

Before the
U.S. COPYRIGHT OFFICE
LIBRARY OF CONGRESS

**In the matter of exemption to prohibition on circumvention
of copyright protection systems for access control technologies**

Docket No. RM 2011-07

Comments of the Electronic Frontier Foundation

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Pursuant to the Notice of Inquiry of Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies² (“NOI”), the Electronic Frontier Foundation (EFF) submits the following comments and respectfully asks the Librarian of Congress to exempt the following classes of works from 17 U.S.C. § 1201(a)(1)’s prohibition on the circumvention of access control technologies for the period 2012-2015:

Proposed Class #1: Computer programs that enable wireless telephone handsets (“smartphones”) and tablets to execute lawfully obtained software applications, where circumvention is undertaken for the purpose of enabling interoperability of such applications with computer programs on the handset or tablet.

Proposed Class #2: Computer programs that enable lawfully acquired video game consoles to execute lawfully acquired software applications, where circumvention is undertaken for the purpose of enabling interoperability of such applications with computer programs on the gaming console.

Proposed Class #3: Audiovisual works on DVDs that are lawfully made and acquired and that are protected by the Content Scrambling System, where circumvention is undertaken for the

¹ These comments were written with the assistance of law students Chris Civil, Jared Friend, Heather Patterson, and Tim Hwang in the Samuelson Law, Technology & Public Policy Clinic under the supervision of Clinic Director Jason Schultz. We also thank Professor Rebecca Tushnet, Professor Francesca Coppa, and Rachael Vaughn for their invaluable help.

² 76 Fed. Reg. 60398 (Sept. 29, 2011).

purpose of extracting clips for inclusion in primarily noncommercial videos that do not infringe copyright, and the person engaging in the circumvention believes and has reasonable grounds for believing that circumvention is necessary to fulfill the purpose of the use.

Proposed Class #4: Audiovisual works that are lawfully made and acquired via online distribution services, where circumvention is undertaken for the purpose of extracting clips for inclusion in primarily noncommercial videos that do not infringe copyright, and the person engaging in the circumvention believes and has reasonable grounds for believing that circumvention is necessary to fulfill the purpose of the use, and the works in question are not readily available on DVD.

I. The Commenting Party

The Electronic Frontier Foundation (EFF) is a member-supported, nonprofit public interest organization devoted to maintaining the traditional balance that copyright law strikes between the interests of copyright owners and the interests of the public. Founded in 1990, EFF represents thousands of dues-paying members, including consumers, hobbyists, computer programmers, entrepreneurs, students, teachers, and researchers, who are united in their reliance on a balanced copyright system that ensures adequate protection for copyright owners while facilitating innovation and broad access to information in the digital age.

In filing these comments, EFF represents the interests of the many U.S. citizens who have “jailbroken” their cellular phone handsets, tablets, and video game consoles—or would like to do so—to use lawfully obtained software of their own choosing, as well as the tens of thousands of noncommercial remix video creators who have or would like to include clips from audiovisual works on DVDs and Internet-based sources in their work.

II. Proposed Class #1: Circumvention Necessary for “Jailbreaking” Smartphones and Tablets

Proposed Class: Computer programs that enable smartphones and tablets to execute lawfully obtained software applications, where circumvention is undertaken for the purpose of enabling interoperability of such applications with computer programs on the smartphone or tablet.

A. Summary

Over the past three years, smartphones and tablets have become some of the most popular consumer electronic devices in the world. Unfortunately, manufacturers continue to impose firmware-based technological restrictions that hamper the development and use of independently created software applications that have not been approved by the device or operating system (“OS”) maker. These restrictions harm competition, consumer choice, and innovation. In response, an active community of innovators has continued to develop methods to bypass these constraints, giving consumers the freedom to modify and enhance their devices through lawfully acquired applications. Their creative efforts have in turn spawned a vibrant alternative marketplace that serves consumers and application creators alike. These innovations also benefit the manufacturers themselves, which continue to adopt many unauthorized innovations into the official versions of their products.

Courts have long recognized that modifying device-operating software to permit interoperability

with independently created software is a non-infringing use. Consequently, there is no copyright-related rationale for imposing legal liability on those who circumvent the technological protection measures that prevent access to the firmware on smartphones and tablet devices. In the 2009 rulemaking proceeding, the Register of Copyrights recognized that the § 1201 circumvention ban was established to foster the availability of copyrighted works in the digital environment, and agreed that the prohibition on smartphone “jailbreaking”—the practice of enabling the phone to become interoperable with unauthorized applications—was “adversely affecting the ability to engage in the non-infringing use of adding unapproved, independently created computer programs to their smartphones.”³

That reasoning remains valid today. Moreover, it can and should be logically extended to apply to tablets. In order to ensure that § 1201 does not inhibit reasonable fair uses of these devices, proponents urge the Librarian to renew the jailbreaking exemption for smartphones granted in the previous processing, and to expand it to encompass tablets.

B. Factual Background

In recent years, smartphones and tablet devices have become a central feature of the consumer technology landscape. But the manufacturers of these devices and their operating systems frequently implement technological protection measures that restrict the software applications users can run. As the user base for smartphones and tablets continues to expand, these technological limitations produce commensurately widespread harms to competition, consumer choice, and innovation.

1. Since the Prior Rulemaking, Smartphones and Tablet Devices Have Become Ubiquitous.

The last three years have seen dramatic growth in the adoption of smartphones and tablets as consumers increasingly shift from traditional personal computers to mobile devices. At the beginning of 2008, market penetration for smartphones was relatively limited, comprising only 10% of American wireless subscribers. This number has dramatically increased in the subsequent years: in July 2011, the Pew Research Center released a report showing that 35% of all American adults are now smartphone owners,⁴ and current projections indicate that smartphone penetration will reach more than 50% of subscribers by the end of 2011.⁵ In the final quarter of 2010, more than 100 million smartphones were shipped in the United States alone, surpassing the number of personal computers sold by almost 8 million units.⁶

³ Recommendation of the Register of Copyrights in RM 2008-8, Rulemaking on Exemptions from Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, June 11, 2010 (“2010 Recommendation”) at 103 available at <http://www.copyright.gov/1201/2010/initialed-registers-recommendation-june-11-2010.pdf>.

⁴ Aaron O, *Smartphone Adoption and Usage*, Pew Internet (July 11, 2011), <http://www.pewinternet.org/Reports/2011/Smartphones.aspx>.

⁵ Roger Entner, *Smartphones to Overtake Feature Phones in U.S. by 2011*, Nielsenwire (Mar. 26, 2010), <http://blog.nielsen.com/nielsenwire/consumer/smartphones-to-overtake-feature-phones-in-u-s-by-2011>.

⁶ David Goldman, *Smartphones have conquered PCs*, CNNMoney (Feb. 9, 2011), http://money.cnn.com/2011/02/09/technology/smartphones_eclipse_pcs/index.htm.

The extraordinarily widespread adoption of smartphones has been driven in significant part by the launch of Android, a free, open-platform smartphone and tablet operating system introduced by Google and the Open Handset Alliance in 2007.⁷ The first Android device was distributed in 2008, and the platform is now implemented on smartphones created by dozens of manufacturers. Today, Android is the best-selling mobile platform in the world.⁸ In October 2011, there were 190 million Android devices in use, with 32.9 million sold in the fourth quarter of 2010 alone—seven times the number sold in the fourth quarter of 2009.⁹ With an estimated 319,000 programs currently available in the Android Market,¹⁰ the size of Android’s application store is rivaled only by Apple.¹¹

Tablets have enjoyed similar radical popularity over the past two years. Although tablet computers have existed since the late 1980s,¹² the 2010 launch of Apple’s iPad has sparked extraordinary growth in this sector. While Apple continues to dominate the tablet space with a 70% market share, other competitors have begun to enter the marketplace with similar devices.¹³ The rapid sales of competitor devices, particularly those running the Android operating system, attests to the broad-based adoption of tablets in the marketplace.¹⁴ Sales of tablets were up nearly 90% from the first to second quarter of 2011, and more than 300% year-over-year.¹⁵

2. Smartphone and Tablet Makers Continue to Restrict the Software Applications That Users Can Run, to the Detriment of Consumer Choice, Competition and Innovation.

Manufacturers continue to implement technological protection measures that restrict the applications that users can run on their devices.

⁷ *Industry Leaders Announce Open Platform For Mobile Devices*, Open Handset Alliance, (Nov. 5, 2007), http://www.openhandsetalliance.com/press_110507.html.

⁸ Kent German, *A Brief History of Android Phones*, CNET (Aug. 2, 2011), http://reviews.cnet.com/8301-19736_7-20016542-251/a-brief-history-of-android-phones.

⁹ Charles Arthur, *Mobile generating equivalent of \$2.5bn a year, says Google chief*, The Guardian (Oct. 14, 2011), <http://www.guardian.co.uk/technology/2011/oct/14/android-google-ad-revenue>.

¹⁰ Richard Wordsworth, *Android Market reaches 500,000 app mark*, T3 (Oct. 23, 2011), <http://www.t3.com/news/android-market-reaches-500000-app-mark>.

¹¹ Peter Farago, *iOS & Android Apps Challenged by Traffic Acquisition Not Discovery*, Flurry Blog (Oct. 31, 2011), <http://blog.flurry.com/?Tag=App%20Store>.

¹² Harry McCracken, *The Long Fail: A Brief History of Unsuccessful Tablet Computers*, Technologizer (Jan. 27, 2010) <http://technologizer.com/2010/01/27/the-long-fail-a-brief-history-of-unsuccessful-tablet-computers>.

¹³ See Goldman, *supra* note 5.

¹⁴ See Clint Boulton, *Android Grows Tablet Market Share Against iPad*, eWeek Europe (Oct. 24, 2011), <http://www.eweekeuropa.co.uk/news/android-grows-tablet-market-share-against-ipad-43480>; Phil Goldstein, *Report: Android tablet market share grows from 2.3% to 26.9% in 12 months*, FierceWireless (Oct. 21, 2011), <http://www.fiercewireless.com/story/report-android-tablet-market-share-grows-23-269-12-months/2011-10-21>.

¹⁵ Jacqui Cheng, *Report on tablet growth shows market is ripe for iPad competitor*, Ars Technica (Sept. 2011), <http://arstechnica.com/apple/news/2011/09/repot-ipad-share-of-tablet-market-inches-upward-as-android-suffers.ars>.

Manufacturers typically configure a device's firmware to prevent unauthorized applications from accessing certain functions of the phone or tablet.¹⁶ The firmware is internal software that is among the first aspects of the operating system to "boot up" when the device is powered on. It is often responsible for managing the behavior of the device at its most fundamental level. In practice, firmware restrictions limit user's ability to customize the device's operating system, and can prevent certain applications from functioning properly. Manufacturers often encrypt firmware to prevent users from changing the default configuration.¹⁷

In response to manufacturer restrictions on firmware, online communities have emerged to support jailbreaking to enable a device to become interoperable with unauthorized independently created applications. These communities have grown significantly in the past few years. For example, Cydia—an online marketplace launched in 2008 for unauthorized applications for jailbroken iPhones and iPads—now reports 1.5 million visitors to the store every day and \$10 million in annual revenue.¹⁸ XDA Developers, an online message board community focused on developing independent programs for Android and other mobile devices, now logs more than four million registered members.¹⁹

In the 2009 rulemaking proceeding, the Librarian of Congress emphasized that "[c]ase law and Congressional enactments reflect a judgment that interoperability is favored."²⁰ The Librarian permitted a §1201(a)(1) exemption for jailbreaking, reasoning that such an exemption would "not adversely affect the market for or value of the copyrighted works to the copyright owner."²¹ These arguments apply with increased force today, as jailbreaking has become more common and widespread. Further, technological restrictions on smartphones and tablets continue to harm consumer choice, competition, and innovation.

C. Technological Restrictions on Smartphones and Tablets Harm Consumer Choice and Competition.

Technological restrictions on smartphones and tablets adversely affect consumer choice by limiting the applications that consumers are permitted to purchase and run on their devices. For example, Apple filters the programs that can run on the iPhone and iPad by requiring all developers to obtain approval before their applications are enabled to run on the device and made available through the iTunes App Store. Apple has designed iPads and iPhones to individually

¹⁶ Sarah Morrow, *[Updated] Rooting Explained + Top 5 Benefits Of Rooting Your Android Phone*, Android Police (June 26, 2011), <http://www.androidpolice.com/2010/04/15/rooting-explained-top-5-benefits-of-rooting-your-android-phone>.

¹⁷ Ivo, *So You Want To Know About Bootloaders, Encryption, Signing, And Locking? Let Me Explain*, Android Police (May 27, 2011), <http://www.androidpolice.com/2011/05/27/so-you-want-to-know-about-bootloaders-encryption-signing-and-locking-let-me-explain>.

¹⁸ Jijo Jacob, *The underground iPhone: Million-dollar jailbreaking industry thrives on legal loophole*, International Business Times (Apr. 7, 2011), <http://www.ibtimes.com/articles/131640/20110407/jailbreaking-jail-break-jailbreakers-underground-apple-ipone-cydia-modmyi-dev-team-toyota-at-t-ios-c.htm>.

¹⁹ XDA Developers, <http://forum.xda-developers.com/> (last visited Nov. 29, 2011) (member statistics under "What's Going On?" section).

²⁰ Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 75 Fed. Reg. 43,825, 43,830. (July 27, 2010) (to be codified at 37 C.F.R. pt. 201).

²¹ *Id.*

check and verify each piece of software before it can run on the device.²² Without a special encrypted key provided by Apple, these devices refuse to run any unapproved third-party software.²³ Apple does not impose this restriction because it is necessary for its products to operate. Rather, Apple uses this technological limitation to enforce its business decision to filter content and extract a 30% commission on application sales.²⁴

This strict technology regime is particularly unfortunate because many of Apple's application restrictions are content-based. Apple has censored numerous applications that allow users to engage in beneficial free speech, even going so far as to ban from its App Store applications that enable users to make donations to non-profits or feature satire that "ridicules public figures," per its license agreement with developers.²⁵ The company has also systematically removed applications that it considers overtly sexual.²⁶ None of these restrictions improves or ensures the functionality of iPhones or iPads, nor do they have any apparent relationship to copyright infringement. More often, they prevent developers from creating applications that compete or improve upon existing Apple functionality. For example, MyFrame, an iPad application that provides a new set of tools on top of the native iPad photo display, was banned from the App Store because it created an alternative graphical experience for the user.²⁷

Although manufacturers of Android-based smartphones and tablets have not imposed the same level of control as Apple over the types of software that can be developed and distributed, they have used technological measures to block functionality and prevent the installation of certain types of software.²⁸ A particularly good example of how these technological measures constrain user choice is the NOOK Color ("Nook"), an e-book reader launched by Barnes and Noble as a

²² See John Herrman, *17 Reasons to Jailbreak Your iPhone or iPod Touch NOW*, Gizmodo (Aug. 7, 2010), <http://gizmodo.com/5605827/16-reasons-to-jailbreak-your-iphone-or-ipod-touch-now/gallery/1>; Maria Trimarchi, *How to Jailbreak an iPhone*, How Stuff Works, <http://electronics.howstuffworks.com/how-to-tech/how-to-jailbreak-iphone1.htm> (last visited Nov. 30, 2011).

