] Arthur Jarvinen, Robert Fernandez, and M B Gordy founded the Antenna Repairmen in 1978 while graduate students in the percussion department at CalArts. They wanted to perform their own works, and to explore repertoire that was well off the beaten path. Most of the early Repairmen performances included elements of theatre and poetry. The rationale behind the group's name is that it can't possibly give you a clue as to what they do; you just have to check it out.
http://www.leisureplanetmusic.com/aj/rmen.htm

[30] The udu is an African vessel drum originated by the Igbo people of Nigeria. The instrument is played by hand and produces a special and unique bass sound by quickly hitting the big hole in it.
http://en.wikipedia.org/wiki/Udu

[31] A ghatam is a percussion instrument, used in South Indian Carnatic music. It is nothing but an earthenware pot; the artist uses both hands, wrists, fingers and nails to hit the outer surface of the walls of the ghatam. An airy low-pitch sound is created by hitting over the hole.
http://en.wikipedia.org/wiki/Ghatam

With this extra material on tape I slip back into the sunny streets of Brussels, conscious that a film crew will shortly arrive to interview Stallman in connection with a documentary they are working on.

Stallman's parting had been as abrupt and unceremonious as his welcome. Walking back to my hotel I conclude that, struggle as he might to connect with others, and impatient as he may become with them, Stallman craves the company of people. Indeed, I formed the impression that he had held me back not because he wanted to rant about Raymond, but simply because he didn't want to have to sit on his own until the film crew arrived.

The interview begins...

RP: *When did you first come into contact with computers?*

RS: My first contact with computers was by reading an operating system manual at summer camp when I was about nine years old. I was so fascinated that I began to write programs on paper.

RP: *What was the appeal?*

RS: I guess in some senses the attraction was that you get to solve lots of puzzles. So it was a sort of general-purpose solve-puzzles thing. And the idea that you could program a machine to do something — regardless of whether the thing it did was in any way useful — I found just fascinating.

RP: *When did you finally get to program for real?*

RS: In 1969, when I was 16, I attended the IBM Scientific Centre in New York as an after-school activity. We had access to a computer for a while. And since I had no applications to use on the computer, the only thing I could do that I found interesting was what I had read about in manuals. So I wanted to learn about and write operating system software. I became fascinated by the software of the operating system.

RP: *Apart from computers what were your early interests?*

RS: I was interested a lot in math and physics; also history, especially ancient history.

RP: *What did you find interesting about ancient history?*

RS: I found it fascinating to think of ancient civilisations that were very different but far away in time and so hard to make out.

RP: *In his book about you Free as in Freedom,[32] Sam Williams describes you as a child prodigy who had to cope with his parents divorcing, and then the death of beloved grandparents. I guess you had a dramatic start to life?*

RS: Such things happen to a lot of people but, yes, I found it very painful; and it had a powerful effect on me.

RP: *You stayed with your mother, who married again — but you remained an only child. Did you feel very solitary during your early years?*

RS: It wouldn't have occurred to me to think about such a question; but yes, the answer is obvious: I felt very solitary when I was a child.

RP: *Sam Williams also talks about the difficulties you had connecting with people as a child. He speculates as to whether you had Asperger's Syndrome,[33] and says that you got very frustrated that others did not seem to think clearly enough. Is that correct?*

RS: Well, it was clear that I had trouble getting along with people; but there were many reasons and I can't say I know what they all were. It is quite clear I don't have Asperger's Syndrome, but I have sometimes speculated that I have a slight, "shadow", version of it. (Some say that many people within the "normal" range have mild, "shadow" versions of various serious conditions).

RP: *Did you find it easier when you arrived at Harvard, where you must have been surrounded by other smart people?*

RS: I learned to get along better with people as I got older. In so far as I was older by the time I went to Harvard I found it easier. The one thing I never learned, however, was how to get along with women in dating.

RP: *Because of your family situation perhaps?*

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[32] *Free as in Freedom*, Sam Williams, O'Reilly, 2002

[33] Asperger syndrome (sometimes called Asperger's syndrome, AS, or the more common shorthand Asperger's), is characterised as one of the five pervasive developmental disorders, and is commonly referred to as a form of high-functioning autism. In very broad terms, individuals with Asperger's have normal or above average intellectual capacity, and atypical or poorly developed social skills, often with emotional/social development or integration happening later than usual as a result.

RS: That's possible. But the usual stuff men learn that enables them to get along with women, I never learned.

RP: *While studying at Harvard you also began working at MIT's AI Lab.*

RS: Yes, my job there was essentially to improve the operating system, which fascinated me and so, for me, was a perfect job.

RP: *And when you graduated you chose to stay on at the AI Lab. Your degree was in physics, so presumably you could have chosen a career in physics or math. Why did you stay on at the AI Lab?*

RS: Because with math and physics all I could do was study. With computers, by contrast, I could do things that were actually useful to people; so I felt I was achieving something, and this gave me a satisfaction far beyond merely learning something.

RP: *Folklore has it that two early experiences you had at the AI Lab influenced your subsequent decision to develop Free Software: an attempt by MIT administrators to impose passwords on the computer system, and your inability to obtain the source code for a Xerox printer.*

RS: There were a number of events. But yes, one was that people tried to introduce security. You see, the Incompatible Timesharing System was developed by hackers, and they wrote it without any security at all. It was understood that security was a method for the administrators to restrict the users. Since the hackers didn't want to allow administrators to control them, they decided not to implement security. Essentially, they were saying to the administrators: "We just won't let you control what we, or any user, can do." By the way, I was not the only one to resist — although I did resist longer than anyone else. The whole group shared these views.

RP: *You have described the attempts to impose security on ITS as fascism. Why?*

RS: Actually it wasn’t a term I coined: it's the term everyone used. Nevertheless, it's quite appropriate. If there are controllers, and they control what everyone can do, their philosophy in effect is to prohibit anything that might weaken their control. Consider what that philosophy means and how it would be if the rest of your life were run in that way. We used to say that a shared computer with internal security is run like a police state.

The ethics of the issue

RP: *The problem with the printer occurred when you wanted to fix it but couldn't get access to the source code to do so?*

RS: Not fix it, no.

RP: *To adapt it then?*

RS: *Please*, *stop guessing*. I would prefer it if you did not interrupt me when I am answering a question. The issue with the printer was that I wanted to make it possible for the system to notify users when a job was printed, or if the printer was in trouble. That would have allowed people to go and collect their output only when it was complete, rather than having to guess. Guessing was difficult because sometimes there was a paper jam, or a long queue of jobs.

