

Free Software and Open Source Movements: From Digital Rebellion to Aaron Swartz - Responses to Government and Corporate Attempts at Suppression and Enclosure

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The free software and open-source software movements have proven prescient precursors to today's multi-faceted movements against the over-broad privatization of culture and restrictions on expression. Richard Stallman's pivotal decision to lead an organized opposition against the evolving culture and methods of proprietary software paved the way for those with even wider concerns about the stifling effects of copyright and other forms of intellectual property. Today's various movements; including free expression, free culture, free content, open access, and free software; owe some of their momentum to the pioneering software hackers who fought to keep code "open" and defend the rights of users to study, change, modify, and distribute modifications to the works of others.

As we consider the future of democracy in the United States, we need these movements to form a counterpoint to the loud and powerful lobbies of corporate interests. The current state of lopsided influence is clearly evidenced in existing laws that benefit corporate content providers at the expense of citizens, in the continuous expansion of copyright terms, and in proposed international agreements like the Trans-Pacific Partnership (TPP). Before considering current conflicts in these areas, it is instructive to understand the history of opposition movements, beginning with free software.

Software and Shared Code

The Free Software movement began in opposition to the loss of access to software source code, as enforced through copyright. Source code is the human-readable form of the instructions that control computerized devices. "These machines run us. Code runs these machines." says Lawrence Lessig in his Introduction to Richard Stallman's Free Software, Free Society. (R. M. Stallman, Gay, & Lessig, 2009, p. 11) Stallman, credited as the father of the free software movement, describes the sharing of source code as common within the programming community prior to the 1980's. Colleagues could read, change, and re-use one another's work. Open sharing of code was "as old as computers, just as sharing of recipes is as old as cooking." (R. M. Stallman et al., 2009, p. 17) Stallman encountered what he termed the "proprietary-software social system" during the early 1980's. This system denied him the right to view or change the software that operated modern computers of the day, suppressing such use through the legal power of copyright. Proprietary software distribution provides just the executable form of the software, as derived from source code. Anyone can create the executable version from the source; but the reverse is not true. Stallman's response was to directly question the right of software

publishers to restrict code, framing his challenge with the ethical obligation to help others through sharing.(R. M. Stallman et al., 2009)

It is the ethical challenge to nonfree or closed source code that differentiates the free software movement from its progeny, open-source software. In practice, both encompass nearly the same code, as the definitions of free software and open-source software embrace virtually the same software licenses. The latter, however, defines open source not with a moral lens, but as a practical approach to effective software development. “Open source” was coined by strategists to intentionally distinguish it from the “philosophically- and politically-focused label “free software.””(“History of the OSI | Open Source Initiative,” n.d.) Both movements have long wrestled with business models where freely sharing code enables profitable ventures. There are several strategies: provision of consulting services based on freely licensed software; support services for enterprise use of free software; and open core – where value-add extensions are sold, but not as part of the freely licensed core software(Ingersoll, 2016). Despite the commercial success of Redhat and other open-source software businesses, proprietary software development still dominates the market.

The Free Software Foundation’s (FSF) and Open Source Initiative’s (OSI) definitions of their respective terms read very differently, yet the OSI states they are “two terms for the same thing: software released under licenses that guarantee a certain, specific set of freedoms.”(“Frequently Answered Questions | Open Source Initiative,” n.d.)(Open Source Initiative, n.d.)(Free Software Foundation, n.d.) Stallman asserts that they are “almost the same category”, but with fundamentally different values (and exceptions considered open source, but not free). “Open source is a development methodology; free software is a social movement.”(R. Stallman, n.d.-c)

Whether termed free or open-source software, both exist in contrast to proprietary software models. Both are viewed skeptically by some, however, they succeed in providing an avenue for continued collaboration and innovation independent of organizational boundaries. Free and open-source software alternatives for personal and enterprise software are widely available today. As examples, this chapter was written using a Linux-based operating system, on LibreOffice word processor, with Zotero for citation management – the source code for all of this software is freely available online.

Intellectual Property and Societal Benefit

A key argument for the ethical imperative to share is to increase societal benefit. In Stallman’s argument, societal benefit outweighs individual benefit; and we should therefore find ways and means to develop and distribute software that benefits everyone. Essentially, software should become a public

good – a good that is valuable, but “cannot be owned, controlled or provided by a single person”. (Lindberg, 2008, p. 11) There are difficulties with this perspective however, especially relating to the cost of and motivation for development efforts.

In his book Intellectual Property and Open Source, Van Lindberg states that information is a public good that is susceptible to problems with development costs and the value of secrets. An inherent dilemma exists in the opposing costs of knowledge creation and consumption; the former is expensive, the latter is cheap. (Lindberg, 2008, p. 12) New knowledge, information, and creative works are costly to create. Research, analysis, time, artistic expression, and other work are involved in the generative and creative effort. The cost of consuming them are low – once knowledge, information, and creative works exist in some fixed form, today’s replication and distribution technologies make consumption very inexpensive. The creator bears the development cost, but the consumer gets a free ride. The second dilemma with information as a public good is that knowledge is more valuable to the individual when held secretly, whereas shared knowledge is more valuable to society. By releasing secret knowledge, the individual loses value even though society gains. The natural motivation, barring other factors, is therefore to hold knowledge secretly.