²³ Firmware Unpacking, <http://wiki.birth-online.de/know-how/hardware/apple-iphone/firmware-unpacking> (last visited Nov. 29, 2011).

²⁴ iOS Developer Program—Distribute, <http://developer.apple.com/programs/ios/distribute.html> (last visited Nov. 29, 2011).

²⁵ See Stephanie Strom, *Donations Ban on iPhone Apps Irritates Nonprofits*, New York Times (Dec. 9, 2010), <http://www.nytimes.com/2010/12/09/technology/09charity.html>; Laura McGann, *Mark Fiore can win a Pulitzer Prize, but he can't get his iPhone cartoon app past Apple's satire police*, Nieman Journalism Lab (Apr. 15, 2010), <http://www.niemanlab.org/2010/04/mark-fiore-can-win-a-pulitzer-prize-but-he-cant-get-his-iphone-cartoon-app-past-apples-satire-police/>; Jake Shapiro, *Apple's no-donation policy for apps is a cop-out*, Ars Technica, <http://arstechnica.com/apple/news/2010/06/nonprofit-developer-apples-no-donation-policy-is-a-cop-out.ars> (last visited Nov. 30, 2011).

²⁶ Violet Blue, *Apple's contentious relationship with naughty apps is locked in frigid mode. How did it get there, and where's it going?*, MacLife (Mar. 30, 2010), http://www.maclife.com/article/feature/apps_and_men.

²⁷ Cade Metz, *Steve Jobs beheads iPad apps for acting like desktops*, The Register (June 1, 2010), http://www.theregister.co.uk/2010/06/01/apple_boots_widgety_apps_from_app_store; See also Shane McGlaun, *Apple rejects iPhone app for lack of functionality, later releases app with same functionality itself*, Slashgear (Apr. 6, 2011), <http://www.slashgear.com/apple-rejects-iphone-app-for-lack-of-functionality-later-releases-app-with-same-functionality-itself-06144635/> (denying advertising aggregator application because it competed with Apple's own offering).

²⁸ John A., *What is Rooting on the Android? The Advantages and Disadvantages*, Droid Lessons (Feb. 15, 2011), <http://droidlessons.com/what-is-rooting-on-android-the-advantages-and-disadvantages>.

competitor to the more popular Amazon Kindle.²⁹ Activity on the Nook is limited to the e-books, applications, and web browsers that Barnes and Noble permits to run on the device. Yet the Nook is nothing more than a tablet computer running a restricted version of the Android operating system. It could operate as a fully functional tablet computer, but is instead confined to the limited features allowed by the manufacturer. Using a process similar to that discussed above, developers have created tools that permit Nook owners to jailbreak and expand the features of their e-readers.³⁰ For instance, one popular application that can be installed on the jailbroken Nook is K-9, a customized mail client that enables users to check their messages on the device and supports “push” notifications to users when e-mail arrives.³¹

Manufacturers have also consistently failed to support and upgrade the operating systems on Android smartphones to their most current versions, exposing owners to security vulnerabilities.³² A recent analysis of Android phone models released in the United States before July 2010 indicates that a large majority of manufacturers stopped supporting Android within a few weeks of release, leaving their users open to serious security risks. After one year on the market, manufacturers supported Android upgrades for only eight of eighteen models. At the end of their second year, only three of eighteen models were receiving Android support upgrades, even though the vast majority of these phones were still under contract with users.³³

This unfortunate state of affairs presents three problems.³⁴ First, it imposes significant costs on application developers who cannot count on consumers running the latest version of the Android operating system. Second, it threatens consumers who cannot rely on manufacturer support if a security vulnerability is discovered in Android, and manufacturer-imposed technological restrictions render them unable to upgrade the software themselves. Third, it shortens the lifespan of the devices because owners are forced to purchase new models to avoid these risks.

The 2011 DigiNotar debacle is a case in point. Until recently, DigiNotar was a “certificate authority”—an organization that issues digital certificates used to authenticate and secure communications between various services online, such as credit card transactions.³⁵ In September 2011, it was discovered that DigiNotar had been hacked, and that the service had

²⁹ David Carnoy, *B&N: Nook has 25 percent of U.S. e-book market*, CNET (Feb. 23, 2011), http://news.cnet.com/8301-17938_105-20035277-1.html.

³⁰ David Cogen, *How To: Root the Nook Color (AutoNooter Method)*, The Unlockr (Feb. 5, 2011), <http://theunlockr.com/2011/02/05/how-to-root-the-nook-color-autonooter-method>.

³¹ Ryan Paul, *How To Root a Nook Color to transform it into an Android tablet*, Ars Technica, <http://arstechnica.com/gadgets/guides/2011/02/howto-root-a-nook-color-to-transform-it-into-an-android-tablet.ars/3> (last visited Nov. 30, 2011).

³² See Declaration of Michael Degusta, attached as Appendix A at 1-2; Michael Degusta, *Android Orphans: Visualizing a Sad History of Support*, The Understatement (Oct. 26, 2011), <http://theunderstatement.com/post/11982112928/android-orphans-visualizing-a-sad-history-of-support>.

³³ *Id.*

³⁴ *Id.* at 2-4.

³⁵ *VASCO Data Security International, Inc. Announces the Acquisition of Diginotar B.V., a Market Leader in Internet Trust Services in The Netherlands*, Vasco, http://www.vasco.com/company/press_room/news_archive/2011/acquisition_diginotar.aspx (last visited Nov. 30, 2011) (describing Diginotar’s business as a certificate authority).

been issuing fraudulent certificates.³⁶ These phony certificates permitted malicious users to compromise devices and services that relied on DigiNotar's list to certify their online transactions.³⁷ While current versions of Android updated their information about DigiNotar to prevent this from happening, older versions left their users in the dark and Android phone makers with encrypted firmware did not allow them to update the list of valid certificates that would prevent such fraud from occurring.³⁸

In situations where an "official" security fix is slow to come or never issues at all, consumers can remain vulnerable to security risks, buy new phones, or jailbreak their devices and address the problem themselves. For example, independent security researcher Trevor Eckhart has discovered a series of serious security vulnerabilities in the implementation of the Android operating system on HTC phones. While Eckhart has reported these vulnerabilities to HTC, most of them have not yet been remedied by the manufacturer. To help keep consumers safe, Eckhart designed software that users can install to fix the problems on their own phones. But given the technological restrictions on HTC devices, owners must jailbreak or "root" their phones to have the complete administrative access necessary to install the patches.³⁹

D. Technological Restrictions on Smartphones and Tablets Inhibit Innovation.

Technological restrictions on smartphones and tablets impair innovation in two critical ways. First, they interfere with the ability of tablet and smartphone owners to install the third-party software that they would prefer to use. As a consequence, developers face a significantly diminished marketplace of potential users, and have fewer incentives to innovate and create new software. Second, these limitations harm competition by restricting the number of developers who are permitted to offer new alternatives in the marketplace for mobile and tablet software.⁴⁰

These restrictions have spurred the emergence of an innovative and dynamic online community devoted to jailbreaking and writing new programs for smartphones and tablets. For Apple's iOS (which runs on the iPhone, iPad, and iTouch), these programs include applications that provide privacy-enhancing tools for browsing the web, allow users to turn their phone into a push-button flashlight, and enable users to map the cell phone towers in their vicinity.⁴¹ One application, Multiflow, provides a seamless and improved experience for managing multiple running

³⁶ John Leyden, *Inside 'Operation Black Tulip': DigiNotar hack analysed*, The Register (Sept. 6, 2011), http://www.theregister.co.uk/2011/09/06/diginotar_audit_damning_fail/.

³⁷ See Kim Zetter, *DigiNotar Files for Bankruptcy in Wake of Devastating Hack*, Wired (Sept. 20, 2011), <http://www.wired.com/threatlevel/2011/09/diginotar-bankruptcy/> (describing the certificate failure).

³⁸ Mark Berry, *Android Certificates*, MCB Systems (Dec. 21, 2010), <http://www.mcbsys.com/techblog/2010/12/android-certificates/> (showing that Android 2.0 and 2.1 do not allow the user to update the list of trusted certificates).

³⁹ Declaration of Trevor Eckhart, attached as Appendix B.

⁴⁰ Brian X. Chen, *Rejected by Apple, iPhone Developers Go Underground*, Wired (Aug. 6, 2009), <http://www.wired.com/gadgetlab/2009/08/cydia-app-store>.

⁴¹ See Covert, <http://cydia.saurik.com/package/com.chpwn.covert> (last visited Nov. 30, 2011) (privacy for mobile web browsing); SpringFlash, <http://cydia.saurik.com/package/springflash> (last visited Nov. 30, 2011) (a push-button flashlight), Signal, <http://cydia.saurik.com/package/com.complicatedstuff.signal> (last visited Nov. 30, 2011) (cell-phone tower visualizer)

applications on the smartphone that users report as better than the existing Apple system.⁴² On Android, applications that require jailbreaking are part of a similarly diverse ecosystem. These include applications that enable users to take screenshots on their phones, to explore every file installed on their device, and safely and easily back up downloaded content.⁴³ Another innovative application on Android, Theft Aware, permits owners to remotely track the location of a lost or stolen device and wipe the data on the device in an emergency.⁴⁴

Alternative marketplaces and unofficial software applications also provide device-improvement tools that manufacturers themselves do not offer to consumers. For example, CyanogenMod, a custom, open source replacement operating system for jailbroken Android phones, is able to “overclock” the device’s processor to produce much higher speed and performance.⁴⁵ For the iPhone, unofficial applications such as Frash allow phone owners to run ubiquitous multimedia platforms such as Flash, which Apple has banned from iOS.⁴⁶ Other applications also permit users to customize the appearance of their Apple and Android devices. For example, Theme It, an unapproved application for the iPhone, enables users to install new themes that change the appearance and arrangement of the phone’s buttons and menus.⁴⁷

Apple itself has benefitted from these unauthorized optimizations by introducing similar, if not identical, innovations in their products. For example, after the jailbreaking community successfully launched applications that permitted older versions of the iPhone to record video using the built-in camera on the smartphone, Apple followed suit.⁴⁸ Similarly, in 2009 jailbreakers were able to successfully configure keyboards to wirelessly connect with the smartphone.⁴⁹ Months later, Apple again embraced the changes that the jailbreakers had pioneered.⁵⁰ This pattern of imitation applies to a host of other innovations introduced by the jailbreaking community, stretching from the design of the user interface to the management of applications on the phone.⁵¹

⁴² Matt Brian, *Multiflow schools Apple on how to implement iOS multitasking*, The Next Web (Aug. 23, 2010), <http://thenextweb.com/mobile/2010/08/23/multiflow-schools-apple-on-how-to-implement-ios-multitasking>.

⁴³ David Ruddock, *Top Android Apps Every Rooted User Should Know About, Part 1: Apps 1-8*, Android Police (July 24, 2011), <http://www.androidpolice.com/2010/07/13/8-great-apps-every-rooted-android-user-should-know-about>.

⁴⁴ CyanogenMod, <http://www.cyanogenmod.com/about> (last visited Nov. 30, 2011).

⁴⁵ JuiceDefender, <http://www.juicedefender.com/> (last visited Nov. 30, 2011).

⁴⁶ Sarah Perez, *How to Install Flash on your Phone (The Easy Way)*, Read Write Web (Aug. 9, 2010), http://www.readwriteweb.com/archives/how_to_install_flash_on_your_iphone_the_easy_way.php; Steve Jobs, *Thoughts on Flash*, Apple, Inc., <http://www.apple.com/hotnews/thoughts-on-flash> (last visited Nov. 30, 2011).

⁴⁷ Adam Dachis, *Theme it Makes iOS Interface Customization Easy on Jailbroken Devices*, Lifehacker (Jan. 25, 2011), <http://lifehacker.com/5742512/theme-it-makes-ios-interface-customization-easy-on-jailbroken-devices>.

⁴⁸ Skipper Eye, *Apple Approves Video Recording on iPhone 3G and 2G*, Redmond Pie (Dec. 15, 2009), <http://www.redmondpie.com/apple-approves-video-recording-on-iphone-3g-and-2g-9140225/>.

⁴⁹ Simon Ng, *BTstack Keyboard Hits the Cydia Store to Connect Bluetooth Keyboard and iPhone*, Simonblog (Dec. 26, 2009), <http://www.simonblog.com/2009/12/26/btstack-keyboard-hits-the-cydia-store-to-connect-bluetooth-keyboard-and-iphone/>.

⁵⁰ Matthew Panzarino, *iPhone iOS 4 Tip: Connect a Bluetooth Keyboard to Your iPhone*, The iPhone Guru (July 7, 2010), <http://www.theiphonoguru.net/2010/07/10/iphone-ios-4-tip-connect-a-bluetooth-keyboard-to-your-iphone/>.

⁵¹ See, e.g., Taimur Asad, *Cydia Adds “Manage Account” Feature, Which Shows Every App That Was Ever Purchased on Cydia*, Redmond Pie (Jan. 20, 2011), <http://www.redmondpie.com/cydia-adds-manage-account-feature-which-shows-every-app-that-was-ever-purchased-on-cydia> (showing application store purchase history);

The jailbreaking community has also played an important role in protecting user privacy. For instance, older versions of the iPhone operating system did not permit users to control the privacy of the text messages they received. Instead, the operating system would unavoidably display a preview of the message on the phone visible to anyone standing nearby.⁵² Jailbreakers quickly introduced an unauthorized application that allowed users to tweak the privacy settings for text messages.⁵³ Apple launched this feature over a year later in a new version of the operating system.⁵⁴ Jailbreakers were also responsible for introducing a fix that prevented Apple itself from tracking the location of iPhone owners.⁵⁵

There is a large user demand for these unapproved software and enhanced features. For example, Cydia, the unofficial marketplace that can be installed on jailbroken iPhones and iPads to permit users to download and install third party applications, currently lays claim to 4 million installations by iPhone owners.⁵⁶ Cydia reported over \$10 million in annual revenue in 2011.⁵⁷ Rock, another unofficial distributor of iPhone and iPad applications that later merged with Cydia, reported more than \$3.3 million in sales.⁵⁸ This activity is not exclusive to Apple tablets and smartphones. A popular tool for bypassing similar restrictions on the Android platform has seen over 1.3 million downloads to date.⁵⁹ In July 2010, one popular alternative operating system for the Motorola Droid phone was downloaded 40,000 times in a single week.⁶⁰

Chip, *Did Apple just rip off Cydia LockInfo app For its Notification center?*, GSM Arena (June 7, 2011), <http://blog.gsmarena.com/did-apple-just-rip-off-cydia-lockinfo-app-for-its-notification-center> (relating to aggregated notifications); Goncalo Ribeiro, *Did Apple Rip Off This Student's Rejected Wireless Syncing App For iPhone From Cydia?*, Redmond Pie (June 10, 2011), <http://www.redmondpie.com/did-apple-rip-off-this-students-rejected-wireless-syncing-app-for-iphone-from-cydia/> (regarding wireless syncing); John Herrman, *This Is How Multitasking Should Work On the iPhone*, Gizmodo (Nov. 23, 2009), <http://gizmodo.com/5411304/this-is-how-multitasking-should-work-on-the-iphone> (multitasking applications on the phone).