The problem was that we didn't have the source code for the printer to enable me to do this. I could have asked Xerox but I assumed that if we didn't have the source code we couldn't get it. So I didn't ask Xerox.

RP: *What happened then?*

RS: I was told that someone at Carnegie Mellon[34] had the source code, so the next time I was in Pittsburgh I sought him out and asked him for it. But he refused, on the grounds that he had signed a non-disclosure agreement.[35] That made me very angry.

RP: *Presumably if you had asked Xerox you would have got the same answer, or have been asked to sign an NDA yourself.*

RS: Probably, and the danger is that they might have said yes. If that had happened I wouldn't have learned the ethics of the issue.

RP: *What do you mean by the ethics of the issue?*

RS: That man had done something wrong when he refused to share the code with me. In fact, I thought he was a bastard for saying no, since he could have made things much better for the AI Lab by cooperating with us.

He had also done something wrong when he signed the NDA, which was a promise to do something else that was wrong: promising to be hostile to the whole world is an extremely nasty thing to do. So signing an NDA in effect was betraying the whole world. He should not have done that; and Xerox should not have asked him to. And it was thinking about what he had done to us that taught me to appreciate the wrong.

RP: *The wrong was in refusing to share the source code?*

RS: Right. The point is that sharing knowledge is an important way in which people cooperate. To refuse to tell someone what he needs to know is hostile. To promise in advance not to tell others is betraying them.

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[34] Carnegie Mellon University is a private research university located in Pittsburgh, Pennsylvania. It was formed in 1967 by the union of the Carnegie Institute of Technology and the Mellon Institute of Industrial Research. Carnegie Mellon is renowned for its unique interdisciplinary environment and as an innovative leader in education. The computer science and computer engineering programs are considered to be among the best in their fields. http://en.wikipedia.org/wiki/Carnegie_mellon

[35] A non-disclosure agreement (NDA), also called a confidential disclosure agreement (CDA), confidentiality agreement or secrecy agreement, is a legal contract between at least two parties which outlines confidentiality materials the parties wish to share with one another for certain purposes, but wish to restrict from generalised use. In other words, it is a contract through which the parties agree not to disclose information covered by the agreement. A NDA creates a confidential relationship between the parties.

RP: *I guess the most significant incident that helped shape your views on the ethical issues of sharing software was the decision by the AI Lab to licence some of its software to two spin-off companies.*

RS: Yes, MIT did something both wrong and stupid: it made the LISP system I had been working on non-free software. It licensed the software to two companies [LMI and Symbolics[36]] but failed to retain for MIT the right to redistribute changes made by those companies.

RP: *This led to Symbolics insisting that any changes they made to the software could not be copied to the MIT version?*

RS: Right. They decided that while users at MIT could use Symbolics' system, they were not allowed to put Symbolics' changes into MIT's system. They thought that if their changes stopped going into the MIT version it would just die, and all the MIT users would then switch to the Symbolics system. This would leave LMI without a live, maintained system version.[37]

RP: *So you embarked on a coding marathon designed to ensure that all the changes and improvements made by Symbolics were replicated in MIT's system?*

RS: Yes, I thought of it as a war in which Symbolics had tried to invade the AI Lab. So I set about matching all the changes made by Symbolics.

RP: *What was the final outcome?*

RS: By 1983 LMI had grown and hired programmers, so I figured they could now do their own maintenance. In addition, the AI Lab had started buying a newer Symbolics machine, which the MIT software wouldn't run on. While I was working on the system I had also been thinking about the ethical issues of what had happened, and I could see that it was time to stop doing this.

RP: *Why?*

RS: Because I didn't like the fact that even the MIT system was now non-free software. This meant that by continuing to work on the MIT system I was working on non-free software, and I wanted to stop doing that. Besides, while I had thwarted the aims of Symbolic's aggression it didn't change the fact that my community was gone.

RP: *The AI Lab didn't close.*

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[36] Symbolics, Inc and Lisp Machines, Inc. (LMI), two companies spun out of the AI Lab and staffed by ex hackers, including Russell Noftsker and Bill Gosper (Symbolics),and Richard Greenblatt and Thomas Knight (LMI) http://en.wikipedia.org/wiki/Symbolics

[37] Symbolics action was not perhaps surprising. Stallman was passing all the changes he made to the LISP system on to LMI, which was a competitor to Symbolics. As Levy quotes Noftsker saying in *Hackers*: "We develop a program or an advancement to our operating system and make it work, and that might take three months, and then under our agreement with MIT, we give that to them. And then [Stallman] compares it with the old ones and looks at that and sees how it works and re-implements it [for the LMI machines]. He calls it reverse engineering. We call it theft of trade secrets."

RS: No, there were still professors and graduate students, but all the hackers had left except me, and it was the hackers who made the place exciting to hack in. It was they who opposed security and prevented fascism; and when they were gone what had been exciting about the Lab had started to change with their absence. In effect my community was destroyed, so in 1983 I decided to develop a Free Software operating system as a way of creating another community in which people were free to cooperate.

RP: *Many people find the term Free Software confusing, and tend to assume that it implies software that is free of charge. When you use the term free, however, you are talking not about cost, but about the right of users to do certain things with the software. Perhaps it would help if you were to define Free Software for me?*

RS: It's quite simple: Free Software is software in which the user has certain essential freedoms, and there are four of these freedoms. Freedom 0 is the freedom to run the program as you wish; Freedom 1 is the freedom to study the source code and change it to do what you wish; Freedom 2 is the freedom to make copies and to distribute them to others; and Freedom 3 is the freedom to publish or, more generally, distribute modified versions. These freedoms are what define Free Software.

RP: *Why are they important?*

RS: Because they are the same freedoms people enjoy when they use recipes and other types of functional information. Imagine, for instance, how angry you would feel if you were told that starting today you could not copy or change a recipe, and that if you did you would be called a pirate and put in prison for years. Understand this and I think you will appreciate why I started the Free Software Movement.

Free Software Movement

RP: *How did you go about creating the Free Software Movement?*

RS: First, I wrote a document addressed to hardware manufacturers asking them to support this as a way in which they could save money. They did not respond, so I rewrote the document addressing the public and programmers, and I posted it on the Net in 1983. I told them I was developing the GNU operating system, and that it would be a UNIX-like operating system.[38] I hoped programmers would join me and help write the code. Then on January 5th, 1984 I quit my job at MIT and I began developing GNU.