The function of intellectual property (IP) law is to allow us to share our secrets while controlling how they are used. Authors and inventors receive exclusive control over their knowledge for a limited period, allowing them to reap benefits. In exchange, they share their works publicly – that is the bargain. “After the limited times decreed by the Constitution and by Congress, the knowledge reverts to its natural state as a public good; the freed knowledge is said to be in the “public domain””. (Lindberg, 2008, pp. 13–14)

The power to restrict software use is primarily embodied in copyright law, though patent and trademark law also factor. Collectively; copyright, patent, trademark and trade secret laws are commonly referred to as intellectual property. Maximalist perspectives treat IP as foundational to our economy, and to our rights and identities as creators. Minimalists may view IP as a self-contradiction, holding that knowledge can not be owned, or that IP unduly restricts creative expression. (Lindberg, 2008, p. 2) Opinions on the validity, utility and desirability of IP, especially copyrights and patents, vary to extremes. The term “intellectual property” itself is charged. As an umbrella term, IP encompasses separate and distinct concepts (copyright, patents, trademarks, and trade secrets) that have distinct legal treatments and histories. The FSF notes “intellectual property” under “Words to Avoid Because They are Loaded or Confusing”. (GNU Project, n.d.-b)

Copyright is a monopoly on the right to copy, distribute and adapt a work within a legal jurisdiction, assigned to the creator of an original work. In the United States, the Constitution itself

grants congress the power “to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”(United States Constitution, Article 1, Section 8, n.d.) Copyright is a federal law, embodied in Title 17 of the United States Code, interpreted by the Federal courts. The term of U.S. copyright protections has been expanded several times through congressional acts - a pattern of concern for public domain advocates and IP minimalists. Computer code, as a form of personal expression, is subject to copyright law and its monopoly terms.(Lindberg, 2008, p. 71)

Copyright is built upon the notion that securing a monopoly for authors will promote the progress of science and useful arts. But what happens when copyright interferes with such progress? If learning from and building upon others’ code is essential, or simply more valuable to progress than are monopoly rights as incentive for creating code; then copyright restrictions are something to overcome rather than embrace. From the FSF’s perspective, it’s also an ethical imperative.

Digital Rebellion with Software Licenses

The GNU Project was Stallman’s seminal act of digital rebellion. The effort was to build a free software replacement for the nonfree Unix operating system, and in 1985 he invited the world to participate by issuing the GNU Manifesto.(R. Stallman, n.d.-b) Stallman asserts that “software should not have owners,” yet the system of copyright confers ownership, allowing programmers to withhold the software’s benefit from the rest of the public.(R. M. Stallman et al., 2009, p. 47) He offers several arguments as to why copyright on software is inappropriate, centering on the fact that digital technology makes copying and sharing nearly cost-free and effortless. He argues that the law is not an unquestionable view of morality; that there are no natural rights to control what one creates; and that abolishing software ownership would not stifle development of the software our society really needs. (R. M. Stallman et al., 2009, pp. 48–51) GNU was to be such software - a computer operating system that could run Unix programs; but allow the programming community to make improvements, maintain “solidarity with other users”, and to give GNU away.(R. Stallman, n.d.-b) The vision was to eliminate proprietary software.

Proprietary software’s reliance on copyright inspired another digital rebellion that turns copyright on its head. Stallman’s solution to overcoming copyright was “copyleft”. Any free software license guarantees users the freedoms to use, study, copy and share, modify and distribute derivative works. Copyleft licenses additionally dictate that all modified and extended versions be free as well. (“What is Copyleft?,” n.d.) Stallman adopted the phrase “all rights reversed” to describe the concept. (DiBona & Ockman, 1999, p. 59) His implementation is the GNU General Public License, or GPL.

(“GNU General Public License,” n.d.) The GPL was updated in 1991 and again in 2007 to combat new and emerging legal threats to copyleft (software patents and hardware restrictions on free software). Now in version 3, GPL accounts for 30% or more of all open source projects today.(Wilson, n.d.)

While software published under the GPL has proven popular and successful, copyleft has seen its share of criticism. At times pejoratively termed a “viral license”, it has been criticized as posing a threat to the intellectual property of any organization making use of it.(“Speech Transcript – Craig Mundie, The New York University Stern School of Business | News Center,” 2001) Stallman’s vision of a restrictions-free operating system was first realized when GNU software was combined with Linus Torvald’s Linux kernel in 1991. Originally under a license that forbade commercial use, the Linux kernel v0.12 embraced copyleft(“Linus Torvalds Interview,” 2007; Torvalds, 1992) when Torvalds initiated a switch from his original license to the GNU GPL(Torvalds, 1992). GNU, in combination with the Linux kernel, provided a complete free software operating system.(GNU Project, n.d.-a)

Linux-based operating systems (Linux) have since become widespread; especially in server, supercomputer, and mobile computing. Linux systems serve the majority of websites worldwide(W3Techs, 2016); run nearly all existing supercomputers; and Android, a Linux-based system, is estimated at nearly 2/3 of mobile computing market share today.(“Operating system market share,” n.d.) Former Microsoft CEO Steve Ballmer once remarked that “Linux is a cancer that attaches itself in an intellectual property sense to everything it touches. That’s the way that the license works.”(“Microsoft CEO takes launch break with the Sun-Times,” 2001) Stallman chose to describe the GPL as a spider plant which “goes to another place if you actively take a cutting.”(Williams, 2002) Despite its relatively small use in desktop computing, the massive worldwide use of Linux makes it a runaway success story for copyleft.