⁵² iPhoneChris, *How Has iPhone's SMS Preview Gotten You Into Trouble?*, AppleiPhoneReview (Mar. 5, 2008), <http://www.appleiphonereview.com/news-opinion/how-has-iphones-sms-preview-gotten-you-into-trouble/>.

⁵³ iPhoneChris, *Set SMS Privacy Levels With the Kate App*, AppleiPhoneReview (Mar. 29, 2008), <http://www.appleiphonereview.com/iphone-jailbreak/set-sms-privacy-levels-with-kate-app/>.

⁵⁴ iPhoneChris, *iPhone 3.0: Now With Text Message Privacy*, AppleiPhoneReview (June 17, 2009), <http://www.appleiphonereview.com/news-opinion/iphone-3-0-now-with-text-message-privacy/>.

⁵⁵ Matt Brian, *Worried About iPhone Tracking? Jailbreak Utility Untrackerd Will Fix That For You*, The Next Web (Apr. 21, 2011), <http://thenextweb.com/apple/2011/04/21/worried-about-iphone-tracking-jailbreak-utility-untrackerd-will-fix-that-for-you/>.

⁵⁶ See Chen, *supra* note 38; see also Matt Brian, *Cydia and Jailbreak apps: The ecosystem, developers and increasing revenues*, The Next Web (Sept. 24, 2011), <http://thenextweb.com/apple/2011/09/24/cydia-and-jailbreak-apps-the-ecosystem-developers-and-increasing-revenues> (claiming 4.5 million weekly users).

⁵⁷ Ian Shapira, *Once the hobby of tech geeks, iPhone jailbreaking now a lucrative industry*, Washington Post (Apr. 6, 2011), http://www.washingtonpost.com/business/economy/once-the-hobby-of-tech-geeks-iphone-jailbreaking-now-a-lucrative-industry/2011/04/01/AFBJ0VpC_story.html.

⁵⁸ Thom Holwerda, *Cydia, Rock To Merge*, OSnews (Sept. 12, 2010), http://www.osnews.com/story/23795/Cydia_Rock_To_Merge.

⁵⁹ *Download ROM Manager Android update version 4.0*, GetAndroidStuff (Apr. 18, 2011), <http://getandroidstuff.com/download-rom-manager-android-latest-version>.

⁶⁰ Greg Kumparak, *Hacked Android 2.2 ROM for the Motorola Droid downloaded 40,000 times in a week*, Techcrunch (July 7, 2010), <http://techcrunch.com/2010/07/07/hacked-android-2-2-rom-for-the-motorola-droid-downloaded-40000-times-in-a-week>.

E. Section 1201(a)(1) is Adversely Affecting the Ability of Smartphone Owners to “Jailbreak” Their Phones.

The sheer size of the jailbreaking community is evidence that many smartphone and tablet users demand the freedom to customize and install third-party software on the devices they own. However, in order to permit the device to become interoperable with applications from alternative sources, users must circumvent technological restrictions implemented by manufacturers to limit access to the firmware.

Vendors of smartphones and tablets are likely to claim that when users circumvent technological restrictions, they violate manufacturers’ copyrights in the device firmware. To that end, the shadow of legal liability from § 1201 discourages users from engaging in legitimate, non-infringing modification of their devices, and thus hinders the numerous innovators who might otherwise find a market for their applications.⁶¹

Ultimately, given that the modification of firmware to permit interoperability is a non-infringing use under the law, the § 1201(a)(1) prohibition on circumvention produces adverse effects on device owners for pursuing legitimate purposes in jailbreaking their smartphones and tablets.

F. Jailbreaking a Smartphone or Tablet for the Purpose of Running Independently Created Software Does Not Infringe Copyright.

Courts have long found copying and modification to enable device interoperability non-infringing under the doctrine of fair use.⁶² Indeed, in the previous rulemaking, the Register correctly determined that jailbreaking a smartphone for purposes of making operating systems interoperable with independently created applications is a non-infringing fair use.⁶³ Nothing in the factual or legal record since the last proceeding suggests that a change in this position is warranted. Running lawfully obtained software on a smartphone does not infringe copyright, nor does the process of jailbreaking a device in order to accomplish this goal run counter to well-established fair use principles. And, the analysis does not vary where the device in question is a tablet.

1. The Purpose and Character of the Use

The “central purpose” of the first factor is to determine whether or not the use in question “merely supersedes the objects of the original creation” or is transformative.⁶⁴ Jailbreaking firmware is transformative because it expands both the firmware’s functionality and that of the

⁶¹ See, e.g., Responsive Comment of Apple Inc. In Opposition to Proposed Exemption 5A and 11A (Class #1), 11-13, <http://www.copyright.gov/1201/2008/responses/apple-inc-31.pdf> (claiming 1201 circumvention liability for jailbreaking during the 2010 rulemaking proceedings).

⁶² See *Sega, LTD. v. Accolade, Inc.*, 977 F.2d 1510, 1528 (9th Cir. 1992) (finding that Accolade’s copying and reverse engineering of the Sega’s Genesis video game console for the purpose of creating new Genesis games was a fair use); *Sony Computer Entm’t, Inc. v. Connectix Corp.*, 203 F. 3d 596, 608 (9th Cir. 2000) (finding that copying Playstation video game console firmware for the purpose of creating a PC platform that would allow users to play Playstation games on a computer was a fair use).

⁶³ 2010 Recommendation, *supra* note 3, at 100.

⁶⁴ *Campbell v. Acuff Rose Music, Inc.*, 510 U.S. 569, 579 (1994).

independently created applications that it allows users to run on their devices. As such, these uses fit comfortably within the transformative purposes found to be fair in the leading Ninth Circuit cases on fair use.

In *Sega v. Accolade*, the Ninth Circuit emphasized the transformative qualities of allowing the competitor Accolade to study Sega's code for purposes of interoperability, highlighting that the "direct use," the copying of Sega's code, was made in service of the larger use of developing new software.⁶⁵ Sega sued Accolade for copying the copyrighted code on their video game console games in an effort to reverse engineer the authentication process that enabled authorized games to be played on the Sega Genesis Console.⁶⁶ Accolade argued that this copying was a fair use because the company had a legitimate interest in gaining access to the authentication process.⁶⁷ The court agreed, finding the reverse engineering of copyrighted code in service of the interoperability of "independently developed" software to be a fair use.⁶⁸ When enacting the DMCA, Congress recognized the transformative quality of interoperability when it incorporated § 1201(f) to protect reverse engineering and interoperability and "ensure that the effect of [Sega] is not changed by the enactment of [the DMCA]."⁶⁹

In *Sony Computer Entm't v. Connectix Corp.*, the Ninth Circuit expanded upon Sega's reasoning.⁷⁰ There, Connectix reverse engineered the operation system software of the Sony Playstation in order to create a platform for Playstation games to be played on personal computers.⁷¹ Sony sued for copyright infringement, but the court held it was a fair use, emphasizing that the innovation resulting from the creation of new platforms was sufficiently transformative because it "afford[ed] [users] opportunities for game play in new environments."⁷²

Following *Sega* and *Connectix*, the Ninth Circuit has continued to find uses that enable greater access to information and innovation through interoperability with copyrighted works to be fair.⁷³ In *Kelly*, the Ninth Circuit again found copying to be fair use, this time allowing a search engine to copy large photographs and turn them into "thumbnails" for use in searching and holding that such a use was transformative in spite of nothing new being added to the pictures themselves.⁷⁴ Rather, the court held it was enough that the re-sized thumbnails "created a new purpose for the images and [the use] is not simply superseding."⁷⁵ The court then emphasized that the purpose of the "information location" provided a public benefit by "enhancing information-gathering techniques on the internet."⁷⁶ Similarly, in *Perfect 10, Inc. v. Amazon.com, Inc.* the court found that the significantly transformative nature of an image search index, and the

⁶⁵ 977 F.2d 1510, 1522-23 (9th Cir. 1992).

⁶⁶ *Id.* at 1514.

⁶⁷ *Id.* at 1514-16.

⁶⁸ *Id.* at 1520.

⁶⁹ S. Rep. No. 105-190, at 32 (citing *Sega*, 997 F.2d at 1510).

⁷⁰ *Sony Computer Entm't v. Connectix Corp.*, 203 F. 3d 596, 606-07 (9th Cir. 2000).

⁷¹ *Id.* at 599-600.

⁷² *Id.* at 607.

⁷³ See *Kelly v. Arriba Soft Corp.*, 336 F. 3d 811, 818-20 (9th Cir. 2003).

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Id.*

public benefit that search engines provide, outweighed any minimal superseding effect on speculative markets for mobile downloads of thumbnails.⁷⁷

Jailbreaking serves exactly the same transformative purpose as the copying in *Sega*, *Connectix*, *Kelly*, and *Perfect 10*—allowing users to add new software to current platforms and introduce new environments for both new and old applications. It also spurs innovation and improves users’ ability to protect their personal security and privacy. Following the weight of relevant authority, the jailbreaking of smartphones and tablets should be considered transformative.

Further, jailbreaking for purposes of installing interoperable software is noncommercial. As the Supreme Court noted in *Sony Corp. of America v. Universal Studios Inc.*, “private home use must be characterized as a noncommercial, nonprofit activity.”⁷⁸ The Court held in the absence of some demonstrable likelihood of harm to the copyright holder, such personal, noncommercial use was fair use.⁷⁹ Smartphone and tablet owners who jailbreak do not do so for profit, but rather to enhance their personal use options for their device.⁸⁰

In addition, jailbreaking smartphones and tablets benefits the public by encouraging the creation of new software applications and expanded functionality for these devices.⁸¹ As discussed above, the ability to upgrade the device operating system to patch discovered security vulnerabilities can also potentially expand the lifespan of the device.

Because jailbreaking a smartphone or tablet for purposes of making operating systems interoperable with independently created applications is transformative, personal, noncommercial, and confers a public benefit, the first factor weighs heavily in favor of a finding of fair use.

2. Nature of the Copyrighted Work

The second factor, the nature of the copyrighted work, also weighs heavily in favor of fair use. In evaluating the second factor, courts look to whether a work is creative or functional⁸² and whether it is published or unpublished.⁸³ In *Sega*, the Ninth Circuit found the second factor to weigh in favor of Accolade where copying for reverse engineering purposes was necessary in order to understand software code’s functional interoperability requirements.⁸⁴ As that court

⁷⁷ 508 F.3d 1146, 1122-23 (9th Cir. 2007).

⁷⁸ *Sony Corp. of America v. Universal Studios Inc.*, 464 U.S. 417, 448-49 (1984).

⁷⁹ *Id.* at 454-55.

⁸⁰ *Cf. Sega*, 997 F.2d at 1522-24 (finding copying for interoperability to be fair use despite a commercial purpose); *Connectix*, 203 F.3d at 606-07 (same).

⁸¹ *See Sega* 977 F.2d at 1522-23 (noting the public benefit that resulted from independent developers engaging in new creative expression).

⁸² *Sega*, 977 F.2d at 1524 (“The second statutory factor, the nature of the copyrighted work, reflects the fact that not all copyrighted works are entitled to the same level of protection. The protection established by the Copyright Act for original works of authorship does not extend to the ideas underlying a work or to the functional or factual aspects of the work.”).

⁸³ *Harper & Row, Publishers., Inc. v. Nation Enters.*, 471 U.S. 539 (1985); *see also Perfect 10, Inc. v. Amazon, Inc.*, 508 F.3d 1146, 1167 (9th Cir. 2007) (noting a copyright owner is no longer entitled to enhanced protection available to an unpublished work once it has exploited the commercially valuable right of first publication).

⁸⁴ 977 F.2d at 1526.

reasoned, “If disassembly of copyrighted object code is per se an unfair use, the owner of the copyright gains a de facto monopoly over the functional aspects of his work—aspects that were expressly denied copyright protection by Congress.”⁸⁵ *Connectix* further noted that “If [copyright owner] Sony wishes to obtain a lawful monopoly on the functional concepts in its software, it must satisfy the more stringent standards of the patent laws.”⁸⁶

In the last rulemaking proceeding, relying in part on *Sega*’s reasoning, the Register concluded that the second factor “decisively favors a finding of fair use.” Noting that the second factor is “perhaps more important than usual in cases involving the interoperability of computer programs, the Register noted that bootloaders and operating systems are published, functional works, and that “[a]s functional works, certain features are dictated by function and in order to interoperate with those works certain functional elements of those programs, elements that in and of themselves may or may not be copyrightable, must be modified.” The bootloader is a piece of software that coordinates the order in which both hardware and other software components are activated within the phone when it is powered on. Additionally, because it is customary for operating systems to enable third-party interoperability, the copyright owner’s exclusive rights are not infringed when a user runs an application without the manufacturer’s consent. Thus, while jailbreaking may affect a manufacturer’s business model, it does not implicate a copyright interest.

Thus, the second factor favors a finding of fair use.

3. Amount and Substantiality of the Portion Used

The third fair use factor examines the amount of the copyrighted work used in an effort to determine whether the “quantity and value of the materials used are reasonable in relation to the purpose of the copying.”⁸⁷ The amount taken only need be “reasonable” and for a legitimate purpose.