RP: *And in 1985 you founded the Free Software Foundation [FSF]. Why?*

RS: Two or three programmers had voluntarily joined in during 1984, but I wanted to raise funds to pay programmers to write parts of GNU. I figured that the release of

[38] A copy of the letter is available here: http://www.gnu.org/gnu/initial-announcement.html

GNU Emacs[39] would show people that the project was not just talk, and that we could produce useful software. So I thought it might make sense to ask people to donate money.

RP: *Did you attract a lot of money?*

RS: Well, we got a lot more money from people buying tapes of the GNU Emacs text editor than from donations. Anyway, the Foundation grew to around 11 employees and its staff developed several essential programs. They worked, for instance, on the GNU C Library[40] and Bash,[41] the GNU shell.[42]

RP: *How many people does the FSF employ today?*

RS: About nine. And where originally most of them were programmers, today none of them are.

RP: *This reflects the FSF's changing purpose?*

RS: It reflects a changing context. With a million or so people contributing to Free Software development, the amount of good we can do for the community by hiring a couple more is just not that great.

RP: *In order to support your free software efforts you also devised the notion of copyleft, most notably in the GNU General Public Licence, or GPL. How did you arrive at the notion of copyleft?*

RS: I don't entirely remember: it was years ago. I had seen people put copying permission statements on their emails, saying for instance: "Copying of this message is permitted provided this notice is preserved." I then generalised this by permitting modifications as well. So you could summarise copyleft as saying "Copying and modification of this work is permitted provided this message is preserved." However,

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[39] Emacs is a class of text editors, possessing an extensive set of features that is popular with computer programmers and other technically-proficient computer users. The original Emacs, a set of ***E****ditor* ***MAC****ro****S*** for the TECO editor, was written in 1975 by Stallman, initially together with Guy Steele. Many versions of Emacs have appeared over the years, but nowadays there are two that are commonly used: GNU EMACS (started by Stallman in 1984 and still maintained by him), and XEmacs, a fork of GNU Emacs which was started in 1991 and has remained mostly compatible. Both use a powerful extension language, Emacs Lisp, which allows them to handle tasks ranging from writing and compiling computer programs to browsing the web.

[40] Glibc is the GNU project's C standard library. The C standard library is a now-standardised collection of header files and library routines used to implement common operations, such as input/output and string handling, in the C programming language. Unlike other languages such as Pascal and PL/I, C does not include built in keywords for these tasks, so nearly all C programs rely on the standard library to function. http://en.wikipedia.org/wiki/GNU_C_library

[41] Bash is a UNIX command shell written for the GNU project. Its name is an acronym for Bourne-again shell —a pun (Bourne again / born again) on the Bourne shell (sh), which was an early, important UNIX shell. Bash is the default shell on most Linux systems as well as on Mac OS X Tiger, and it can be run on most UNIX-like operating systems. It has also been ported to Microsoft Windows by the Cygwin and DJGPP projects. http://en.wikipedia.org/wiki/Bash

[42] In computing, a shell is a piece of software that essentially provides a kind of interface for end-users. Typically, the term refers to an operating system shell which provides access to the services of a kernel. http://en.wikipedia.org/wiki/Shell_%28computing%29

there were then various potential loopholes that had to be closed in order to make sure the intended result was not subverted, which is why the GPL has all the details it has.

RP: *One risk, presumably, was that someone else could appropriate the software?*

RS: Exactly. Before I started GNU, I had seen instances of software that was free but that had been made non-free — that is, people had modified versions of Free Software and then released those modified versions as non-free software. I realised that this would happen big time unless I could stop it, and if that had happened my goal of spreading freedom would have been a failure. Copyleft had to avoid that happening.

RP: *When did you develop the GPL?*

RS: The GNU General Public Licence as such was first released and used in 1989, but that came after various program-specific licences. There was the GNU Emacs General Public Licence, for instance, which had been the licence used for copies of GNU Emacs since the release of the first Emacs in 1985. So the basic ideas had existed since that time.

RP: *Your ideas clearly struck a chord with a lot of programmers, and a large number of Free Software projects were started. Indeed, the software that was to become the kernel of the GNU operating system — Linux — was developed in Finland by Linus Torvalds.*

RS: Well, Linux was developed years later. We had the GNU system almost completed before Linus added his piece. Also, I would not say that Linux is the kernel of the GNU system. GNU is normally used with Linux, but Linux is not a part of GNU.

RP: *Once Linux was added, however, people began referring to the combined GNU/Linux system as just Linux. Why do you think so many people now assume that the Linux kernel is the complete operating system — and so ignore your very significant contribution?*

RS: I don't know. One reason may be that the term “operating system” has historically tended to be used in two ways. On the one hand the nature of UNIX-like systems is that there is no particular boundary to the set of things that are the operating system, which usually consists of hundreds of different programs. Since I was making a UNIX-like system I used that meaning of the term. On the other hand, there are people who teach classes on operating system development who effectively teach only about kernels. This ambiguity may have played a role.

In any case, at the very beginning Torvalds said that he had written a kernel, and that Linux was this kernel. After a while, however, others started talking about the whole combination as if it were Linux — where in reality it is GNU with some pieces added. In fact, today's distributions of GNU/Linux often include thousands of packages.

RP: *What proportion of the whole package is Linux?*

RS: That has changed over time. The only hard figures I have come from a particular distribution made in 1995. At that time programs released by the GNU Project were 28% and Linux was 3%. Then around 70% of the rest of the software came from other developments, but the largest part was GNU.

Open Source Initiative

RP: *Perhaps the greater visibility of Linux owes a lot to the launch of the Open Source Initiative in 1998?*

RS: I don't agree. GNU/Linux was already successful by then. Besides, the different philosophies of the FSF and the Open Source Movement started in the early 1990s, so that wasn't new either.

RP: *Why do you think that the Open Source Movement has gained so much mindshare?*

RS: It's an obvious idea that if you talk about freedom to someone who thinks it is silly you won't have as much success as you will if you convince them that there is a practical reason to use it. People observed that the GNU system with Linux was powerful and reliable, and so they started saying: "You should use this system because it is powerful and reliable, and you don't have to pay any licence fees for it either."

You convince more people that way — but you don't convince them as far. You get lots of shallow support, but lose the chance to gain deeper support.