Where copyright provides a monopoly on a creator’s expression of an idea, patents provide a monopoly on the idea itself. They are time-limited monopolies on inventions or technological developments that must be “useful”, “novel”, and “non-obvious”. Unlike copyright, patents must be approved through an application process that requires full disclosure of the idea and describes the best way to implement it.(Lindberg, 2008) A relatively recent phenomenon in the United States, software was considered un-patentable prior to a 1981 Supreme Court ruling, *Diamond v Dierh*. This ruling established that software innovations could be patented within “broader patenting of larger, more specific processes”. A 1994 Federal Circuit decision, *In re Alappat* held that programming creates a “new machine” by changing a general purpose computer into a special purpose computer – further strengthening the status of software patents.(Layne-Farrar & Evans, 2004) Throughout the 1990s,

patent law continued to evolve in favor of software patents; increasingly becoming a threat to free and open-source software.

There are many arguments against software patents. The End Software Patents campaign curates a list of reasons for abolishment. Open source advocates claim that the U.S. Patent and Trademark Office has allowed obvious, trivial patents; that patents hinder the standards setting process; and that patents hamper the innovation process in software development.(Layne-Farrar & Evans, 2004) When small pieces of software that are adaptable to many applications are patented, it is increasingly likely that each program will infringe someone's patent.(Bessen & Hunt, 2004) How can any programmer hope to know whether code they write on any given day infringes on one of the hundreds of thousands(R. Stallman, 2002) of U.S. software patents (let alone patent applications that may be approved and are yet unpublished)? "In software, it's easy to implement thousands of ideas together in one program: If 10 percent are patented, that means hundreds of patents threaten it."(R. Stallman, n.d.-a) And in what circumstances would a software developer intentionally search existing patents for a means to implement functionality in software (expecting, therefore, to seek license terms with the patent owner for the right to implement that functionality)? The threat of patent litigation, rather than encouraging innovation, frequently has the opposite effect in software development.

Stallman has been an outspoken opponent of software patents, stating "All software developers are threatened by software patents and even software users are threatened by software patents."(R. Stallman, 2002) The third iteration of GPL was introduced, in part, to provide stronger protection against patent threats. When a programmer conveys software that they've written or modified under GPLv3, they must "provide every recipient with any patent licenses necessary to exercise the rights that the GPL gives them." "If any licensee tries to use a patent suit to stop another user from exercising those rights, their license will be terminated."(Smith, n.d.)

Software patents present a complex, difficult problem to free and open-source software developers; both legally and practically. The existence of thousands of software patents makes retroactive invalidation unlikely. One simple idea is to legislatively limit the effect of infringement by software rather than invalidating patent-ability. Stallman advocates that "We should legislate that developing, distributing, or running a program on generally used computing hardware does not constitute patent infringement."(R. Stallman, n.d.-a)

Cultural Rebellion with Content Licenses

While software could be developed under free or open source licenses, other types of expression lacked structures to overcome the stifling effects of copyright. Culture is the accumulation

of human intellectual achievement and expression, software included. Our culture “consists *entirely* of shared copyrightable expression.”(Lindberg, 2008, p. 73) If our expressions of art, discovery, and ideation build upon others’ expressions; how then do we generate new knowledge without continuously tripping over someone else’s copyrights?

The public domain, or cultural commons, is that body of content in which copyright has expired or been deliberately relinquished by creators. The public domain is considered by many as a critical springboard from which to inspire and derive new works.. “Our art, our culture, our science depend on this public domain,” writes James Boyle, Duke Law professor.(Boynton, 2004) The expiration, or deliberate revocation, of a copyright places the protected work into the public domain where it is available for others to use, modify, and distribute without restrictions.

The framers of our constitution specified “securing for limited times” the rights of authors. At what point does the span of that limited time period become, for purposes of derivative works, counterproductive to societal benefit? A series of congressional acts has now extended the period of copyright protections to what many consider counterproductive terms. The first federal copyright act, the Copyright Act of 1790, granted protections for 14 years, with the right to renew for another 14 should the copyright holder still be alive. Under current law, works created on or after January 1, 1978 are protected for the life of the author plus 70 years; or where the work was made for hire (ie corporate ownership), copyright duration is the shorter of 95 years from publication or 120 years from creation. (U.S. Copyright Office, n.d., p. 5) Clearly, the term of copyright protection has dramatically shifted, consequently impacting the scope and content of the public domain.