In *Kelly*, the court emphasized that copying anything less than the entire work would be insufficient in order to allow users to recognize images in a visual search engine.⁸⁸ In *Perfect 10*, the court similarly concluded that Google’s use of Perfect 10’s images was reasonable in light of its purpose of communication information to its users. In both cases, the court found this copying to be fair use. And even in *Connectix*, where Connectix disassembled Sony’s BIOS firmware and copied the entire work multiple times en route to reverse engineering that product, the court found the third factor to be of little importance in light of the purposes of copyright.⁸⁹ In *Sega*, the court affirmed that the use of an entire work did not by itself exclude an activity

⁸⁵ *Id.*; See also *Connectix*, 203 F.3d at 605 (finding the second statutory factor to “strongly favor” fair use where copying was necessary to disassemble and view the ideas contained within firmware).

⁸⁶ *Id.* At 605.

⁸⁷ *Campbell*, 510 U.S. at 586-87.

⁸⁸ 336 F. 3d at 820-21. See also *Field v. Google Inc.*, 412 F. Supp. 2d 1106, 1120-121 (D. Nev. 2006) (finding the third factor weighing in favor of neither party because, while Google copied entire pages in its web caching service, the amount used was necessary to the purpose).

⁸⁹ 203 F.3d at 608.

from being a fair use.⁹⁰ Indeed, the limited nature of copying for interoperability purposes made it a fair use.⁹¹

In the present situation, the amount of firmware copied for the various smartphone and tablet jailbreaks varies depending on device and version. In each case, however, the amount copied is necessary and reasonable for the legitimate purpose—ensuring interoperability with third party applications. In some cases, user modifications to the code are de minimis—fewer than 50 bytes of code out of more than 8 million bytes are altered in order to achieve interoperability for the iPhone.⁹² Under current case law, this reasonable use would reduce the importance of the third factor and would not preclude a finding of fair use. And in the 2009 rulemaking proceeding, the Register noted the minimal importance of the third factor: “In a case where the alleged infringement consists of the making of an unauthorized derivative work, and the only modifications are as de minimis as they are here, the fact that iPhone users are using almost the entire iPhone firmware for the purpose for which it was provided to them by Apple undermines the significance of this factor.”⁹³ Thus, the third factor favors a finding of fair use.

4. Market for the Copyrighted Work

The fourth factor considers the direct harms caused by a particular use on the market or value of a work and the potential harm that might result from similar future uses.⁹⁴ Typically, courts require either a demonstration of actual harm or a likelihood that harm will result.⁹⁵

In *Sega*, the court emphasized that Accolade sought to become a legitimate competitor in the field of Genesis games and did not copy any of the elements of the Sega code that led to commercial success.⁹⁶ Moreover, consumers were likely to purchase more than one game, so sales of Accolade games would not directly foreclose Sega sales.⁹⁷ In *Connectix*, the court emphasized the transformative nature of the Connectix platform and concluded that any market harm to Sony would result from legitimate competition, not unfair copying.⁹⁸

By the same token, jailbreaking does not foreclose sales of smartphone or tablet firmware, nor are users jailbreaking their devices to compete in the marketplace for firmware sales. Apple admitted in the last rulemaking that jailbreaking had not harmed the sales or licensing of iOS firmware.⁹⁹ There is no new evidence to the contrary; rather, smartphones and tablets bundled with their firmware have experienced a universal increase in sales.

The Register concluded in the previous rulemaking that the fourth factor was not designed to protect manufacturers from potential incidental damage, such as security concerns or device

⁹⁰ 997 F.2d at 1526.

⁹¹ *Id.*

⁹² 2010 Recommendation, *supra* note 3, at 96.

⁹³ *Id.* at 97.

⁹⁴ *Campbell*, 510 U.S. at 590.

⁹⁵ *See, e.g., Sony Corp. of Am. v. Universal Studios, Inc.*, 464 U.S. 417, 451-52 (1984); *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 590-92 (1994).

⁹⁶ 977 F.2d at 1523.

⁹⁷ *Id.*

⁹⁸ 203 F.3d at 607.

⁹⁹ 2010 Recommendation, *supra* note 3, at 99.

integrity, that might arise from users jailbreaking their devices.¹⁰⁰ Because tablets and smartphones share a similar relationship to technological restrictions, firmware, and business objectives, and because these uses are transformative and have no adverse effect on the market for device firmware, the fourth factor weighs in favor of permitting these uses.

All four factors, including the important first and fourth factors, weigh in favor of a finding of fair use. Jailbreaking smartphones and tablets for the purpose of installing legitimate interoperable software is non-infringing.

G. The Four Nonexclusive Statutory Factors (Smartphones and Tablets)

Section 1201(a)(1)(C) sets out several nonexclusive factors to be considered when evaluating proposed exemptions. These factors are guided by a careful balancing test between the harm identified by the proponent of an exemption and the adverse effects that might result from proposed exemption. However, the Register has previously acknowledged that the importance of these factors is diminished where the technological protection measures reflect a “business decision that has nothing to do with the interests protected by copyright.”¹⁰¹ While this applies to technological protection measures in both smartphones and tablets, an analysis of these factors weighs in favor of granting an exemption and highlights the public benefits that would follow.

1. The Availability for Use of Copyrighted Works

In considering this statutory factor, the Register examines whether “the availability for use of copyrighted works would be adversely affected by permitting an exemption.” The Register also “consider[s] whether a particular [non-infringing] use can be made from another readily available format when the access-controlled digital copy of that 'work' does not allow that use.”¹⁰²

The availability of firmware for smartphones or tablets would not be adversely affected by permitting an exemption that allows users to jailbreak their devices to enable interoperability. The firmware on these devices is not sold separately. It is generally bundled with the hardware that the user purchases. For both iOS devices and the numerous platforms available using Android, the success of the physical device has grown despite jailbreaking.¹⁰³

The Register previously agreed that jailbreaking to allow for interoperable software would increase the availability of applications for smartphones “while simultaneously being unlikely to interfere with the availability of smartphone operating systems or other works currently being used or created for wireless communications devices”¹⁰⁴ This is likely to be the case for tablets

¹⁰⁰ *Id.*

¹⁰¹ Recommendation of the Register of Copyrights in RM 2005-11, Rulemaking on Exemptions from Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, November 17, 2006 (“2006 Recommendation”) at 52 *available at* http://www.copyright.gov/1201/docs/1201_recommendation.pdf.

¹⁰² *Id.* at 21–22.

¹⁰³ *Apple Reports Second Quarter Results*, Apple, Inc., (Apr. 20, 2011), <http://www.apple.com/pr/library/2011/04/20Apple-Reports-Second-Quarter-Results.html>.

¹⁰⁴ 2010 Recommendation, *supra* note 3, at 102.

as well. As such, both the devices and their firmware are likely to be in even greater demand as their functionality is expanded by new applications.

Conversely, the lack of an exemption may decrease the appeal of smartphones and tablets for many consumers and innovators.¹⁰⁵ Owners of smartphones and tablets currently have no alternative to jailbreaking where the firmware restricts the types of applications that they can run. Without an exemption, users concerned about § 1201 liability will be narrowly confined to the functionality of applications distributed only through authorized channels, and will be unable to avail themselves of the many kinds of third party applications currently on the market.

2. The Availability for Use of Works for Nonprofit Archival, Preservation, and Education Purposes

There is no reason to believe that the availability of smartphone or tablet firmware for nonprofit uses will be harmed by an exemption that permits jailbreaking to enable interoperability. Consistent with the Register's conclusion regarding smartphones in 2010, this factor appears to be neutral.¹⁰⁶

3. The Impact on Criticism, Comment, News Reporting, Scholarship or Research

There is no reason to believe that an exemption that permits smartphone and tablet users to jailbreak their devices would curtail the availability of criticism, comment, news reporting, teaching, scholarship, or research.

To the contrary, smartphone and tablet jailbreaking have spurred both valuable commentary and important security research. For example, one prominent jailbreak for iOS has led a vibrant discussion of, and corrections to, a security vulnerability in the process by which Safari, the iPhone's native web browser, opens PDF files. This vulnerability posed a risk to the security of all iOS users but was "patched" by security researchers in the jailbreak community before Apple

¹⁰⁵ See, e.g., Ben Lang, *Apple Won't Fix My iPhone, But Jailbreaking Will*, Carrypad (Aug. 7, 2011), <http://www.carrypad.com/2011/08/07/apple-wont-fix-my-iphone-but-jailbreaking-will/> (explaining that he would use Android if he couldn't jailbreak his iPhone: "[I]t's upsetting that Apple tries to block jailbreaking at every update. Jailbreaking has saved me money, provided support where Apple could not, and provides a bunch of functionality that I use daily that Apple's iOS doesn't support by default."); see also Discussion Thread: jailbreaking ipod, <http://www.spacetimestudios.com/showthread.php?40782-jailbreaking-ipod/page2> (last visited Nov. 30, 2011) ("Personally, if I couldn't jailbreak my iPhone anymore, I wouldn't even buy it anymore. Jailbreaking allows you to add A LOT of functionality, with little effort."); CyDevice, <http://cydevice.net/archive/index.php/thread-2058-2.html> (last visited Nov. 30, 2011) ("I really don't think I would have an iPhone if I couldn't jailbreak. I probably wouldn't be able to justify the cost or be satisfied with the level of utility I'd get with a stock iPhone."); Akshay Masand, *iOS 5 Multitasking Gestures Not Compatible With Original iPad – Frustrates Many Users*, modmyi (Oct. 15, 2011), <http://modmyi.com/content/5575-ios-5-multitasking-gestures-not-compatible-original-ipad-frustrates-many-users-comments2.html> (referring to a commenting user who writes "I honestly, wouldn't even want my iPad or iPhone 4 if I couldn't jailbreak them. Both are very boring and too restricted without the jailbreak."); Sebastian, *My (Belated) First Impressions of the iPad*, idownloadblog (June 12, 2010), <http://www.idownloadblog.com/2010/06/12/my-belated-first-impressions-about-the-ipad/> (quoting a commenting user who writes "I wouldn't have the iPad if I couldn't jailbreak.").

¹⁰⁶ 2010 Recommendation, *supra* note 3, at 101.

addressed it, leading some users to jailbreak their devices specifically to alleviate this risk.¹⁰⁷ Absent the ability to jailbreak, researcher might have been afraid to publicly discuss the security vulnerability. Moreover, major conferences and other security research fora are including jailbreaking-related presentations.¹⁰⁸ Thus, the record suggests that an exemption allowing jailbreaking for interoperability purposes will increase security research that is particularly important in light of the sensitive data, such as online banking and enterprise transactions, that many users engage in every day.¹⁰⁹

4. The Effect on the Market for, or Value of, Copyrighted Works

Nothing in the factual record suggests that this factor has changed since the prior rulemaking with respect to smartphones. As we explained in our analysis of the fourth fair use factor, allowing users to jailbreak both smartphones and tablets will have no independent negative impact on the actual market for the firmware bundled with the machines.¹¹⁰

Instead, the proposed exemption is likely to stimulate the market for such works by providing developers with incentives to develop third party applications, thus making these devices— together with their copyrighted firmware—more attractive to consumers.¹¹¹ Since the last rulemaking proceeding, for example, we have seen a dramatic increase in the development and use of third party smartphone and tablet applications, at least some of which can be traced to the Copyright Office’s decision to allow the proposed exemption, and which may not otherwise have occurred.¹¹² As such, a renewed and expanded exemption may increase the value of such firmware.

5. Other Factors

Manufacturers have not put firmware restrictions on smartphones and tablets to protect the copyrighted firmware. Rather, they exist to preserve various aspects of the manufacturers’ business interests—interests the Register has already determined to be unrelated to the purpose of this proceeding. In both 2006 and 2010, the Register frowned on firmware manufacturers advancing copyright claims in their functional computer programs to support anti-competitive business practices.

The Register recognized in 2006 that “when application of the prohibition on circumvention of access controls would offer no apparent benefit to the author or copyright owner in relation to the

¹⁰⁷ Adam Dachis, *Jailbreak Your iOS 4 Device to Protect Against Its PDF Exploit*, Lifehacker (Aug. 6, 2010), <http://lifehacker.com/5606484/jailbreak-your-ios-4-device-to-protect-against-its-pdf-exploit>.

¹⁰⁸ 2011 ACM CCS Workshop on Security and Privacy in Smartphones and Mobile Devices, http://www.cs.ncsu.edu/faculty/jiang/ccs11_workshop/ (last visited Nov. 30, 2011).

¹⁰⁹ 2010 Recommendation, *supra* note 3, at 103.

¹¹⁰ 2010 Recommendation, *supra* note 3, at 98.

¹¹¹ *See, e.g., Sega*, 977 F.2d 1510 at 1531 (Noting that the consumer appetite for video games is large enough to support markets for both original and competing content, but that at any rate, “[A]n attempt to monopolize the market by making it impossible for others to compete runs counter to the statutory purpose of promoting creative expression” and does not cut against fair use.)

¹¹² *See* Testimonials of consumers who would not have purchased their smartphones and tablets if they were not able to jailbreak the devices, *supra* note 77.

work to which access is controlled, but simply offers a benefit to a third party who may use § 1201 to control the use of hardware which, as is increasingly the case, may be operated in part through the use of computer software or firmware, an exemption may well be warranted.”¹¹³ Again in 2010, she stated that “while a copyright owner might try to restrict the programs that can be run on a particular operating system, copyright law is not the vehicle for imposition of such restrictions, and other areas of the law, such as antitrust, might apply. It does not and should not infringe any of the exclusive rights of the copyright owner to run an application program on a computer over the objections of the owner of the copyright in the computer’s operating system.”¹¹⁴

Here, this same analysis supports the granting of an exemption in favor of both smartphone and tablet owners who want to run lawfully obtained software of their own development or choosing. Granting the exemption will not impair the legitimate copyright interests of those who create the firmware. At the same time, an exemption would vindicate the “strong public interest” in fostering competition in the software market, thereby encouraging innovation, and expanding consumer choice.

III. Proposed Class #2: Circumvention Necessary for “Jailbreaking” Video Game Consoles

Proposed class: Computer programs that enable video game consoles to execute lawfully obtained software applications, where circumvention is undertaken for the sole purpose of enabling interoperability of such applications with computer programs on the gaming console.

A. Summary

Modern video game consoles are increasingly sophisticated computing devices. They are capable of running not only games, but entire computer operating systems. However, all three major video game manufacturers—Sony, Microsoft, and Nintendo—have deployed technical restrictions that force console purchasers to limit their operating systems and software exclusively to vendor-approved offerings, even where there is no evidence that other options will infringe copyrights. This severely constrains not only consumer choice and the value of the console to its owner, but also the incentives for independent developers to create copyrightable systems and software that would expand the marketplace for these devices and promote the progress of science and the useful arts in these areas.

For example, when Sony first marketed the Sony PlayStation 3 (“PS3”) in 2006, it highlighted as a key feature the PS3’s ability to run the Linux OS in addition to the native PS3 OS.¹¹⁵ In

¹¹³ 2006 Recommendation, *supra* note 105 at 52.