So you had a group of people who were saying this — and Linus Torvalds, who was never particularly concerned with trying to achieve freedom for programmers and software users, was one person who said this — and they convinced a lot of people. So by the mid 1990s there were millions of users of the GNU/Linux system, but most had never heard of the philosophy of GNU.

RP: *I think you distinguish the different philosophies of the Free Software and Open Source movements by saying that Open Source is a technical movement while the FSF is a social and political movement?*

RS: Yes, the philosophies — the basic philosophical values — are completely different. They converge only at the practical level.

RP: *And in common with the Open Source people you have no problem with people making money out of Free Software?*

RS: Not at all. But if anyone thinks that the most important thing about Free Software is that you can make money from it, or that it is powerful and reliable, or anything less fundamental than freedom, then he is not going to defend our freedom, and that is a serious problem — a weakness in our community.

RP: *So it is a matter of emphasis?*

RS: For some people it is a matter of emphasis. Some people do believe in freedom as a goal but they emphasise practical things because they think that that is the way that people will listen to them. But they don't realise that by giving a message that people listen to more, they are actually teaching a different thing. Open Source supporters didn't realise that, although immediately successful, this message is weakening in the long term. Many weren't looking to the long term.

RP: *The distinction then is that between technical superiority versus freedom?*

RS: Well, something could offer both things, but yes, they are not the same thing.

RP: *So it is a matter of prioritising them?*

RS: Exactly. All things being equal, we would rather have more powerful and reliable software, but it is not the central point of our activities. The question is simple: do you care about getting "the best" software, where that is interpreted only in a practical sense, or do you care more about having the software that respects your freedom?

RP: *From your perspective does the Open Source Movement have pluses and minuses, or is it all bad?*

RS: Open Source advocates do contribute to our community — not all of them, but many of them. There are people who develop Free Software that were motivated by the Open Source Movement rhetoric, for instance. These programs are good, so that is a good thing. The bad aspect is that it is weak: it doesn't teach people to see a freedom to defend, so they don't defend their freedom, and they won't defend our freedom.

RP: *The Open Source Movement also lays great stress on the development method pioneered by Torvalds when he was working on Linux. Later described by Eric Raymond as the Bazaar method, this involves organising a large army of programmers over the Internet in a way that enables much faster development, and far fewer bugs. Does the FSF also espouse this method?*

RS: We have nothing against it, but the question is a secondary one for us. It may be true that Free Software facilitates the use of the Bazaar method, and it may be true that this provides benefits, but fundamentally it has nothing to do with Free Software — the choice of development method is not what Free Software is about. So while it may have some side bonus, for us it is not the goal or the crucial point.

RP: *Do you feel that the agenda you mapped out when you established the Free Software Movement has been subverted?*

RS: It has been very badly subverted. In fact, it has been nearly lost. The distribution I told you about in 1995 that had 28% of programs released by the GNU Project was an entirely free distribution, and in those days it was not hard to find entirely free distributions. Today it is hard to find distributions that are entirely free.

RP: *How did this happen?*

RS: Somebody had the idea of adding non-free programs to the GNU/Linux distribution in order to tell users that they were getting a "bonus". Others then concluded that they had to compete with that, and began to offer non-free "bonuses" too. The result is that today we have tens of millions of people using a version of the GNU system, and yet the goal of making a completely free operating system has been not just forgotten but almost totally cancelled.

RP: *Who was primarily responsible for this?*

RS: It has been a general phenomenon in the community. However, one thing that was harmful was when Linus gave permission to dynamically link to non-free drivers. This has encouraged non-free programs to be included in GNU/Linux, including some applications and some drivers. Linus' decision was part of the problem, although not all.

RP: *Can you expand on the problem of non-free drivers?*

RS: Many devices won't work with the usual version of Linux because they only work with some non-free drivers, so if you use those non-free drivers then the system is not free. This is a big problem for us: we don't want to tell people that they should use those non-free drivers, but there is clearly a problem if the only way to make Linux — which is an important part of the whole system — run on certain hardware is to use a non-free driver.

RP: *So what .....*

RS: *Please listen to me*. If I am continuing to talk I wish you wouldn't jump in so fast.

RP: *Ok, but I am not always sure when you have stopped answering a question; maybe you could flag when you have finished?*

RS: But you shouldn't interrupt; and you shouldn't guess at my answers. It is driving me nuts [Stallman bangs the table].

Anyway, we can't stop people using these non-free drivers, but that doesn't mean we should be involved in helping people get them. Just because we can't stop something doesn't mean we should accept it. So we are recruiting people to maintain pages to give information about which hardware runs with Free Software and which doesn't. This helps people know what to buy, and helps us put pressure on the hardware manufacturers.

We also want to talk to these manufacturers. I have been to Taiwan, for example, talking with the Taiwanese manufacturers — because a lot of them actually have policies that cooperate with us.

RP: *What is it you want them to do: write free drivers?*

RS: Not necessarily. If they wrote free drivers it would be nice, but we don't need them to do that. All we need is for them to give us the hardware specs so that we can write the drivers ourselves.

RP: *A free driver would be one for which the source code was freely available, and which was licensed under copyleft?*

RS: A free driver is a driver that's Free Software — users have the four freedoms. It doesn't have to be copylefted.

Patenting software

RP: *One area where I suspect you and the Open Source Movement can agree is on software patents?*

RS: Right. I believe that all software should be free, and that is a controversial belief. Opposing software patents is not radical: it is what most software developers believe.

RP: *What is the problem with software patents?*

RS: Software patents directly restrict how each computer user is allowed to use their computer. So you are talking about directly restricting millions of users, which is unjust.

RP: *This is because software now runs on so many devices?*

RS: No, it is just that so many people have computers. We don't even have to talk about embedded devices. You, for instance, have a computer; you probably don't want to be threatened with lawsuits if you run your computer in a certain way. That is exactly what software patents threaten.

RP: *You are saying that even computer users can be sued if a program they are using infringes a patent?*

RS: Yes. Not just the developers and the distributors of programs, but the users of programs can be sued.

RP: *Patents are used in many areas, and have been used for hundreds of years. Is there something different about software then?*

RS: Absolutely. One important difference is the way that patents relate to products. If you consider pharmaceutical products, for instance, you will find that even today the number of patents covering one drug is not likely to be very large. A software program, by contrast, will combine thousands of different techniques — which may be algorithms or features — and many of these might now be patented.