A protest movement has formed, opposing the continuous expansion of copyright; the resulting reduction of the public domain; and the consequential hindrance to free experimentation and expression based on others’ ideas. "The notion that intellectual property rights should never expire, and works never enter the public domain -- this is the truly fanatical and unconstitutional position," says Jonathan Zittrain, a co-founder of the Berkman Center for Internet and Society at Harvard Law School.(Boynton, 2004) Termed the “free culture movement” by Lawrence Lessig, Stanford Law professor; the reformers of this movement have taken action to protect the erosion of the public domain. They fear the continuous expansion of copyright and concomitant erosions of our rights to access and use cultural works.

An initial rebellion in free culture occurred at the same time the Open Source Initiative was formed. The Open Content Project, started by David Wiley in 1998, advocated an OpenContent License (OPL) for other forms of content beyond software.(“OpenContent License,” 1998) The project specifically cited Stallman’s GNU Manifesto as inspiration. The OPL was “created to provide

instructional designers and content specialists the same benefits, protections and assurances programmers gain from Free Software licenses.” (“OpenContent - Frequently Asked Questions,” 1999) The project cited “learning objects” such as graphics, images, sound, video, models, lecture notes, tutorials, and anything else “referenced during technology supported learning” as example material for OPL coverage. The term “open content” has evolved since the original OPL and now includes many content types with varying degrees of “openness”. The OpenContent website now offers a 5Rs framework to assess the extent to which content is open. The five “R’s refer to the right to retain, reuse, revise, remix, and redistribute content created by others.(Wiley, n.d.)

Established in 2001, Creative Commons succeeded the Open Content Project. It released its first set of copyright licenses in 2002 – inspired in part by the FSF’s GPL. Creative Commons licenses help creators license works freely for certain uses, on certain conditions; or dedicate works to the public domain. There are over a billion “CC-licensed” works today, hosted on content platforms that include flickr, Wikipedia, vimeo, and YouTube.(“Creative Commons Platforms,” n.d.) The organization now host projects in open access (scholarly works), open educational resources (teaching, learning and research materials), and open science (data) among others.

Additionally, a Free Cultural Works project was started in 2006 by Erik Möller and Benjamin Mako Hill. This project defined the term “free content” or “free cultural work” similar to the terms used in the Free Software Definition. Free cultural works use an approved Free Culture license, or are in the public domain.(“Definition of Free Cultural Works,” n.d.) Notably, they must allow for commercial use. Creative Commons Attribution, Attribution-ShareAlike, and CC0 Public Domain Dedication licenses qualify as Free Culture licenses, and are promoted by Creative Commons with a Free Cultural Works logo. All three allow for commercial uses of the licensed work.

The Open Access Movement

While content licenses provide one approach to broadening the available commons for creative inspiration, remix, and derivative works; the traditional process of publishing scholarly works (primarily books and journals) left most research-based and peer-reviewed material subject to publisher-imposed fees and access restrictions. Internet technologies, however, had changed the scope and capabilities of the publishing process and opened the way to new distribution methods. The open access (OA) movement began to take off around 2000, as scholars began exploring alternative means of making scholarship available. The movement is concerned with making peer-reviewed research literature freely available online to all those able to access the Internet. While some regard it as a

movement, it also represents alternate economic, distribution, marketing and promotion models.(Hall, n.d., p. 36)

The Budapest Open Access Initiative, an early advocate, authored the most influential definition of open access as literature characterized by: “free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself.”(“Budapest Open Access Initiative | Read the Budapest Open Access Initiative,” n.d.) A subsequent definition, the Bethesda Statement on Open Access Publishing, further requires copyright owners to grant “free, irrevocable, worldwide, perpetual” rights, which include making derivative works.(“Bethesda Statement on Open Access Publishing,” 2003) Creative Commons Attribution and a variety of other licenses may be used to satisfy this definition.(Charles W. Bailey, 2007; Liang, n.d.) Peter Suber, Director of Harvard Open Access Project, defines open-access literature simply as “digital, online, free of charge, and free of most copyright and licensing restrictions”.(Peter Suber, 2007)

The case for open access to literature can be made on economic, cooperative, political or moral grounds. Open access benefits teachers, researchers, students, and the public who have interests in the content. It also increases the presence and impact of published works while adding little to the publishing costs.(Willinsky, 2006) Advocacy for OA has stemmed from many sources, including the international Right to Research Coalition, comprised of diverse student organizations. Recent research suggests that OA has entered the mainstream of scholarly communication, and in fact may represent the majority of papers published in many fields (general science and technology, biomedical, biology, mathematics and statistics). However, it is at times greeted with skepticism by researchers who are used to the traditional methods of journal publication, especially where quality control, particularly rigorous peer review might be questioned.(Pinfield, 2015)

A primary argument for OA is that research generated using public funds ought to be made publicly available, without fees or financial hurdles for access. Over the past several years, an increasing number of policy mandates have been introduced, especially in universities and research institutions, which have made significant contribution to the uptake of OA. The Registry of Open Access Repository Mandates and Policies (ROARMAP) is an international registry that charts the growth of policies requiring (or requesting) researchers to provide open access to their peer-reviewed articles. Nearly 800 such policies are registered at this time, showing significant growth since tracking began in 2005 when 132 policies were recorded.(“Welcome to ROARMAP - ROARMAP,” n.d.)