¹¹⁴ 2010 Recommendation, *supra* note 3, at 96-97.

¹¹⁵ See, e.g., Brief for Complainant at 15, *Ventura v. Sony Computer Entm’t Am., Inc.*, (No. CV-10-1811-EMT), (N.D. Cal. 2011); Tor Thorson, *Harrison denies Wii influenced PS3 controller, says PCs unnecessary*, Gamespot (May 31, 2006), <http://www.gamespot.com/news/6152133.html> (quoting Phil Harrison, Vice President of Sony Computer Entertainment Europe, as saying “[w]e believe that the PS3 will be the place where our users play, watch films, browse the Web The PlayStation 3 is a computer. We do not need the PC.”); see also Ryan Block, *Phil Harrison Sez PS3 will make you ditch your computer*, Engadget (June 2, 2006), <http://www.engadget.com/2006/06/02/phil-harrison-sez-ps3-will-make-you-ditch-your-computer/>; *Sony*

April 2010, however, Sony issued a firmware update that blocked this capability, leaving users and developers who depended on this functionality without any options for restitution.¹¹⁶

To overcome this sudden and dramatic limitation and restore their consoles to full functionality, console owners, hobbyists, security experts, and software developers created methods of jailbreaking to decrypt and modify the PS3's firmware to enable it to interoperate with lawfully obtained third-party operating systems and software. However, their efforts to gain control over the device have occurred under the threat of litigation by console manufacturers, including claims under § 1201.

In the 2009 rulemaking, the Copyright Office recognized that allowing users to decrypt and modify a device's firmware to enable the device to interoperate with lawfully obtained applications fosters fair use, competition and innovation. The same rationale applies to video game console jailbreaking for similar purposes of interoperability. The technological restrictions on video game console jailbreaking do not protect the value or integrity of the copyrighted work; rather, they reflect a business decision to restrict the applications that users can run on the device. As such, the Register should recommend a similar exemption for video game consoles to allow for the circumvention of technical protection measures to enable interoperability of the console with independently created operating systems and software applications.

B. Factual Background

Although modern video game systems such as the PS3 are capable of running computer operating systems and independently created software applications, manufacturers have burdened the devices with technical restrictions that interfere with the installation of such software. As video game consoles become more technically sophisticated, and therefore potential useful to end users, these limitations increasingly harm the general public by impeding research, stifling innovation, hampering potential new markets for creative works, and limiting consumer choice. The technical protection measures employed by console manufacturers currently force scientific researchers and independent software creators alike to engage in circumvention techniques to run the software needed for their optimal use of the consoles they own.

1. Video Game Console Manufacturers Restrict the Ability of Users to Run Alternative Operating Systems on Their Consoles, to the Detriment of Scientific Research.

Modern video game consoles can run hardware-intensive software for executing a variety of tasks, from gaming and home entertainment to performing complex scientific research and data analysis. The Sony PS3, for example, contains an inexpensive processor chip known as the

Computer Entertainment America to Showcase Ground-Breaking, Next-Generation Technology and New Innovative Online Services at 2007 Game Developers Conference, Sony Computer Entertainment America, (Mar. 5, 2007), <http://us.PlayStation.com/corporate/about/press-release/379.html> (demonstrating that Sony has held workshops at a gaming development conference providing specific instruction on “developing with Linux on PS3”).

¹¹⁶ See Patrick Seybold, *PS3 Firmware (v.3.21) Update*, PlayStation.Blog (Mar. 28, 2010), <http://blog.us.PlayStation.com/2010/03/28/ps3-firmware-v3-21-update/>.

“Cell,” which is capable of performing highly advanced computing functions.¹¹⁷ The sophisticated technology in modern video game consoles increasingly makes the devices an attractive, economically sensible alternative to a high-end computer.

Sony launched the PS3 in 2006 with a software application called OtherOS that allowed users to install Linux and Unix operating systems on their consoles.¹¹⁸ Sony chose to include the OtherOS feature to capitalize on consumer demand and highlight the capabilities of its new console as a computing device. During the development and initial marketing of the PS3, Sony officials made comments suggesting that the console was designed to do more than just play video games. Sony CEO Ken Kutaragi stated, and the gaming press emphasized,¹¹⁹ that the company did not intend to release a traditional game console, claiming that the PS3 is “clearly a computer.”¹²⁰ Kutaragi underscored this fact this by pointing to the “highly configurable” nature of the device, emphasizing that Sony “put up no restrictions.... [The PS3] can interact with anything, freely.”¹²¹

Once a user installed a computer operating system such as Linux¹²² via Sony’s OtherOS, she could use her PS3 as a traditional computer. In its marketing materials, Sony recognized the many opportunities presented by an alternative operating system: “by installing the Linux operating system you can use the PS3 system not only as an entry-level personal computer with hundreds of familiar applications for home and office use, but also as a complete [software] development engine.”¹²³

Because of the advanced processing capabilities of the PS3, the console also became an attractive option for scientific and other researchers looking for inexpensive computing power.¹²⁴

¹¹⁷ See Nicholas Blachford, *Cell Architecture Explained, Version 2*, Blachford Info, http://www.blachford.info/computer/Cell/Cell0_v2.html (last visited Nov. 30, 2011).

¹¹⁸ See Barb Dybwad, *Kutaragi Confirms PS3 HDD will be add-on, and will run Linux*, Engadget (June 9, 2005), <http://www.engadget.com/2005/06/09/kutaragi-confirms-ps3-hdd-will-be-add-on-and-will-run-linux/>.

¹¹⁹ See Emma Boyes, *Yellow Dog Linux launches for PS3*, Gamespot (Nov. 27, 2006), <http://www.gamespot.com/news/6162316.html?sid=6162316>.

¹²⁰ See *Kutaragi Details PS3 ‘Computer’ Claim*, Edge (June 7, 2006), <http://www.next-gen.biz/news/kutaragi-details-ps3-computer-claim>

¹²¹ *Id.*

¹²² Linux is a computer operating system developed by Linus Torvalds as a free, open source alternative to Microsoft’s Windows and Apple’s Mac OS. The distinguishing feature of Linux is that it is developed and advanced via a collaborative work effort by developers across the world. Because of this collaborative development process, Linux is frequently modified to run on new devices. See *What Is Linux: An Overview of the Linux Operating System*, Linux (Apr. 3, 2009), <https://www.linux.com/learn/resource-center/376-linux-is-everywhere-an-overview-of-the-linux-operating-system>.

¹²³ See *Overview of the Open Platform for the PlayStation3 System*, Playstation, <http://PlayStation.com/ps3-openplatform/index.html> (last visited Nov. 7, 2011); see also Michael McWhertor, *20 Questions with Phil Harrison at DICE*, Kotaku (Feb. 8, 2007), <http://kotaku.com/235049/20-questions-with-phil-harrison-at-dice> (quoting Phil Harrison of Sony as stating, “One of the most powerful things about the PS3 is the ‘Install Other OS’ option”).

¹²⁴ Sony has in fact recognized the scientific research potential of the PS3, and has collaborated with Stanford University to create an application called “Folding@Home,” which enables an individual to allow their console to be a part of a distributed computing project that conducts protein folding research on a worldwide scale. The project links both computers and PS3 consoles from across the world and uses their idle resources to run advanced modeling problems. The PS3 project has thus far been enormously successful, contributing a dramatic increase in computational power. While the Folding@Home project does not require the console to be jailbroken,

Various researchers at institutions across the nation have conducted groundbreaking research using clusters of PS3s as “supercomputers.”¹²⁵ For example, Dr. Gaurav Khanna, an astrophysicist at the University of Massachusetts, created complex simulations of gravitational waves using a grid of eight PS3s he developed as an alternative to more costly and inefficient methods of scientific research.¹²⁶ According to Dr. Nicholas Pinto, a computational neuroscientist at Harvard University who used two PS3 supercomputer clusters to conduct research on how the brain recognizes objects, PS3 clusters were “by far the least expensive ... 222 times more powerful than the second most affordable system [and] the relative power performance per dollar for PS3-based systems was 833 times that of the nearest competitor.”¹²⁷

The U.S. military has also made extensive use of the PS3’s inexpensive computing power.¹²⁸ For example, an Air Force Research Lab in Rome, New York, purchased over 1,700 PS3s for use in a military computer cluster called the Condor Supercomputer, one of the 40 fastest computers in the world at the time.¹²⁹ The lab’s director of high-performance computing estimated that it would have cost ten times as much to build a comparable supercomputer without using PS3s.¹³⁰

Despite the success of OtherOS, Sony released a firmware update in April 2010 that completely removed the functionality from all PS3 consoles.¹³¹ While users were not forced to install the update, refusing to do so prevented the user from having access to crucial PS3 features such as online gameplay, the PlayStation online marketplace, and playback of newly released Blu-Ray

it serves to further illustrate the powerful potential the console has for research purposes, potential that has been needlessly limited by Sony’s business decision to this sole project. *See* Folding@Home: distributed computing, <http://folding.stanford.edu/English/Main> (last visited Nov. 30, 2011); *see also* Luigi Lugmayr, *1 Million Sony PS3 Users participate in Folding@Home*, I4U News (Feb. 5, 2008), <http://www.i4u.com/18389/1-million-sony-ps3-users-participate-foldinghome>.

¹²⁵ *See* Jacki Lyden, *PlayStation 3: A Discount Supercomputer?*, National Public Radio (Feb. 21, 2009), <http://www.npr.org/templates/story/story.php?storyId=100969805>; *see also* Gilbert Chin, *The Next Top Model*, 327 *Science* 13 (Jan. 2010), available at <http://pinto.scripts.mit.edu/uploads/Research/Science-EditorChoice-2010--13.pdf>.

¹²⁶ Declaration of Gaurva Khanna, attached as Appendix C, 10-12 (“Khanna Dec.”); *see also* Bryan Gardiner, *Astrophysicist Replaces Supercomputer with Eight PlayStation 3s*, *Wired* (Oct. 17, 2007), http://www.wired.com/techbiz/it/news/2007/10/ps3_supercomputer.

¹²⁷ *See* Declaration of Nicolas Pinto (“Pinto Dec.”), attached as Appendix D, 14-16; *see also* Nicolas Pinto, David Doukhan, James J. DiCarlo, & David D. Cox, *A High-Throughput Screening Approach to Discovering Good Forms of Biologically-Inspired Visual Representation*, *PLoS Computational Biology*, (Nov. 26, 2009), <http://www.ploscompbiol.org/article/info%3Adoi%2F10.1371%2Fjournal.pcbi.1000579>.

¹²⁸ *See* Wes Finley-Price, *Military purchases 2,200 PS3s*, *CNN SciTechBlog* (Dec. 9, 2009), <http://scitech.blogs.cnn.com/2009/12/09/military-purchases-2200-ps3s/>.

¹²⁹ *See* Dave Tobin, *Rome Lab’s Supercomputer is Made up of 1,700 Off-the-Shelf PlayStation 3 Gaming Consoles*, *Syracuse Post-Standard* (Mar. 23, 2011), http://www.syracuse.com/news/index.ssf/2011/03/rome_labs_supercomputer_is_mad.html.

¹³⁰ *See Id.*

¹³¹ Patrick Seybold, *PS3 Firmware (3.21) Update*, *PlayStation.Blog* (Mar. 28, 2010), <http://blog.us.PlayStation.com/2010/03/28/ps3-firmware-v3-21-update/>. Although it did not originally sanction the practice, Microsoft has also taken steps to neutralize jailbreaks designed by developers wishing to install Linux on the Xbox 360. *See* James Delahunty, *Free60 Project Warns Against ‘Dangerous,’ ‘Homebrew Killing’ Xbox 360 Update*, *AfterDawn* (Aug. 12, 2009), http://www.afterdawn.com/news/article.cfm/2009/08/12/free_60_project_warns_against_dangerous_homebrew_killing_xbox_360_update (describing a similar method that Microsoft used to block exploits that allowed users to install Linux on their Xbox 360 consoles).

movies and video games.¹³² All PS3s subsequently sold by Sony operate on the updated firmware and no longer allow for the installation of other operating systems.¹³³ Even if a user has held off upgrading the firmware in order to maintain the OtherOS feature, if the user needs to send the console into Sony for repairs, a more recent firmware version will be installed on the console, eliminating OtherOS.¹³⁴ Officials at the Rome, New York Air Force research lab that used PS3s to build a supercomputer expressed their dismay with the situation: “it will make it difficult to replace systems that break or fail.”¹³⁵ The removal of OtherOS has also cut off the ability of scientific researchers like Dr. Khanna and Dr. Pinto to expand their supercomputer clusters to keep up with the ever-increasing demand for more computational power their research requires.¹³⁶

Without the OtherOS option, users lack a direct way to install the computer operating system of their choice on their consoles. Sony has employed a series of technical restrictions that limit the installation of software it has not officially approved.¹³⁷ The console’s firmware, which oversees and authorizes the loading process of every application, prevents the installation of unauthorized software that lacks an encryption key from Sony.¹³⁸ The console’s firmware is a copyrighted work and is itself encrypted to prevent access to and modification of its code.¹³⁹ The encryption of the console’s firmware prevents users from gaining access to and modifying the firmware to allow unauthorized applications to be installed. The only way to install a different operating system on any current-generation video game console is to bypass the restrictions the manufacturer has placed on the console via jailbreaking.

In short, users who wish to fulfill the original promise of the PS3 have no choice but to jailbreak the console to install an alternative operating system. While the Nintendo Wii and the Microsoft

¹³² See *New PS3 Firmware to Remove “Other OS” Feature*, GamePolitics (Mar. 29, 2010),

<http://gamepolitics.com/2010/03/29/new-ps3-firmware-remove-%E2%80%9Cother-os%E2%80%9D-feature>.

¹³³ See Matt Peckham, *Sony Zaps PlayStation 3 ‘Install Other OS’ Feature*, PC World (Mar. 29, 2010), http://www.pcworld.com/article/192731/sony_zaps_PlayStation_3_install_other_os_feature.html.

¹³⁴ See Nate Anderson, *Air Force May Suffer Collateral Damage From PS3 Firmware Update*, Ars Technica, <http://arstechnica.com/gaming/news/2010/05/how-removing-ps3-linux-hurts-the-air-force.ars> (last visited Nov. 30, 2011).

¹³⁵ See *Id.*

¹³⁶ Khanna Dec., Appendix C, 12-13; Pinto Dec., Appendix D, 16-17.