If you are not a programmer, the way to understand what software patents do is to think of an analogy with symphonies or novels. These can be quite large, and they

will implement many ideas together in a single work. If we allowed literary ideas to be patented it would be dangerous for anyone writing a novel because their work would probably contain thousands of ideas, and if these ideas could be patented it would be hard to write a novel without being sued.[43]

RP: *Can you give me an example of how this might work with software?*

RS: Sure. Consider, for instance, how many programs use a progress bar to show how far the program has got in performing a task. No one sat down and said: "I am going to create a program to display a progress bar." They were just writing various programs to do different jobs and in the process made those programs display progress bars as a way of being helpful to the user. According to the European Patent Office, however, the progress bar is patented. That progress bar will be a tiny part of a program, and yet a patent covers that tiny part. Moreover, the same program may be covered by hundreds of other patents as well. And if any those patented techniques can be seen in your program you can be sued.

The amazing thing is that the people who are in favour of software patents claim it is a way to promote progress. They just don't look carefully at what it would mean, what its real effects would be

RP: *And software patents are a direct threat to Free Software?*

RS: Absolutely. The clearest example of this is the Linux kernel itself. A lawyer in the US has reported finding 283 different US software patents, each forbidding something he found going on inside the many lines of Linux. And remember he was talking just about the kernel. The whole GNU/Linux system is 400 times bigger according to an estimate I read, so we could estimate 100,000 different patents each prohibiting something done in the whole system.

Battle for freedom

RP: *In justifying the need for software code to be free you made an analogy with recipes. You also once said "I believe that all generally useful information should be free. By 'free' I am not referring to price, but rather to the freedom to copy the information and adapt it to one's own uses." Software code aside, you see social benefit in other types of information being free?*

RS: I do. But the medium is not the issue. The crucial factor is the social use of the work concerned. Software is an instance of a practical functional work. It does a practical job by making a computer do something. There are various other kinds of functional works, and I believe they should always be free in the same way as software should be. For instance, I believe that encyclopaedias should be free, and it

[43] Indeed, patent agent and inventor Andrew Knight has already filed a patent with the US Patent and Trademark Office, claiming patent protection for a fictional storyline.
http://www.theregister.co.uk/2005/11/04/movie_plotline_patent/

is nice that we now have Wikipedia,[44] which I would say was the extension to encyclopaedias of the Free Software Movement.

However, for some works of authorship and art, the issues are different. Music, for instance, is generally not a functional work, it is in the category of artistic and entertainment works. As far as this category is concerned I believe people should always have the freedom to non-commercially redistribute exact copies of the entire work. That is the minimum freedom that everyone must have for those kinds of works.

RP: *That too is a radical position, and no doubt explains why you have strong views on digital rights management [DRM]?*

RS: You mean "digital restrictions management". Those who gain power from DRM may refer to "rights" — but that's their form of doublespeak. For the public DRM means restrictions. And DRM is evil and shouldn't be allowed.

RP: *Why?*

RS: First of all it prevents Free Software from doing useful jobs, so it is unfair to Free Software. However, that is a secondary thing: since DRM imposes unacceptable restrictions on users it is simply evil.

RP: *So this is both a Free Software issue, and a civil liberties issue?*

RS: Yes. Take for instance corrupt discs (disks that have been "corrupted" by means of DRM). Not only can they not be read and played with Free Software, but users cannot copy them either. To cripple people's computers so that they can't copy is wrong; to stop people from copying is wrong. Both things are unfair.

RP: *Industry groups like the RIAA [Recording Industry Association of America[45]] and MPAA [The Motion Picture Association of America[46]] argue that without technical*

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[44] Wikipedia is a "free-content" encyclopaedia that anyone can edit. Since established in 2001 the English version has seen over one million articles added. The footnotes in *The Basement Interviews* owe a great debt of gratitude to Wikipedia, as the constant references will demonstrate. www.wikipedia.org/

[45] The RIAA was formed in 1952. Its primary purpose at that time was to administer the RIAA equalisation curve. This is a technical standard of frequency response applied to vinyl records during manufacturing and playback. The RIAA has continued to participate in creating and administering technical standards for later systems of music recording and reproduction, including magnetic tape, cassette tapes, digital audio tapes, CDs and software-based digital technologies.
The RIAA also participates in the collection, administration and distribution of music licenses and royalties. The RIAA has been at the heart of the file-sharing controversy, especially music files in the popular MP3 format uploaded onto the Internet using peer-to-peer software. The RIAA has long contended that sharing of copyrighted music was a form of piracy, applying the well-known computing term to music.

[46] The Motion Picture Association of America (MPAA), originally called the Motion Pictures Producers and Distributors Association, is a non-profit trade association based in the United States which was formed to advance the interests of movie studios. Its members consist of the "big seven" major Hollywood studios. The organisation produces the well-known voluntary film rating system. The motion-picture equivalent of the RIAA, the MPAA has also taken strong steps to reduce the number of file-sharing sites online where copyrighted films are available for download.

protection measures like DRM their businesses could not survive in a digital environment, since information can now be copied so easily. How would you reply to, say, a movie industry executive who said: "We need to protect our business; what else would you have us do?"

RS: I would reply that operating from purely selfish motives is no excuse for mistreating people. There is this bizarre idea nowadays that all a person has to do to excuse nasty treatment of others is to say: "I am just trying to make money." As if making money were so admirable that it could justify absolutely anything. "Oh, I punched him in the nose; but I am trying to make money, so let me do it."

There are, by the way, many other ways in which money can be made from things like movies and music. So the decision to use DRM is not a question of whether or not they can make money, but rather of *how much* money they can make.

RP: *What connections do you see between Free Software and the various other free and open movements? I'm thinking, for instance, of movements like Creative Commons, Open Access, Open Spectrum, Open Journalism, and Open Politics?*

RS: Open means a lot of things and most have little to do with Free Software, so I don't use the term. However, there is clearly growing recognition that the Internet facilitates sharing. As a result we see a lot of people who want to share things, and a lot of other people who are trying to stop that sharing.

RP: *This struggle is an inevitable by-product of the development of digital networks?*

RS: That's right.