Freedom of Information and Freedom of Expression

While open access literature focuses on the unrestricted distribution of scholarly works, the related Freedom of Information movement centers on the public's right to access information of all types – especially focusing on governmental transparency and the avoidance of censorship and surveillance. The term “Freedom of information” once was specific to government policies regulating access to state-held data, but is gaining a “radical” new definition in online spaces. It is now also used to describe the protection of freedom of speech as applied to both content and means of expression. (Beyer, 2014, p. 141) It thereby encompasses a movement for freedom of expression, which resists attempts to control communications. Freedom of expression is a right recognized under the Universal Declaration of Human Rights, adopted by the United Nations in 1948. Article 19 states that “Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.” (“The Universal Declaration of Human Rights | United Nations,” n.d.) Both freedom of expression and freedom of information are commonly cited democratic ideals, upholding the values of open debate and discussion. The right to communications privacy, protection from surveillance, opposition to censorship, and opposition to expansion of intellectual property protections are hallmarks of these movements. Amnesty International, for example, asserts that governmental surveillance activities are targeted based on peoples beliefs, especially toward activists and protesters; the results of which may be violations of privacy, and free expression rights. (“Freedom of Expression,” n.d.) In online communities, the idea of freedom of information is founded on the argument that communication in any form should not be restricted. (Beyer, 2014, p. 141)

Communications privacy through the Internet relies upon anonymity, which typically requires the use of encryption. Encryption software is instrumental to our ability to communicate without surveillance and avoiding censorship in various forms. Hence, encryption, and the right to use it, are key elements for the Freedom of Information movement. Formerly regulated on the U.S. munitions list (Center, n.d.), cryptographic technologies are used in secure communications (such as PGP), secure connections between computer networks (such as SSL), anonymous Internet use (such as the Tor network) and many forms of securing data against unauthorized access (such as TrueCrypt and VeraCrypt, its successor project).

Advocates for both intellectual property reform and Freedom of Information share concern over the control of communications media. Both legislation and access control technologies are used to control data access and transmission. The Digital Millennium Copyright Act of 1998 (DMCA), for

example, criminalizes the act of circumventing access controls on copyrighted works – regardless of any actual infringement of copyright. These controls, known as digital rights management or digital restrictions management, depending on your perspective (“What is DRM? | Digital Restrictions Management,” n.d.); are commonly known as DRM. Opponents of DRM, including the FSF (“DRM Frequently Asked Questions | Defective by Design,” n.d.), cite a litany of harms occurring from such restriction; including interference with users’ legal rights such as making backups, converting formats, uses protected by fair use doctrine, and DRM’s innate ability to cede device control to an external party. The criminalization of technology, devices, or services intended to circumvent DRM seems a clear case of legislative overreach benefiting only those companies that license and distribute copyrighted content. This occurs at the expense of users. Criminalizing specific technology, in the name of IP protection, is conflated with defining and enforcing legal use of content.

The Electronic Freedom Foundation (EFF), founded in 1990, is a nonprofit organization, opposing governmental and business threats to “our right to communicate”. (“A History of Protecting Freedom Where Law and Technology Collide,” 2011) It opposes DRM. The EFF has been instrumental in establishing that governmental seizure of electronic communications requires a warrant. It obtained a ruling that software code is speech protected by the First Amendment, which resulted in the right to publish encryption software without governmental permission. In addition to supporting our rights to communicate privately, the EFF clearly expresses that intellectual property ownership is at odds with “the right to think and speak freely”. (“A History of Protecting Freedom Where Law and Technology Collide,” 2011)

The Pirate Parties are another advocate for user control over communications; a rebellion against the status quo using existing political processes. Founded to advocate for the revision of current intellectual property regimes, (Beyer, 2014, p. 144) Pirate Parties International (PPI) is a non-profit, non-governmental organization formed in 2010 serving to organize worldwide Pirate Parties, which are political incarnations achieving their goals through established political system as opposed to activism. It currently represents 43 countries including the United States Pirate Party. PPI advocates for “protection of human rights and fundamental freedoms in the digital age, consumer and authors rights-oriented reform of copyright and related rights, support for information privacy, transparency and free access to information.” (“ABOUT PPI | Pirate Parties International,” n.d.)

The US Pirate Party’s platform includes the reduction of copyrights to 14 years and the expiration of patents that don’t result in significant progress within four years. (Downie, 2011) The party’s Frequently Asked Questions page states that “We affirm that current copyright law is not good for the public or for creative professionals, and only actually benefits a small minority of corporate

executives. We support reforms to copyright law which legalize the freedom to share, while more effectively helping creative professionals make a living.”(“FAQ | United States Pirate Party,” n.d.) Governmental transparency, protection of privacy, and civil liberties are also priorities.(“About | United States Pirate Party,” n.d.) The Pirate Parties are political incarnations of the freedom of expression movement, using established political systems, as opposed to activism, to achieve their goals.