¹³⁷ Margaret Grazzini, *Sony v. Hotz: Controversies Regarding DMCA, Jurisdiction, Search Warrant and Subpoenas*, Berkeley Tech. L.J. (2011), available at <http://btlj.org/2011/03/20/sony-v-hotz-controversies-regarding-dmca-jurisdiction-search-warrant-and-subpoenas/> (“Sony’s TPMs are designed to prevent a third party from playing on the PS3 with ‘unauthorized or unlicensed software’; from accessing, decrypting or copying Sony’s copyrighted works without authorization; and from playing unauthorized copies of the works.”).

¹³⁸ See Mike Borza, *The Sony PlayStation Hack Deciphered: What Consumer-Electronics Designers Can Learn From The Failure to Protect a Billion-Dollar Product Ecosystem*, EDN (May 19, 2011), http://www.edn.com/article/518212-The_Sony_PlayStation_3_hack_deciphered_what_consumer_electronics_designers_can_learn_from_the_failure_to_protect_a_billion.php.

¹³⁹ See Brief for Complainant at 33, *Sony Computer Entm't Am. LLC v. Hotz*, (No. 11-CV-0167), 2011 WL 347137 (filed N.D. Cal. Jan. 27, 2011) (“The PS3 Programmer Tools authenticate authorized video game software and permit them to interact with the central processing unit and microprocessors in the PS3 System. Video game software that does not incorporate the PS3 Programmer Tools cannot be played on the PS3 System. The PS3 Programmer Tools are also incorporated within the PS3 System firmware”).

Xbox 360 did not launch with official support for Linux, developers have nevertheless managed to install alternative operating systems on both consoles via jailbreaking techniques, as well.¹⁴⁰

2. Video Game Console Manufacturers Restrict the Ability of Users to Run Independently Created Software Applications on Their Consoles, to the Detriment of Consumer Choice, Innovation and Competition.

None of the three major console manufacturers currently allow the installation of independently created (or “homebrew”) applications on their consoles. The PS3, Xbox 360 and Wii all use encrypted firmware to block access to unauthorized applications. Only software that has gone through the console manufacturer’s stringent approval process will receive the encryption key necessary to install the software on the console. Traversing the formal approval process can be demanding and complicated.¹⁴¹ All three major video game console manufacturers also require developers to pay a yearly licensing fee (ranging from \$1,700 to \$10,000) to make use of a software development kit required to obtain official approval and encryption.¹⁴² However, even if an independent game developer had the financial resources to pay for the official development kit, console manufacturers often refuse to license the software if the developer is not an established game company.¹⁴³ Approval is also contingent on developers sharing a portion of the

¹⁴⁰ Efforts to install Linux on the Nintendo Wii have been documented on the website GameCubeLinux. Note that because of the similarity in hardware between the GameCube and the Wii, Linux development efforts between the two consoles have been interrelated. See GameCubeLinux, http://www.gc-linux.org/wiki/Main_Page. In addition, efforts to install Linux on the Xbox 360 have been documented on the website Free60. See Free60, http://free60.org/Main_Page.

¹⁴¹ The requirements most console manufactures place on games for official distribution are quite high. In order to publish a game on Microsoft’s Xbox Live Arcade, for example, a developer must pass Microsoft’s stringent approval process, which looks to ensure that game is sufficiently innovative, has good gameplay elements, strong visuals, multiplayer support, marketplace interaction, and global appeal. A developer must submit a request for approval to Microsoft, which must fully describe the gameplay, include screenshots and art samples, as well as identify what makes the game unique. The game must also fit within Microsoft’s current portfolio for game content. See *GDC 2007: How to Pitch an XBLA Game*, IGN (Mar. 7, 2007), <http://xboxlive.ign.com/articles/771/771387p1.html>; see generally Ralph Edwards, *The Economics of Game Publishing*, IGN (May 5, 2006), <http://games.ign.com/articles/708/708972p1.html> (describing in detail the costs associated with publishing a game on a modern console).

¹⁴² See Daniel Chubb, *Sony Gets Desperate: Half Price Software Development Kit (SDK) for PS3*, Product Reviews (Nov. 20, 2007), <http://www.product-reviews.net/2007/11/20/sony-gets-desperate-half-price-software-development-kit-sdk-for-ps3/> (stating that the price of licensing the software development kit for the PS3 is \$10,000); see also *Wii Development Kit to Cost \$1,700*, Nintendo Wii Zone (June 21, 2006), <http://www.nwiizone.com/nintendo-wii/nwii/wii-development-kit-to-cost-1700/> (stating that Nintendo’s announced price for licensing the software development kit will be \$1,700).

¹⁴³ See Declaration of Byron Guernsey, attached as Appendix E, 19 (“I have tried to directly contact Nintendo to ask them about developing content for the console. I was told that I needed a business address that was separate from my home address, as well as several other requirements that I would not be able to meet.”). An independent developer not affiliated with a video game company tried to inquire about licensing a software development kit from Nintendo and received the following email in response: “Hello and thank you for contacting Nintendo[.] From time to time we hear from our fans with programming experience who wish to acquire development kits for purposes of game development. While we applaud your desire to develop software for our systems, Nintendo’s development kits are only made available to established game developers. This means that you must have a stable business organization (adequate office facilities, equipment, personnel and financial resources) in order to ensure a secure and effective environment for working with its publisher, be it Nintendo or a third-party licensee. Also, you must have demonstrated the ability to develop and program excellent software for Nintendo video game systems or for other video game or computer systems. Sincerely, Nintendo of America Inc. Dervin

application's profits with the console manufacturer.¹⁴⁴ The restrictions used to block access to unauthorized applications thus protect the console manufacturers' business interests while needlessly limiting consumer choice and stifling innovation and creativity of independent game creators.

As a result, many developers have turned to a process known as "homebrew" to develop applications outside of the traditional console manufacturer approval process. However, these independent creators and their customers must defeat the console manufacturers' restrictions to enable their software to function.

A robust online community, replete with numerous message boards and dedicated websites, has emerged to distribute, review and modify independently created homebrew applications and games.¹⁴⁵ The Wii console has a particularly active homebrew community centered around the website WiiBrew.org.¹⁴⁶ WiiBrew members maintain an actively updated and categorized listing of homebrew applications that have been developed for the Wii.¹⁴⁷ The website currently has seven different categories for homebrew applications, listing a total of over 450 different software applications.¹⁴⁸ For each application, users can contribute to a discussion page about the application, providing feedback on what aspects of the application work well and which could use improvement.¹⁴⁹ For most developers, the homebrew community at WiiBrew offers an essential chance to share the fruit of their countless hours of coding work with the rest of the world. WiiBrew also features numerous features that explain how to create homebrew applications for the Wii, to help guide uninitiated but curious and enthusiastic developers.¹⁵⁰ Members of the WiiBrew community do not endorse or tolerate discussion of copyright infringing activities, and the site is actively monitored to ensure that discussion stays focused on

Camden." See *Wii Development Kit to Cost \$1,700*, Nintendo Wii Zone (June 21, 2006), <http://www.nwiizone.com/nintendo-wii/nwii/wii-development-kit-to-cost-1700/> (referring to a comment posted by a user under the name Sinister).

¹⁴⁴ See Ralph Edwards, *The Economics of Game Publishing*, IGN (May 5, 2006), <http://games.ign.com/articles/708/708972p1.html> ("Additionally, the publisher will also have to pay the developer royalties for the game based on a percentage of the net sales revenue of the game after deductions, such as taxes, shipping, insurance, and returns. This royalty percentage varies greatly within the industry and deals will often include step ups in rates based on hitting certain sales goals or milestones. Based on our independent research, the typical royalty is anywhere from 10% to 20%.").

¹⁴⁵ See PS3-Hacks, <http://ps3.dashhacks.com/tag/ps3-homebrew> (last visited Nov. 30, 2011); PS3 Homebrew <http://ps3homebrew.org/category/homebrew-2/> (last visited Nov. 30, 2011); Jailbreak Scene, <http://jailbreakscene.com/> (last visited Nov. 30, 2011); PS3 Hax Network, <http://www.ps3hax.net/forumdisplay.php?f=12> (last visited Nov. 30, 2011).

¹⁴⁶ WiiBrew, http://wiibrew.org/wiki/Main_Page (last visited Nov. 30, 2011).

¹⁴⁷ See *List of Homebrew Applications*, WiiBrew, http://wiibrew.org/wiki/List_of_homebrew_applications (last visited Nov. 30, 2011).

¹⁴⁸ WiiBrew's seven categories are Applications (over 65 applications listed), Games (over 250 applications listed), Homebrew Loaders (14 applications listed), System Tools (over 35 applications listed), PC Utilities (over 50 applications listed), and Demos (over 40 applications listed). See also *Id.*

¹⁴⁹ The discussion board for the graphical engine application FiSSION provides but one such example of an active discussion board. See WiiBrew, <http://wiibrew.org/wiki/Talk:FiSSION> (last visited Nov. 30, 2011).

¹⁵⁰ See *Making Homebrew*, WiiBrew, http://wiibrew.org/wiki/Homebrew_development (last visited Nov. 30, 2011).

promoting the community's goal of creating innovative and original applications that extend the use of the console.¹⁵¹

NintendoMax is another example of a vibrant community that has been organized around homebrew development on Nintendo video game consoles.¹⁵² Each year NintendoMax sponsors an international competition that recognizes exemplary homebrew projects.¹⁵³

The homebrew community focusing on the PS3 and Wii platforms has produced a wide variety of applications to run on those consoles.¹⁵⁴ The most traditional form of a homebrew application is a video game created by an independent developer who is unable or does not wish to comply with the significant limitations and requirements imposed by official distribution.¹⁵⁵ WiiBrew.org currently lists over 250 games that have been independently created for the Wii. These games span a vast variety of categories, including arcade,¹⁵⁶ puzzle,¹⁵⁷ board,¹⁵⁸ card,¹⁵⁹

¹⁵¹ See Declaration of Aaron Morris, attached as Appendix F, 22; see also WiiBrew Policy, <http://wiibrew.org/wiki/WiiBrew:Policy> (last visited Nov. 30, 2011). (“WareZ, Virtual Console, and WiiWare piracy is not permitted. This includes talk about “backups”, regardless of their legality, and tools related to piracy. This also includes modchips. Content pertaining to Nintendo’s own SDK, game resource files, or other leaked information is forbidden.”).

¹⁵² See NintendoMax, <http://www.nintendomax.com/viewforum.php?f=54> (last visited Nov. 30, 2011).

¹⁵³ See NintendoMax Wii Dev Competition 2011, <http://www.nintendomax.com/viewtopic.php?f=141&t=13021> (last visited Nov. 30, 2011).

¹⁵⁴ In an interesting juxtaposition to the Wii and the PS3, there is not a strong homebrew community on the Xbox 360. However, in contrast to both of those consoles, Microsoft has created a development program that allows developers to publish games with relative ease on the less-regulated Indie Game section of the console’s marketplace. It appears that this official channel to distribute independently created content has decreased the need for a homebrew community to develop around the Xbox 360, much in a similar way as Sony’s original support for Linux limited the desire to jailbreak the console. See Borza, *The Sony PlayStation Hack Deciphered*. As Sony’s history illustrates, however, such official distribution channels exist at the whim of console manufacturers and have the potential to be shut down at any time. In the event that such official support is eliminated, users would have no other way of getting access to such independently created content. Furthermore, the Indie Game marketplace is still just a single channel of application distribution; users that wish to install applications that they make themselves or obtain from any other source still have to circumvent technical protection measures.

¹⁵⁵ For a discussion about the complexities and economics of getting a game published on a modern video game console, see Edwards, *supra* note 144.

¹⁵⁶ See List of Homebrew Games: Arcade, http://wiibrew.org/wiki/List_of_homebrew_games#Arcade (last visited Nov. 30, 2011). A representative sample of a homebrew arcade game is Liqwiid Wars. See Liqwiid Wars, http://wiibrew.org/wiki/Liqwiid_Wars (last visited Nov. 30, 2011). A video showing the Liqwiid Wars game in use can be viewed at <http://www.youtube.com/watch?v=BAIC-UIwmPE>.

¹⁵⁷ See List of Homebrew Games: Puzzle, http://wiibrew.org/wiki/List_of_homebrew_games#Puzzle (last visited Nov. 30, 2011). A representative sample of a homebrew puzzle game is Arcade Jigsaw. See Arcade Jigsaw, http://wiibrew.org/wiki/Arcade_Jigsaw (last visited Nov. 30, 2011). A video showing the Arcade Jigsaw game in use can be viewed at http://www.youtube.com/watch?v=GzUG8cVjY5Y&feature=player_embedded.

¹⁵⁸ See List of Homebrew Games: Board, http://wiibrew.org/wiki/List_of_homebrew_games#Board (last visited Nov. 30, 2011). A representative sample of a homebrew board game is Wii Tac Toe. See Wii Tac Toe, <http://wiibrew.org/wiki/Wii-Tac-Toe> (last visited Nov. 30, 2011). A video showing the Wii Tac Toe game in use can be viewed at <http://www.youtube.com/watch?v=nVHzZ9TJa-U>.

¹⁵⁹ See List of Homebrew Games: Card, http://wiibrew.org/wiki/List_of_homebrew_games#Card (last visited Nov. 30, 2011). A representative sample of a homebrew card game is Matching Cards. See Matching Cards, http://wiibrew.org/wiki/Matching_Cards (last visited Nov. 30, 2011). A video showing the Matching Cards game in use can be viewed at <http://www.youtube.com/watch?v=P0-iVFBetOQ>.

music,¹⁶⁰ platform,¹⁶¹ racing,¹⁶² roleplaying,¹⁶³ shooter,¹⁶⁴ simulation,¹⁶⁵ and trivia.¹⁶⁶ For example, SwingBall, a game for the Wii developed by user ThatOtherPerson,¹⁶⁷ allows the user to take control of a ball and uses the WiiMote to jump and swing around an interactive environment in a quest to reach the end of the stage.¹⁶⁸ EsKiss, a popular homebrew game for the PS3 features motion controls and high definition graphics.¹⁶⁹

But homebrew development extends beyond the world of video games. Developers have created software applications that dramatically extend the practical utility of a video game console. One example is WiiWhiteBoard, a homebrew application that allows a user to turn a TV into an interactive whiteboard.¹⁷⁰ Homebrew developers on the Wii have also created applications that transform the console into an interactive calculator,¹⁷¹ a metronome,¹⁷² a Japanese language-

¹⁶⁰ See List of Homebrew Games: Music, http://wiibrew.org/wiki/List_of_homebrew_games#Music (last visited Nov. 30, 2011). A representative sample of a homebrew music game is Harmonium. See Harmonium, <http://wiibrew.org/wiki/Harmonium> (last visited Nov. 30, 2011). A video showing the Harmonium game in use can be viewed at http://www.youtube.com/watch?v=fE4OzYkoTrs&feature=player_embedded.