RP: *I understand your discomfort with the word "open", but your thinking has undoubtedly influenced many of those working in these other movements. Interestingly, when I spoke to Lawrence Lessig I asked him why he had called his book "Free Culture",[47] and not "Open Culture". He answered that it had been a deliberate choice, and added: "Richard Stallman is right — this is not about business: it is about culture."*

RS: Yes, it is. But I would have to say that the opinion he takes in that book does not correspond to mine. It is a much weaker position, and I found it somewhat disappointing. He is less ethically firm. For instance, he won't say that it is simply wrong to stop people sharing. I may have influenced him some, but I have influenced him only half as much I would have liked.

RP: *But would you say he has played an important role in broadening the debate beyond just software?*

RS: I don't want to answer that question. I don't like being handed a quotation and asked to utter it.

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[47] *Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity*, Lawrence Lessig, Penguin, 2004

RP: *Do you support the Creative Commons movement?*

RS: The original Creative Commons licences all gave people the minimum freedom of being able to distribute verbatim copies non-commercially, so I supported their use — for art at least. But then they developed other licences that do not provide that essential freedom, and that is a serious problem. I have asked them to look at going back to the original policy.

RP: *Do you have any hope that they might do that?*

RS: I have a hope, but I don't know what they are going to do.

RP: *What about the Open Access movement,[48] which wants to see all scholarly papers made freely available on the Internet. Do you support that?*

RS: Yes, and I am a signatory of the Budapest Initiative.[49] I have, by the way, been urging them to make the freedom to redistribute a central part of their demands. It is not enough to have one site where everyone can download the information: people must be free to set up mirror sites too. However, when it comes to scientific papers I don't think people should have the freedom to publish modified versions; modified versions of someone else's scientific article are not a contribution to society.

RP: *I understand you may be reluctant to give unqualified support to some of these other movements, but I am struck that in struggling with what you call the ethics of Free Software you articulated issues that have come to exercise the minds of people in a wide range of different areas. You talked about the way in which the Internet encourages sharing, but essentially, we are witnessing a struggle between proprietary and free information models, are we not?*

RS: Right. It is a struggle between systems that are essentially fascist — in that they give businesses power over people — and systems that respect freedom.

RP: *I'm wondering how you might see this playing out. In 1997, for instance, you wrote a short story called The Right to Read.[50] This painted a gloomy picture of the future, where copyright laws had become so draconian that people were imprisoned if they lent their books — or more accurately the computers on which their books were*

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[48] Open access (OA) is the free online availability of digital content. It is best-known and most feasible for peer-reviewed scientific and scholarly journal articles, which scholars publish without expectation of payment. There are two roads to OA, with many variations. In open access publishing, also known as the "golden" road to OA, journals make their articles openly accessible immediately on publication (by means of the author — or more usually the author's research funder or institution— paying the publication costs). One example of an open access publisher is the Public Library of Science. In open access self-archiving, also called the "green" road to OA, authors make copies of their own published articles openly accessible, generally in a subject or institutional repository. One of the major international statements on open access, which includes a definition, background information, and a list of signatories, is the Budapest Open Access Initiative of 2002. A second major international initiative, dating from 2003, is the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities. http://en.wikipedia.org/wiki/Open_access

[49] Budapest Open Access Initiative, http://www.soros.org/openaccess

[50] *The Right to Read*, Richard Stallman http://www.gnu.org/philosophy/right-to-read.html

stored — to anyone else. That was nine years ago. Do you feel more or less optimistic about the likelihood of such a world arriving today?

RS: I tend to be a pessimist by nature, and I can't see the future — so to some extent I am unable to answer that question. What I can say is that the part of that story that I didn't think anyone would think of introducing is now being proposed with treacherous computing.

RP: *When you say treacherous computing you are referring to "trusted computing"*[51] *— where the ability to enforce usage policies on computers would be built into the hardware. This would allow third parties, for instance, to control how we use our computers regardless of the user's wishes?*

RS: Yes. I saw an announcement recently that Intel has already put treacherous computing into a couple of processor chips. That suggests that the threat is coming closer.

RP: *That's a depressing thought; but in the struggle between free and proprietary models there will surely be gains and losses on both sides. The striking down of the "broadcast flag"*[52] *sends a positive message for those who support a freer model for instance. Similarly, while repressive new laws like the Induce Act*[53] *are frequently proposed, new laws that support the freedoms you value are starting to gain support — The Public Domain Enhancement Act*[54] *for instance. Presumably some freedoms that are lost will be won back?*

RS: It is possible. But Congress in the US is on the side of business, not the side of the public.[55] In any case, I think it is a mistake to speculate on which side is going to win. That is the wrong way to look at a fight for freedom.

RP: *You are saying that we should not speculate on who might win the battle?*

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[51] Trusted computing is a family of open specifications whose stated goal is to make personal computers more secure through the use of dedicated hardware. Critics, including academics, security experts, and users of free and open source software, contend, however, that the overall effect (and perhaps intent) of trusted computing is to impose unreasonable restrictions on how people can use their computers.

[52] On 6th May 2005 the U.S. Court of Appeals for the DC Circuit ruled that the Federal Communications Commission did not have the authority to prohibit the manufacture of computer and video hardware that doesn't have copy protection technology known as the "broadcast flag." The regulations, which the FCC created in November 2003, had been intended to limit unauthorised Internet redistribution of over-the-air TV broadcasts. http://en.wikipedia.org/wiki/Broadcast_flag

[53] The Inducing Infringement of Copyrights Act of 2004 proposed making technology companies liable for manufacturing products that encourage people to infringe copyrights. http://en.wikipedia.org/wiki/Inducing_Infringement_of_Copyrights_Act

[54] The Public Domain Enhancement Act would make it easier for older and endangered copyrighted works to fall into the public domain. If passed, the bill would add a tax for copyrighted works to retain their copyright status. The purpose of the bill is to make it easier to determine who holds a copyright (by determining the identity of the person who paid the tax), and to allow copyrighted works which have been abandoned by their owners to pass into the public domain. For current status see: http://thomas.loc.gov/cgi-bin/bdquery/z?d109:h.r.02408:

[55] Indeed, on 2nd March 2006 new federal legislation was announced designed to introduce a broadcast flag for digital and satellite audio receivers. This would mean that digital radio receivers without government-approved copy-prevention technology might become illegal. http://news.com.com/2100-1028_3-6045225.html

RS: I am. I agree there is a battle for freedom, but it is a mistake to try to pick a winner. That very terminology implies you are a spectator. Journalists are trained to think as spectators and they have practices that tend to lead the public to look at these battles as spectators, or gamblers; and that is the wrong way. To try to cover any democratic political struggle, or any fight for freedom, in terms of who might win, or who seems likely to win, is a mistake; it tells people the outcome is decided, so don't bother to participate. To imply that the outcome is determined is to tell the public that they have no say, and so is anti-democratic.