The Aaron Swartz Case

Aaron Swartz (1986 - 2013) was an American programmer, activist and political organizer. He committed suicide at age 26 while under federal indictment for alleged computer crimes.(Gustin, n.d.) Swartz was regarded as a gifted coder, involved in the interpretation and development of both legal and programming code. As legal code alternatively protects, restricts, and incubates computing code; his tragedy represents the loss of one who could authoritatively influence the development of both. Aaron’s case illustrates the confluence of various IP backlash movements and serves as a cautionary tale against a future with unconstrained manipulation of the legal system by entrenched interests.

A computing expert from an early age, Swartz was involved in programming several notable open-source software projects – several of which are aligned with the interests of the Freedom of Information Movement. He was a major contributor to the Markdown markup language (for generating HTML code)(“Markdown (Aaron Swartz: The Weblog),” n.d.). He co-wrote DeadDrop, an open-source software platform for secure, anonymous communications between journalists and whistleblowers (now called Securedrop)(Kassner, 2013). Swartz also co-designed Tor2web, which provides access to the Tor network from a basic web browser(Katie Dean Email, 2000).

In 2010, Swartz co-founded Demand Progress, an advocacy group now boasting more than two million members. Demand Progress focuses on free expression and privacy, open government, and money-in-politics reform. It helped defeat the Stop Online Piracy Act (SOPA), an Internet censorship bill. It also lead efforts to block Cyber Intelligence Sharing and Protection Act (CISPA), an online surveillance bill.(“About Demand Progress,” n.d.)

A fierce advocate for open access and freedom of information, Swartz developed software to address conditions he viewed as unfair. In 2008, he worked with Carl Malamud of Public.Resource.Org to download and publish federal court documents (motions, legal briefs, scheduling orders, etc.) that were otherwise accessible only through the Administrative Office of the United States Courts’ PACER (Public Access to Court Electronic Records) paywall. PACER requires payment for access to public records of the court system, which Swartz and others considered an injustice. Federal court documents are not subject to copyright.(Lee, 2013) After publishing 2.7 million documents, the library access

system leveraged by Swartz was shut down and he was investigated by the FBI. In this case, no charges were filed.

Swartz was also angered by the idea that, in accepted publication practices, publishing firms charged fees to access the academic papers produced by taxpayer-funded scientific research. In 2008, he co-wrote the Guerrilla Open Access Manifesto, which calls for activists to “liberate” information locked up by publishers by sharing it. His manifesto states that those with access to knowledge resources have a moral obligation to share those resources to the rest of the world. It labels restricted access to information as “private theft of public culture”, and calls out corporate greed and politicians who are “bought off” to pass laws granting exclusive copy rights. Moreover, it encourages civil disobedience, including publishing “secret databases” and scientific journals online. Such content, of course, is protected by copyright.(Swartz, 2008)

In 2011, Swartz was arrested on breaking-and-entering charges after connecting a computer to the MIT network in an unmarked closet and downloading academic journals systematically from JSTOR using a guest account issued to him by MIT. Federal prosecutors then charged him with wire fraud and violations of the 1986 Computer Fraud and Abuse Act (CFAA), carrying cumulative maximum penalties of 35 years in prison and \$1 million in fines. Swartz declined a plea bargain that called for six months in federal prison, and the prosecution rejected his counter offer.(Naughton, 2015) He hanged himself while under federal indictment.

After his suicide, a bill dubbed “Aaron’s Law Act of 2013” was introduced to reform the CFAA, but it was not enacted. CFAA has been criticized as outdated and prone to overzealous prosecution for non-malicious computing offenses. The Electronic Frontier Foundation cites continued misuses of the CFAA across the country.(Cohn, 2015) Senator Ron Wyden, sponsor of a 2015 re-introduction of Aaron’s Law, stated “The CFAA is so inconsistently and capriciously applied it results in misguided, heavy-handed prosecution. Aaron’s Law would curb this abuse while still preserving the tools needed to prosecute malicious attacks.”(“Wyden, Lofgren, Paul Introduce Bipartisan, Bicameral Aaron’s Law to Reform Abused Computer Fraud and Abuse Act | Senator Ron Wyden,” n.d.)

Today: Corporate Influences Challenge Our Freedoms

Undaunted by public outcry or grassroots opposition, corporate pressure to expand and enforce IP restrictions continues. Driven by the influence of political donations and by armies of lobbyists, corporate agendas frequently stand at odds with public interests. These agendas include harmful efforts such as continuous expansion of copyright duration, criminalization of DRM circumvention, and legal

obstacles to policies that require source code disclosure. When public interests are muted by the influence of corporate political contributions and lobbying, democracy fails us.