¹⁶¹ See List of Homebrew Games: Platform, http://wiibrew.org/wiki/List_of_homebrew_games#Platform (last visited Nov. 30, 2011). A representative sample of a homebrew Platform game is MyLittleBall. See My Little Ball, <http://wiibrew.org/wiki/MyLittleBall> (last visited Nov. 30, 2011). A video showing the MyLittleBall game in use can be viewed at <http://www.youtube.com/watch?v=CuDv56c6Afc>.

¹⁶² See List of Homebrew Games: Racing, http://wiibrew.org/wiki/List_of_homebrew_games#Racing (last visited Nov. 30, 2011). A representative sample of a homebrew racing game is zeRace. See zeRace, <http://wiibrew.org/wiki/ZeRace> (last visited Nov. 30, 2011). A video showing the zeRace game in use can be viewed at <http://www.youtube.com/watch?v=fTFuvmQLNEoZeRace>.

¹⁶³ See List of Homebrew Games: Role Playing, http://wiibrew.org/wiki/List_of_homebrew_games#Role_playing (last visited Nov. 30, 2011). A representative sample of a homebrew role playing game is Pineapple Apocalypse RPG. See Pineapple Apocalypse RPG, http://wiibrew.org/wiki/Pineapple_Apocalypse_RPG (last visited Nov. 30, 2011). A video showing the Pineapple Apocalypse RPG game in use can be viewed at http://www.youtube.com/watch?v=XKh15qVqmEw&feature=player_embedded.

¹⁶⁴ See List of Homebrew Games: Shooter, http://wiibrew.org/wiki/List_of_homebrew_games#Shooter (last visited Nov. 30, 2011). A representative sample of a homebrew shooter game is Smashing!. See Smashing!, <http://wiibrew.org/wiki/Smashing!> (last visited Nov. 30, 2011). A video showing the Smashing! game in use can be viewed at http://www.youtube.com/watch?v=x8GrN7-8gpk&feature=player_embedded.

¹⁶⁵ See List of Homebrew Games: Simulation, http://wiibrew.org/wiki/List_of_homebrew_games#Simulation (last visited Nov. 30, 2011). A representative sample of a homebrew simulation game is WiiPhysics. See WiiPhysics, <http://wiibrew.org/wiki/WiiPhysics> (last visited Nov. 30, 2011). A video showing the WiiPhysics game in use can be viewed at http://www.youtube.com/watch?v=aTIXFYXvKOM&feature=player_embedded.

¹⁶⁶ See List of Homebrew Games: Trivia, http://wiibrew.org/wiki/List_of_homebrew_games#Trivia (last visited Nov. 30, 2011). A representative sample of a homebrew trivia game is MadQuiz. See MadQuiz, <http://wiibrew.org/wiki/MadQuiz> (last visited Nov. 30, 2011).

¹⁶⁷ See ThatOtherDev, <http://thatotherdev.com/> (last visited Nov. 30, 2011) (referring to a personal website for the developer ThatOtherPerson).

¹⁶⁸ A video of this game can be viewed at http://www.youtube.com/watch?feature=player_embedded&v=YQSBX1p90AQ (last visited Nov. 30, 2011).

¹⁶⁹ A video of this game can be viewed at http://www.youtube.com/watch?feature=player_embedded&v=j2kuxyzY7IU# (last visited Nov. 30, 2011).

¹⁷⁰ See WiiWhiteBoard, <http://code.google.com/p/wiiwhiteboard/> (last visited Nov. 30, 2011).

¹⁷¹ See WiiCalc Application, <http://wiibrew.org/wiki/WiiCalc> (last visited Nov. 30, 2011). A YouTube video showing the WiiCalc application in use can be viewed at <http://www.youtube.com/watch?v=Yvoo8MwvVw>.

¹⁷² See Metronome Application, <http://wiibrew.org/wiki/Metronome> (last visited Nov. 30, 2011). A YouTube video showing the Metronome application in use can be viewed at <http://www.youtube.com/watch?v=AZEJKVP47Us>.

learning device,¹⁷³ a comic book display,¹⁷⁴ an alarm clock,¹⁷⁵ an Internet radio player,¹⁷⁶ a 3D map,¹⁷⁷ a cookbook,¹⁷⁸ and a web server.¹⁷⁹ On Microsoft's Xbox console, homebrew developers created the XBMC Media Center, which provides a visually appealing media player and entertainment hub, allowing users not only to watch videos but also access information like the weather forecast.¹⁸⁰ Each of these independently created software programs is a copyrightable work that the Constitution and the Copyright Act are meant to encourage.

Developers have also created software applications that enable users to create backup files of games that have been legitimately purchased. Creating such backups is necessary to protect a consumer's investment in video game software, since the physical disc a game resides on can easily become scratched and unplayable.¹⁸¹ The PS3 application Multiman is a prime example of such an application.¹⁸² Multiman allows users to create a backup of their PS3 software—a practice generally sanctioned by the Copyright Act¹⁸³—and save the file on an external hard drive.

Homebrew developers have also created applications that utilize hardware functions of the console that would otherwise be unavailable because the console's firmware limits and controls access to all of the console's various hardware components. One such example transforms a console into a file transfer protocol (FTP) server, which allows for automatic and remote data transfer to and from the device with a computer.¹⁸⁴ FTP functionality is useful for a user as it allows for data files to be easily transferred between the PS3 and a computer over the Internet.

¹⁷³ See HIRAGANA and Katakana Practice Application, http://wiibrew.org/wiki/Hiragana_%26_Katakana_Practice.

¹⁷⁴ See Comix Channel Application, <http://wiibrew.org/wiki/User:Tiamattia/ComixChannel> (last visited Nov. 30, 2011). A YouTube video showing the Comix Channel application in use can be viewed at http://www.youtube.com/watch?v=A0KVPGj3cIA&feature=player_embedded.

¹⁷⁵ See Alarmii Application, <http://wiibrew.org/wiki/Alarmii> (last visited Nov. 30, 2011). A YouTube video showing the Alarmii application in use can be viewed at <http://www.youtube.com/watch?v=ipFWeLvzLyo>.

¹⁷⁶ See WiiRadio Application, <http://wiibrew.org/wiki/WiiRadio> (last visited Nov. 30, 2011). A YouTube video showing the WiiRadio application in use can be viewed at http://www.youtube.com/watch?v=01lo_Izwo24&feature=player_embedded.

¹⁷⁷ See WiiEarth Application, <http://wiibrew.org/wiki/WiiEarth> (last visited Nov. 30, 2011). A YouTube video showing the WiiEarth application in use can be viewed at http://www.youtube.com/watch?v=Y4W_2sf4rDA.

¹⁷⁸ See WiiRecipe Application, <http://wiibrew.org/wiki/WiiRecipe> (last visited Nov. 30, 2011).

¹⁷⁹ See Wii Web Server Application, http://wiibrew.org/wiki/Wii_Web_Server (last visited Nov. 30, 2011).

¹⁸⁰ See Xbox Media Center, <http://xbmc.org/about/> (last visited Nov. 30, 2011).

¹⁸¹ See *Why You Shouldn't Use Optical Media for Backups*, BackupChain.com, <http://backupchain.com/why-you-shouldnt-use-optical-media-for-Backup.html> (last visited Nov. 30, 2011) ("CDs and DVDs are sensitive to light, heat, cold, scratches, and mechanical force, stress, and shock."); see also Tom McFay, *Scratches Ruin Video Games—Find Out How to Back Them Up and Save Money*, Ezine, <http://ezinearticles.com/?Scratches-Ruin-Video-Games—Find-Out-How-to-Back-Them-Up-and-Save-Money&id=4043116> (last visited Nov. 30, 2011).

¹⁸² MultiMan is available for download at <http://ps3.dashhacks.com/downloads/multiman>.

¹⁸³ See 17 U.S.C. § 117(a)(2); *Vault Corp. v. Quaid Software Ltd.*, 847 F.2d 255 (5th Cir. 1988).

¹⁸⁴ See PS3 FTP Server Homebrew Application, <http://www.ps3hax.net/2010/09/ps3-ftp-server-homebrew-application-2/> (last visited Nov. 30, 2011).

3. Section 1201(a)(1) is Adversely Affecting the Ability of Console Owners to Jailbreak Their Consoles.

Console manufacturers have employed technological restrictions for the sole purpose of protecting a business model, leaving users unable to install applications and operating systems of their own choosing. As a result, users have turned to jailbreaking to make full use of their consoles.¹⁸⁵ A large community of console jailbreakers currently exists for all three major video game consoles.¹⁸⁶ The jailbreaking community consists primarily of video game enthusiasts interested in getting the most out of their video game consoles. The community also has a strong presence of independent software and game developers who create applications to further their coding knowledge and support the community.¹⁸⁷ It appears that the process of console jailbreaking depends on defeating restrictions that at least one console manufacturer has argued are protected by § 1201(a)(1)'s circumvention ban, thereby putting consumers who jailbreak their own consoles at risk of legal liability.¹⁸⁸

A look at Sony's PS3 helps explain the console jailbreaking process. Sony uses a series of protection measures that are designed to create platform architecture that can install and run only authenticated, encrypted code.¹⁸⁹ One such protection measure is the encryption of the console's firmware, which restricts access to the console. Sony's firmware contains copyrighted computer programs and has not been made publicly available in either an encrypted or unencrypted form. The firmware must be authenticated by the console's bootloader—a piece of software that coordinates the activation of various parts of the console when it is turned on—and then decrypted before the console can be used. Once the firmware has been authenticated and decrypted, it authenticates applications before they can be run or be installed on the console. Both the Xbox 360 and Wii utilize similar firmware authorization procedures as technological protection measures.¹⁹⁰

¹⁸⁵ See Greg, *OtherOS Reintroduced in PS3 Custom Firmware "3.2100,"* PS3-Hacks (Apr. 7, 2010), <http://ps3.dashhacks.com/2010/04/07/otheros-reintroduced-in-ps3-custom-firmware-3-2100/>; *Free60: Do NOT Update Xbox 360, Full Homebrew Exploit Coming!*, PS3News, <http://www.ps3news.com/XBox-360/free60-do-not-update-xbox-360-full-homebrew-exploit-coming/> (last visited Nov. 30, 2011) (describing upcoming release of an Xbox 360 exploit).

¹⁸⁶ Interestingly, this was not always the case. Until Sony decided to curtail support of the OtherOS feature on the PS3, there were little to no efforts to jailbreak the console. Users felt they could achieve full functionality of the device through the OtherOS option. However, almost immediately upon Sony's elimination of the OtherOS feature, efforts to jailbreak the console began in earnest. In contrast, the Wii and Xbox 360, both of which did not ship with the ability to install an alternative OS, were jailbroken years in advance of the PS3. See Mike Borza, *The Sony PlayStation Hack Deciphered*, EDN (May 19, 2011), http://www.edn.com/article/518212-The_Sony_PlayStation_3_hack_deciphered_what_consumer_electronics_designers_can_learn_from_the_failure_to_protect_a_billion.php.

¹⁸⁷ See Brett Bennett Camper, *Homebrew and the Social Construction of Gaming* (May 10, 2005) (unpublished M.S. dissertation, Massachusetts Institute of Technology), available at cms.mit.edu/research/theses/BrettCamper2005.pdf.

¹⁸⁸ See *Sony Computer Entm't Am. LLC v. Hotz*, (No. 11-CV-0167), 2011 WL 347137 (filed N.D. Cal. Jan. 27, 2011).

¹⁸⁹ See Borza, *supra* note 138.

¹⁹⁰ See *IOS: History, Build Process*, HackMii (June 30, 2009), <http://hackmii.com/2009/06/ios-history-build-process/> (explaining the Wii's firmware); see also Homebrew Setup, http://wiibrew.org/wiki/Homebrew_setup (last visited Nov. 30, 2011) (providing detailed instructions about how to jailbreak the Wii's firmware); First

These restrictions require a console owner who would like to run a homebrew application or install a computer operating system to defeat a number of technical measures before doing so. For example, the most popular PS3 jailbreaking process requires the console's restrictions to be bypassed and a custom firmware file to be downloaded onto the machine.¹⁹¹ The customized firmware, in turn, neutralizes authentication checks that would otherwise prohibit unauthorized applications from running. Once this custom firmware is installed, a user can install a computer operating system or additional software applications that have not been approved by Sony onto the console. Sony has maintained that this decryption and modification constitutes circumvention in violation of § 1201(a)(1), even if undertaken by console owners solely for the purpose of running legitimately obtained applications from independent sources.¹⁹²

In the past year, Sony has pursued litigation against the individuals who developed the first successful method of jailbreaking the PS3.¹⁹³ In January 2010, George Hotz (also known as GeoHot) publicly disclosed a method for jailbreaking the PS3 that built on the work of a group of researchers known as Fail0verflow.¹⁹⁴ In response, Sony filed a lawsuit against Hotz and members of Fail0verflow, alleging among other things that they had conspired to violate the Digital Millennium Copyright Act.¹⁹⁵ All of the researchers and homebrew developers discussed above could potentially face similar litigation unless the requested exemption is granted, since they must jailbreak the console to configure the device for their needs. Sony's known desire to litigate highlights the very real need for the proposed exemption to be granted in order to ensure that non-infringing, beneficial activities such as scientific research and creative software development continue to flourish on video game consoles.

Console manufacturers maintain that technical restrictions are necessary to limit the piracy of game content.¹⁹⁶ However, the process of jailbreaking a console does not itself allow the console to play illegitimate copies of games.¹⁹⁷ Several additional steps are needed, including the

Steps, http://free60.org/First_Steps (last visited Nov. 30, 2011) (stating that the Xbox 360 uses firmware encryption and will not natively run unsigned code).

¹⁹¹ *PS3 Jailbreak Method: Jailbreak Your PS3 With Just an USB*, PS3 Jailbreak Community <http://www.ps3jailbreaking.com/tutorials/%28works!!%29-ps3-jailbreak-method-how-to-jailbreak-your-ps3-with-just-an-usb/> (last visited Nov. 30, 2011).

¹⁹² See Brief for Complainant at 15, *Sony Computer Entm't Am. LLC v. Hotz*, (No. 11-CV-0167), 2011 WL 347137 (filed N.D. Cal. Jan. 27, 2011).

¹⁹³ See Ben Kuchera, *Hotz Lawyer: PS3 Hacking Case Over, DMCA and IP Abuse Live On*, Ars Technica, <http://arstechnica.com/gaming/news/2011/04/hotz-lawyer-ps3-hacking-case-over-dmca-and-ip-abuse-live-on.ars> (last visited Nov. 30, 2011).