RP: *How should journalists cover it?*

RS: They should show the public what the various possible outcomes would lead to so that people can decide which side to be on. To tell the people what the various sides are, and what they are fighting for, enables the public to join a side. That encourages democracy.

RP: *Journalists try to do this by quoting spokespeople from both points of view and letting the public decide that way.*

RS: That's a minor detail of the mistake of trying to predict who is going to win, and that is why I am refusing to provide a quote.

RP: *Point taken, but what do you see as the end game of the Free Software Movement?*

RS: I don't see such things. I don't have a vision of future moves in a long-term game plan. I am not very good at playing such games. For that reason I am not much good at playing chess.

RP: *I am wondering if perhaps for you the motivation is the struggle itself, rather than winning the fight.*

RS: No, no. That is a misunderstanding. I am fighting for the result. You engage in a fight for freedom because you want freedom. I am not saying you shouldn't think about the goal. I am saying that we shouldn't speculate about whether we are going to win.

RP: *It's about keeping the mind focused then?*

RS: No, that’s not it. I don't want to repeat myself. If you were paying attention you'd know that's not so. I am getting rather disturbed about this because I say things and you reinterpret them — and your reinterpretation is so different from what I said. What I said was that to change the subject, from the issue at stake to the question of who is going to win, discourages people from participating in the fight, because if they think the outcome is determined they have no reason to participate. This isn't narrowly a matter of how to "keep-your-mind-focused". It's much more basic: it informs people of what issue there is to think about.

RP: *OK. My assumption was that the same logic would apply to those engaged in the struggle: if they spend time speculating about who will win, and how things will turn out, then they too might decide that participation is either unnecessary, or not worthwhile.*

RS: We should be thinking of the end result that we seek and how to make progress towards it, which is different from trying to predict the outcome.

RP: *What we learn from this interchange, I guess, is that you are very, very keen that total understanding is achieved?*

RS: Yes.

RP: *That is worth noting because most people are not like that.*

RS: Well, the way I see it is that I am talking to the public through you. I have a message for them and I want them to understand what it is we are fighting for. I want them to join us in the fight.

RP: *Right, and I would also like the public to know something about Richard Stallman: the kind of person he is.*

RS: I don't mind that.

RP: *And what we are discovering perhaps is that Richard Stallman is a combative person?*

RS: It might be true. [Stallman gets up and spends most of the rest of the interview moving around, doing dance steps, picking at food]. Of course when it comes to judging my personality I am biased and not competent to answer. I know some things about myself, but at the same time I am not reliable in summing them up.

Community

RP: *Looking back on your life and the development of the Free Software Movement, is there anything you would have done differently?*

RS: I haven't asked myself that question, and I don't know if I really want to answer a question like that. But there might have been certain details of things that happened that I would do differently.

RP: *Could you name some?*

RS: I would rather not go that much into self-criticism. They were small details; nothing large.

RP: *I have noticed that you use the term "community" a lot. Open source people do too. This is a strong concept for hackers, is it?*

RS: Well they are not all hackers, some of them just use the software, but they are part of a community where people often help each other. Proprietary software forbids community.

RP: *What strikes me is that it is a community frequently at war with itself?*

RS: Communities often have political disagreements. That's normal with communities, and it's normal for human beings.

RP: *The concept of community is certainly important to you personally isn't it?*

RS: Yes. I want there to be people who help me when I need help; and I am willing to help other people.

RP: *Was losing your community at the AI Lab .....?*

RS: I lost my home.

RP: *Yes; and you talked of Harvard in similar terms. My point is that community and home are clearly powerful concepts for you. I am wondering if you think that coming from a broken home has made the idea of home and community more important to you than for most people, and whether that has therefore been a strong motivating force in your life.*

RS: Probably. I never felt I had a home until I was at College; and then I lost my home. Harvard was the first place I ever really felt was my home.

RP: *Why?*

RS: It was a place where in general people were not angry with me; and that was just so peaceful compared with the way things usually were. While I was growing up, I was in the midst of so much anger. So I was very glad to be away from all that.

RP: *Your parents were angry with each another?*

RS: They were angry with me, and sometimes with other things.

RP: *Why angry with you?*

RS: I don't know. I don't want to go too much into that. My father had a generally angry sort of personality, and so he would just tend to be angry at whatever.

RP: *I'm also conscious that in homes in which there has been constant warring, people often feel it is very important to make clear what they stand for, and what they don't stand for. You have very firm views on right and wrong. Might this be a product of your early life?*

RS: It's true that everything about a person and what they do can be explained by their history — and history here includes both their genes and previous events in their

life — but that still does not mean we can always find out why a person was motivated to do a particular thing. You should also beware of the mistaken idea that identifying explanations for someone's leanings devalues what was done by him. It is good to have a clear idea of what you stand for, for instance.

RP: *I am not thinking so much about the value that should be placed on actions, but the explanation for them. In this case a connection between your childhood and your powerful views on what is right and wrong?*

RS: I wouldn't be surprised if there isn't a connection. It is also likely that my childhood experience was part of the reason why I was so glad when I found a home, and so sad I lost it. It is a commonplace idea that your childhood home changes into something else and you cannot go home again; but that happened to me in 16 months when I graduated from college — in 16 months my home had changed so much that there was nothing about it any more that related to being my home. All the people I was friends with had gone. That was really, really sad for me.

RP: *Isn't that supposed to happen when you go to college: you spend some time there, you graduate, and then you move on?*

RS: I don't know about "supposed", but it did not make sense to me that my home was supposed to disappear.

RP: *Then you found the AI Lab?*

RS: And that died too.[56]

RP: *And the Free Software Movement: did that become a new home?*

RS: Sort of. Certainly I had that in mind when I started it; but it is not the same kind of thing, because it is a dispersed community rather than a geographical one. So it's not as if I spend my time in one place as part of the Free Software community and feel that I am at home. It is very different when it involves travelling all the time.

RP: *So where is your home today?*

RS: I don't know if I have one. Last time I felt I had a home was when I had a sweetheart. Her house felt like home. That was a year and a half ago — somewhat more perhaps.

RP: *So you are looking for a new home now?*

RS: It would be nice if some day I had a sweetheart again [Stallman's voice breaks a little]. But I couldn't exactly say I am looking for one now.