The Center for Responsive Politics produces and disseminates data on money in politics to “champion transparency, and expose disproportionate or undue influence on public policy.” (NW, Washington, & fax857-7809, n.d.) The Center tracks data on lobbying, lobbyists, political donations, and the political action committees (PACs) that control “the most corporate of money.” (“Influence & Lobbying | OpenSecrets,” n.d.) The official figures based on data from the Senate Office of Public Records show that 11,143 registered lobbyists spend \$3.12 Billion dollars in 2016. (“Lobbying | OpenSecrets,” n.d.) However, The research of James Thurber of American University suggests that the true number of working lobbyists is closer to 100,000. (“Where Have All the Lobbyists Gone? | The Nation,” n.d.) Legal loopholes, poor enforcement, faux-grassroots campaigns, and an Obama administration executive order disincentivizing registration have combined to produce “near-total collapse” of the system designed to monitor federal lobbying. In short, federal lobbying has gone underground and continued to grow. (“Where Have All the Lobbyists Gone? | The Nation,” n.d.) The interests of the public must certainly suffer under the influence of such well-funded and omnipresent lobbying efforts by special interest groups.

The 2010 Supreme Court case, *Citizens United v. Federal Election Commission* (*Citizens United*), opened a floodgate of corporate influence by removing campaign contribution limits for nonprofits, corporations, and other associations. (“How Citizens United Has Changed Politics in 5 Years,” n.d.) *Citizens United* struck down earlier prohibitions against using corporate funds for advocacy and electioneering communications. (Allman, 2010) “Thanks to *Citizens United*, supporters can make the maximum \$5,200 donation directly to a candidate, then make unlimited contributions to single-candidate super PACs.” (“How Citizens United Has Changed Politics in 5 Years,” n.d.) Corporations, are permitted to sponsor political action committees, directly influencing federal elections. (Jacobs, 14, & 2012, n.d.) With such unrestricted political influence, *Citizens United* creates near certainty that corporate interests will be heard over those of public citizens.

Several trade agreements considered by the U.S. government have exemplified U.S. corporate perspectives, and attempted to spread them to the international sphere. The Trans-Pacific Partnership (Trade, n.d.) was a controversial pact between twelve countries: the U.S., Japan, Malaysia, Vietnam, Singapore, Brunei, Australia, New Zealand, Canada, Mexico, Chile and Peru. The signatories intended to eliminate or reduce tariffs and restrictive policies on goods, while cooperating on issues such as employment practices, competition policies and treatment of IP. (“TPP,” 2016) Negotiated as

one of President Obama's initiatives, the U.S. withdrew from the negotiating process as President Trump's first executive order.(CNN, n.d.)

While its goals may have seemed supportable on the surface; core aspects of the TPP represented the antithesis of ideals held by the free software, free culture, and freedom of expression movements. Of significant concern is the secrecy in which the TPP was negotiated. Negotiations took place behind closed doors from 2010 until the release of the TPP text in 2015. However, corporate lobbyists had ready access to the draft text and dedicated massive lobbying resources to influence the TPP's copyright rules.("A New Infographic on TPP and Your Digital Rights," 2016) The public was kept in the dark. Even members of Congress were only allowed to view select portions, under supervision.(Hern & Rushe, 2013) WikiLeaks released a leaked draft of the IP chapter in 2013, stating that the US was attempting to enforce its highly restrictive vision of IP on the world. Ironically, the TPP's stated purposes include enhancing innovation and promoting transparency and good governance("Summary of the Trans-Pacific Partnership Agreement," n.d.).

The TPP would have created digital policies that benefit corporations at the expense of the public. Chapter 18 of the TPP requires signatories to impose penalties for copyright infringement, including imprisonment and fines sufficient to deter future acts of infringement. It stipulates that the length of copyright protections will be 70 years after the death of the creator(Trade, n.d., pp. 18–34) – pushing extended copyright terms to countries beyond the U.S. TPP also makes circumvention of DRM punishable by civil and/or criminal penalties (articles 18.68 and 18.74)(Trade, n.d., pp. 18–36), compelling DMCA-like restrictions in partner countries and treating circumvention as an separate offense from infringement.

The Recording Industry Association of America (RIAA) reported \$4,392,911 on 2016 lobbying expenditures, and made \$168,454 in political contributions.("Lobbying | OpenSecrets," n.d.) The Motion Picture Association of America (MPAA) reported \$2,580,000 in lobbying and \$239,573 in political contributions.("Lobbying | OpenSecrets," n.d.) Both organizations are representative of powerful industry lobbies, and both were vocally supportive of the copyright and DRM terms represented by the TPP.

These extensions of US-like copyright and DRM policies met with condemnation from EFF(Electronic Frontier Foundation, n.d.), FSF(Donald Robertson, n.d.), and other activists. Evan Greer, of Fight for the Future (FFF) said "While claiming to champion an open Internet, the Obama administration is quietly pushing for extreme, SOPA-like copyright policies that benefit Hollywood and giant pharmaceutical companies at the expense of our most basic rights to freedom of expression online."(Hern & Rushe, 2013) Julian Assange, founder and editor-in-chief of WikiLeaks, stated "'the

TPP's intellectual property regime would trample over individual rights and free expression, as well as ride roughshod over the intellectual and creative commons. If you read, write, publish, think, listen, dance, sing or invent; if you farm or consume food; if you're ill now or might one day be ill, the TPP has you in its crosshairs."(Hern & Rushe, 2013)

TPP also represented a lost opportunity for debate and progressive reform in IP treatment. It did nothing to address patenting in software – a failure to address one of the great threats to free software development and technological innovation. TPP would have outlawed a country from adopting rules for software sales that include mandatory code review or release of source code – prohibiting open source mandates(Electronic Frontier Foundation, n.d.) that might leverage governmental spending to create greater value for citizens.

The Transatlantic Trade and Investment Partnership (TTIP), a separate international treaty, is also being negotiated in secret. TTIP is a multi-trillion dollar treaty between the U.S. and European Union that remains closely guarded by the negotiators, though big corporations are given special access to its terms. It also contains terms that provide for policing the Internet on behalf of the content industry.(“WikiLeaks - Transatlantic Trade and Investment Partnership,” 2016)

The closed-door negotiations, direct influence by lobbyists, and lack of scrutiny by legitimate dissenting interests make TPP and TTIP's demonstrative cases of political corruption. The process and content of the TPP fly in the face of democratic values such as open debate, transparency, and elected representation. The TPP effectively entrenched the interests of Hollywood and big media, extending the United States' controversial copyright and anti-circumvention treatments to eleven other nations. When lobbyists gain such direct access and influence over international agreements outside the public view, it is an indictment of a political system that has lost its way; prioritizing economic benefits of the powerful over the best interests of the people.

Summation and Moving Forward

The impacts of over-broad IP restrictions on individual's computing, communications, and information sharing activities are being felt everywhere. The ideals of unrestricted collaboration and free expression originating in the free software movement are articulated and sought by activists in academia, research, creative enterprise, and a variety of free speech advocates. Standing in opposition, are business and governmental interests seeking not just to control information ownership, but the means to restrict access through measures such as closed source code, IP monopoly, encryption, and digital rights management.

While “radical” idealists may be criticized for opposing intellectual property in both concept and statute, many activist responses actually rely on it. Creative Commons and open-source software licenses rely on copyright to achieve their ends; they do not seek to abolish copyright (or patents for that matter), but to balance private interests with public good. Both activists and IP stalwarts claim to desire incentives for innovation and creative effort, protecting creators while benefiting society. A core issue is balancing public good against private interest in establishing reasonable standards and periods of protection.

There are issues and actions that must to be debated – not by lobbyists and lawmakers behind closed doors, but by all of us who care deeply about preserving a free and democratic society in the digital age. And legislative actions must follow. A prescription for action might include:

First, revise the Computer Fraud and Abuse Act. With its disproportionate penalties, ambiguous terminology, and prosecutorial overreach; it requires revisions to focus on malicious activity and prevent abuse. Aaron’s Law needs to be enacted.

Second, our money-in-politics problem requires decisive action. In deciding Citizens United, the Court relied on a theory of corporate personhood which sees the existence of human beings and corporations as legally and factually indistinguishable. This stance is flawed for several reasons, not the least of which is its inconsistency with the meaning and purpose of the U.S. Constitution.(Allman, 2010) A constitutional amendment repudiating corporate personhood should be broadly discussed and implementation considered. Thoughtful and unconventional solutions to campaign finance reform (such as universally anonymous donations) need to be considered. Without addressing this issue, the wealth and power of corporations will continue to drown out the voices of those opposing their special interests.

Third, negotiate a return to sensible copyright terms. Protect the public domain and protect our right to ideate and create freely by reducing the monocacy of copyright to terms that enable creators to monetize their work without locking it away for generations. A publicly palatable solution exists between the Pirate Party’s 14-year ideal and the 120-year maximum under current law.

Fourth, eliminate the deleterious effects of patents on software development by legislating that developing, distributing, or running a program on generally used computing hardware does not constitute patent infringement. As Stallman points out, there may be precedent for this approach in the legal protections afforded surgeons from patented surgical procedures; and it fixes the effect on software innovation without tinkering with the patent system itself(R. Stallman, n.d.-a).

Fifth, revoke the Digital Millenium Copyright Act. De-criminalize DRM circumvention, protecting our right to control the devices we own.

Sixth, support the FSF, EFF, FFF and other organizations that seek to make the voices and interests of citizens heard over the din of corporate money.

Finally, consider open-source software mandates for publicly funded institutions. Where effective solutions exist or where such solutions can be developed through minimal effort, the cost savings and societal benefits to bolstering open source use is in the public interest. Such efforts exist, but require both public support and defense against the powerful voice of corporations that stand in their way.

Clearly, controversy surrounds the appropriate scope, strength, and benefit of copyright and other intellectual property law. The agendas of politically powerful corporate interests, however can be countered by grassroots online activism. Protests, whether through social movements (free software, free culture), alternative processes (open source, open access), civil disobedience, or use of established political processes (Pirate Parties), can shape the discussion into a more balanced dialogue.

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