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[56] Of course, as Stallman explained earlier, the AI Lab didn't die. Indeed, it carried on for many years until, in 2003, it was merged with the Laboratory for Computer Science. http://en.wikipedia.org/wiki/MIT_AI_Lab. What he means is that the community he had been working with, and heavily identified with, dispersed.

Liberator of Cyberspace

RP: *In 1990 you were awarded a MacArthur Fellowship. Is that how you fund yourself?*

RS: Actually that ended in 1995.

RP: *So how do you fund yourself today?*

RS: I get paid for some of my speeches. In addition, when I am travelling in a lot of places people don't let me pay for anything, so life is cheaper. This is sort of amusing and makes me a little bit like a medieval king. Medieval kings had to keep travelling all the time because if they stayed in one place they would burden the people there so much that the people would eventually get mad!

RP: *Is that an adequate way of funding yourself?*

RS: Loads of people invite me to visit them, and if I am there for a few days they are happy to do things like pay for my food, and they pay for me to go there, because otherwise I would go somewhere else instead. And some of them also pay a fee.

RP: *How would you like your contribution to the world to be seen in the future?*

RS: My aim is to be the liberator of cyberspace. That is my public mission.

RP: *Again, this is both about Free Software and about civil rights?*

RS: Absolutely. It is about freedom and human rights.

RP: *The kinds of issues the Electronic Frontier Foundation*[57] *(EFF) fights for?*

RS: In general terms, but the EFF mainly fights to extend already established ideas of human rights to activities done with computers, whereas I say there are new human rights that apply specifically to, first of all, using software, but secondly to using types of information when you have digital technology available. The EFF does not say that software should be free. So I support the EFF in what it does, but I am doing something that the EFF does not support.

RP: *How does the political objective of freedom at the heart of your project fit into the larger political landscape? For a political agenda it seems a very focused, dare I say hermetic, mission?*

RS: Well, it comes from my general political ideals but, yes, it is an issue about one particular area of life.

[57] The Electronic Frontier Foundation (EFF) is a non-profit advocacy and legal organisation based in the United States with the stated purpose of being dedicated to preserving free speech rights such as those protected by the First Amendment to the United States Constitution in the context of today's digital age. Its stated main goal is to educate the press, policymakers and the general public about civil liberties issues related to technology; and to act as a defender of those liberties www.eff.org/

RP: *So your position is that this is the one area in which you can fight, because you know about it?*

RS: Exactly. It was for me always an area where I could fight for freedom by writing software, by doing what I was good at. I focus on this area because, you might say, it is my responsibility because it's in my field of work.

RP: *But how can you have a small isolated piece of freedom in a society in which many other things are working against the freedom envisaged by free software?*

RS: You can't. Fascism, remember, is the convergence of government and business and disrespecting people's freedom. So what they do is prohibit Free Software, and they impose software patents.

RP: *Do you ever hope that your work with Free Software and copyleft might have a broader relevance, and lead to wider social change?*

RS: It has already extended beyond software to other kinds of functional work. But if you wanted to generalise beyond that the only thought I have — and it is hardly an idea original to me — is that the world should not be run according to the interests of business. And there it fuses with other movements.

RP: *You mentioned your general politics. Where do you stand politically?*

RS: I stand for freedom and democracy.

RP: *I guess the gun lobby might say the same thing?*

RS: They would but I don't believe in that particular detail. That is, I don't agree with their particular demands. In general I stand for human rights and democracy.

RP: *And what do you see as the role of the state?*

RS: The role of the state is to protect people and maintain the general well being, which includes a welfare state and it includes preventing any private parties from having so much power that they subvert democracy.

RP: *A social democrat then?*

RS: Very likely. If I lived in Europe I would probably vote Green.[58]

RP: *On your web site[59] you call for a boycott of Caterpillar[60] for selling the bulldozers Israel uses to knock down Palestinian homes.*

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[58] http://en.wikipedia.org/wiki/Worldwide_green_parties
[59] http://www.stallman.org/
[60] Caterpillar Inc. describes itself as "the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines and industrial gas turbines." The company has been a target for activists around the US for a few years now, for selling equipment to the Israeli military, including bulldozers used to knock down Palestinian houses.

RS: That is just one of many things I mention. I list details of battles that I consider to be important causes in order to educate others.

RP: *The Caterpillar one is interesting because you are Jewish, aren't you?*

RS: I am an atheist but of Jewish ancestry.

RP: *And in the context of the Middle East your sympathies lie with the Palestinians?*

RS: I have relatives in Israel and I don't want them to be hurt, and I don't want Israel to be destroyed, but that doesn't mean I am going to endorse vicious measures that trample on the rights of others, and I would say the Israeli State is doing much more evil than the Palestinians are doing. Essentially, living in the Left Bank under occupation is like life in prison; and I am not one of those who would say that absolutely anything is justified to protect us, to the point where questions of right and wrong no longer apply.

RP: *You have also published some short pieces on Iraq. How would you sum up your view on the invasion?*

RS: It is clear that Bush had some reason of his own to attack Iraq, which I suppose has to do with grabbing the oil and enriching his cronies. So we had the fabricated excuse of weapons of mass destruction and we had the fabricated excuse of Iraq working with Al Qaeda, and we had the fabricated excuse of giving Iraq democracy, as if Bush would give anybody democracy. Bush hardly knows what democracy is after he has crushed it.

RP: *So the invasion of Iraq was all bad?*

RS: All bad. By the standards of Nuremberg,[61] Bush is guilty of war crimes. He would have been executed at Nuremberg for this. I do not advocate executing Bush because I am against the death penalty, but I believe he should be kept in prison for the rest of his life.

RP: *Do you ever get any hate email?*

RS: I get occasional angry emails. I got one message a few weeks ago that was so vituperative that I didn't answer it. Most of them I do answer however: there is not that much and most seems to be fairly rational. Generally, they are just confused about a particular point, so I talk to them a bit.

RP: *Thank you for your time.*

[61] The Nuremberg Trials were the sets of trials of officials involved in World War II and the Holocaust during the Nazi regime. The trials were held in the city of Nuremberg, Germany, from 1945 to 1949, at the Nuremberg Palace of Justice.

I would like to acknowledge the help of the Open Society Institute, which provided a small upfront grant to enable me to get started on *The Basement Interviews* Project. Further information about *The Basement Interviews* can be found at the Open and Shut? site.