¹⁹⁴ See Christopher Grant, *PlayStation 3 Hacked; GeoHot Releases 'Coveted PS3 Exploit' - ramifications 'unclear'* says DigitalFoundry, Joystiq (Jan. 26, 2010), <http://www.joystiq.com/2010/01/26/ps3-hacked-geohot-releases-coveted-ps3-exploit/>.

¹⁹⁵ See Dan Reisinger, *PS3 Jailbreak Prompts Restraining Order from Sony*, CNET (Jan. 12, 2011), http://news.cnet.com/8301-13506_3-20028248-17.html?part=rss&subj=news&tag=2547-1_3-0-20.

¹⁹⁶ See Brief of Plaintiff at 4, *Sony Computer Entm't Am. LLC v. Hotz*, (No. 11-CV-0167), 2011 WL 347137 (filed N.D. Cal. Jan. 27, 2011) (“One purpose of the PS3 System's TPMs is to prevent users from playing illegally copied and/or, pirated games Unauthorized or unlicensed video game discs (such as those burned from genuine game discs) do not have an authorized signature code. Accordingly, a normally-functioning PS3 System will not run those pirated video games”).

¹⁹⁷ The original PS3 jailbreaking method developed by George Hotz, for example, was specifically designed to allow homebrew games to function while at the same time prevent piracy from occurring. In an interview, Hotz

installation of a special software file that allows illegitimate games to be played. This use would necessarily fall outside this narrowly tailored class. The class requested in this exemption would not include the installation of any software applications that infringe on a protected copyright interest because this exemption is narrowly tailored to “lawfully obtained software applications.”

C. Circumventing DRM on a Video Game Console for the Purpose of Running Independently Created Software Does Not Infringe Copyright.

In the previous rulemaking, the Register correctly determined that jailbreaking a smartphone for purposes of making operating systems interoperable with independently created applications is a non-infringing fair use.¹⁹⁸ Conducting a similar analysis shows that the circumvention of DRM on video game consoles for the purpose of running independently created software is also a non-infringing fair use.

Courts have long found copying and modification to enable device interoperability non-infringing under the doctrine of fair use.¹⁹⁹ That conclusion applies equally well whether the device in question is a video game console or a smartphone and the fair use analysis for Proposed Class #2 is virtually identical to the fair use analysis for Proposed Class #1, above, which we incorporate by reference here. For the sake of brevity, we will only note where different considerations apply for Proposed Class #2.

1. The Purpose and Character of the Use

The “central purpose” of the first factor is to determine whether or not the use in question “merely supersedes the objects of the original creation” or is transformative.²⁰⁰ The transformative and personal, noncommercial qualities of console jailbreaking favors a finding of fair use because the uses are not mere substitutes.

A use is transformative if it adds “further purpose or character” to the original work.²⁰¹ Jailbreaking video game console firmware is transformative because it allows for the installation of computer operating systems and homebrew applications that can completely convert the device into a machine capable of powerful government and institutional research as well as a platform for new creative copyrighted works, such as independently created third-party software applications. As such, console jailbreaking, like smartphone jailbreaking, fits comfortably within the transformative purposes found to be fair in the leading Ninth Circuit cases on fair use.²⁰²

explained that the jailbreak method did not allow known piracy techniques to function: “I made a specific effort while I was working on this to try to enable homebrew without enabling things I do not support, like piracy.” See Kris Graft, *PS3 Hacker Says Jailbreak Not Intended for Piracy*, Gamasutra (Jan. 14, 2011), http://www.gamasutra.com/view/news/32450/PS3_Hacker_Says_Jailbreak_Not_Intended_For_Piracy.php.

¹⁹⁸ 2010 Recommendation, *supra* note 3, at 100.

¹⁹⁹ See *Sega*, 977 F.2d at 1528 (finding that Accolade’s copying and reverse engineering of the Sega’s Genesis video game console for the purpose of creating new Genesis games was a fair use); *Connectix*, 203 F.3d at 608 (finding that copying PlayStation video game console firmware for the purpose of creating a PC platform that would allow users to play PlayStation games on a computer was a fair use).

²⁰⁰ *Campbell*, 510 U.S. at 579.

²⁰¹ *Kelly*, 336 F.3d at 818.

²⁰² See *id.* at 818; *Sega*, 977 F.2d at 1520; *Connectix*, 203 F.3d at 607; *Perfect 10*, 508 F.3d 1146.

Congress has in fact recognized *Sega*'s finding of transformative quality of interoperability. When enacting the DMCA, Congress created § 1201(f) to explicitly protect reverse engineering and interoperability, and to “ensure that the effect of [*Sega*] is not changed by the enactment of [the DMCA].” S. Rep. No. 105-190, at 32.

Because jailbreaking a video game console for purposes of making it interoperable with computer operating systems and independently created applications is transformative, personal, noncommercial, and confers a public benefit, the first factor weighs heavily in favor of a finding of fair use.

2. Nature of the Copyrighted Work

In evaluating the second factor—the nature of the copyrighted work—courts look to whether the work is published or unpublished,²⁰³ and whether it is creative or functional.²⁰⁴ The firmware on video game consoles is necessarily highly factual and functional. To the extent that the firmware is creative the technological protection measures here are implemented to protect a business model, not the underlying copyrighted work.²⁰⁵ Thus, the second factor favors fair use.²⁰⁶

3. Amount and Substantiality of the Portion Used

The third fair use factor examines the amount of the copyrighted work used in an effort to determine whether the “quantity and value of the materials used are reasonable in relation to the purpose of the copying.”²⁰⁷ The amount taken only need be “reasonable” and for a legitimate purpose.²⁰⁸ If the legitimate purpose in question requires that even an entire work be copied, this may still be consistent with fair use.²⁰⁹

In the present situation, the amount of firmware modified for the various console jailbreaks varies depending on the device. In each case, however, the amount copied is necessary and reasonable for its legitimate purpose—ensuring interoperability with third-party operating systems and applications. In the 2009 rulemaking proceeding, the Register noted the minimal importance of the third factor, stating that “In a case where the alleged infringement consists of the making of an unauthorized derivative work, and the only modifications are as *de minimis* as they are here, the fact that iPhone users are using almost the entire iPhone firmware for the purpose for which it was provided to them by Apple undermines the significance of this factor.”²¹⁰ Similarly, video game console jailbreaks feature only *de minimis* modifications. While most video game console jailbreaks require very little copying of firmware code, even those that might require more in service of interoperability only modify as much as “reasonable” for that

²⁰³ *Harper & Row*, 471 U.S. 539; see also *Perfect 10*, 508 F.3d 1146 (noting that a copyright owner is no longer entitled to enhanced protection available to an unpublished work once it has exploited the commercially valuable right of first publication).

²⁰⁴ *Sega*, 977 F.2d at 1524.

²⁰⁵ *Id.* at 96-97.

²⁰⁶ See also 2010 Recommendation, *supra* note 3, at 96-97.

²⁰⁷ *Campbell*, 510 U.S. at 586-87.

²⁰⁸ *Id.*

²⁰⁹ See also *Kelly*, 487 F.3d at 724; *Connectix*, 203 F.3d at 608.

²¹⁰ 2010 Recommendation, *supra* note 3, at 97.

purpose.²¹¹ Thus, both case law and the Register’s prior recommendation suggest that the third factor should not weigh against a finding of fair use. As such, this weighs in favor of fair use.²¹²

4. Market for the Copyrighted Work

The fourth factor considers the direct harms caused by a particular use on the market or value of a work and the potential harm that might result from similar future uses.²¹³ Typically, courts do not permit strictly hypothetical harms, and require either a demonstration of actual harm or a likelihood that harm will result.²¹⁴

Jailbreaking video game console firmware will have no independent negative impact on the actual market for the firmware itself. Similar to tablets and smartphones, opening up the operating system is likely to stimulate the market for the work by broadening the functionality of the devices. As in *Sega*, users are not attempting to “scoop” the commercially appealing elements of the work.²¹⁵ Rather, users are trying to broaden the capabilities of the device in a manner that does not harm the market for the underlying firmware. Like in *Connectix*, the transformative nature of video game console jailbreaking means that any potential market harms that console manufacturers could face would be the result of legitimate competition, not unfair competition.²¹⁶

Opponents of an exemption for Proposed Class #2 may complain that jailbreaking video game consoles could create security or other risks that might affect the operation of the device. But the Register concluded in her previous recommendation that the fourth factor was not designed to protect manufacturers of smartphones from potential incidental damage, such as security concerns or device integrity, that might arise from users that jailbreak their devices.²¹⁷ The Register rejected the contention that the integrity of Apple’s iPhone “ecosystem” was of any concern to the fourth factor analysis.

Ultimately, because the technological restrictions in question are designed to protect a business model, circumventing them and installing legitimate interoperable software will not have an adverse effect on the market for the underlying firmware. As such, the fourth factor favors fair use.

Because all four factors—including the most important first and fourth factors—weigh in favor of a finding of fair use, defeating technical restrictions on video game consoles for purposes of installing legitimate interoperable software is non-infringing.

²¹¹ See *Campbell*, 510 U.S. at 586-87.

²¹² See *Amazon*, 508 F.3d at 1167.

²¹³ See *Campbell*, 510 U.S. at 590.

²¹⁴ See, e.g., *Universal Studios*, 464 U.S. at 451-52; *Campbell*, 510 U.S. at 590-92.

²¹⁵ 977 F.2d at 1523-24.

²¹⁶ 203 F.3d at 607.

²¹⁷ 2010 Recommendation, *supra* note 3, at 96-97.

D. The Four Nonexclusive Statutory Factors

Section 1201(a)(1)(C) delineates four nonexclusive factors to be weighed, along with any other appropriate factors, in evaluating proposed exemptions. With respect to this proposal, the importance of the four statutory factors is diminished because, as with smartphones in the 2006 and 2010 rulemaking proceedings, “the access controls do not appear to actually be deployed in order to protect the interests of the copyright owner or the value or integrity of the copyrighted work; rather they are used by to limit the ability of [users to run third party applications], a business decision that has nothing whatsoever to do with the interests protected by copyright.”²¹⁸ However, an analysis of these factors highlights that the reciprocal public benefits of video game console jailbreaking weigh strongly in favor of granting this exemption.

1. The Availability for Use of Copyrighted Works

This statutory factor, considers whether “the availability for use of copyrighted works would be adversely affected by permitting an exemption” and “whether a particular [non-infringing] use can be made from another readily available format when the access-controlled digital copy of that ‘work’ does not allow that use.”²¹⁹

Permitting circumvention of access-control measures on video game consoles will probably increase the availability of copyrighted console firmware rather than diminish it. Video game console owners jailbreak their devices for two reasons: (1) to install pre-existing software, such as Linux, which allows the console to be used for scientific research and other purposes, and (2) to use the device as a platform on which to run “homebrew” utilities and games. If scientific researchers risk DMCA liability for jailbreaking their consoles, they will hesitate to install computer operating systems on new consoles and expand their supercomputer clusters in order to keep up with their research needs. An interoperability exception will afford scientific researchers the much-needed ability to advance their use of video game consoles for computational research. In addition, if members of the small and thriving community of “homebrew” developers aren’t allowed to jailbreak their consoles, they will no longer have a strong incentive to create original works, because a preferred platform will be unavailable to them. As a consequence, the public will be deprived of their creative efforts, and narrowly confined to applications distributed only through authorized channels, such as those provided by Sony. On the other hand, an interoperability exemption for consoles will continue to stimulate this community’s utility and game development, increasing the demand for consoles and benefiting the public.

2. The Availability for Use of Works for Nonprofit Archival, Preservation, and Education Purposes

There is no reason to believe that the availability of video game console firmware for nonprofit uses will be harmed by an exemption that permits jailbreaking to enable legitimate interoperable software programs. Consistent with the Register’s conclusion regarding smartphones in 2010, this factor appears to be neutral.²²⁰

²¹⁸ 2006 Recommendation, *supra* note 101, at 52.

²¹⁹ *Id.* at 21-22.

²²⁰ 2010 Recommendation, *supra* note 3, at 101.

3. The Impact on Criticism, Comment, News Reporting, Scholarship or Research

Video game console jailbreaking has led to substantial developments in scholarship and research, particularly in the sciences. There is no reason to believe that an exemption that permits video game console users to jailbreak their devices would curtail the availability of criticism, comment, news reporting, teaching, scholarship, or research—indeed, the exemption would promote those activities.

For example, researchers and professors at institutions such as the University of Massachusetts, Harvard University and the Air Force Research Laboratory have used PS3s as “supercomputers” for various kinds of legitimate research using the OtherOS feature initially included on the PlayStation 3 operating system.²²¹ As Dr. Khanna noted, he was drawn to the PS3 as a research tool because “Sony did this remarkable thing of making the PS3 an open platform, so you can in fact run Linux on it and it doesn't control what you do.” At that time, the Ps3 enabled research that otherwise would have been too expensive to conduct.²²² Even the United States Department of Defense purchased a large quantity of PS3s for use in a military computer cluster in 2009.²²³ As a military Justification of Review document notes, “the approximately tenfold cost difference [between the PlayStation and traditional supercomputers] makes the Sony PS3 the only viable technology for [High Performance Computing] applications.”²²⁴ However, because Sony has since removed the OtherOS feature, researchers can no longer use these kinds of devices for research.²²⁵ As a result, academic and military research either proceeds on a smaller scale or

²²¹ See, e.g., Lyden, *supra*, note 125, Engineer Creates First Academic PlayStation 3 Computing Cluster, PhysOrg (Mar. 9, 2007), <http://www.physorg.com/news92674403.html>.

²²² See *Id.* (“Prior to obtaining his PS3s, Khanna relied on monetary grants as well time allocations from the National Science Foundation (NSF) to use various supercomputing sites spread across the United States. ‘Typically I'd use a couple hundred processors—going up to 500—to do these same types of things.’ It can cost as much as \$5,000 in grant money to run a single simulation on a supercomputer. By contrast, eight 60 GB PS3s would cost just \$3,200, but Khanna figured he would have a hard time convincing the NSF to give him a grant to buy game consoles, even if the overall price tag was lower.”).

²²³ See *Military Purchases 2,200 PS3s*, CNN SciTechBlog (Dec. 9, 2009), <http://scitech.blogs.cnn.com/2009/12/09/military-purchases-2200-ps3s/>; Nate Anderson, *Air Force May Suffer Collateral Damage from PS3 Firmware Update*, Ars Technica, <http://arstechnica.com/gaming/news/2010/05/how-removing-ps3-linux-hurts-the-air-force.ars> (last visited Nov. 30, 2011); Dave Tobin, *Rome Lab's Supercomputer is Made Up of 1,700 Off-The-Shelf PlayStation 3 Gaming Consoles*, The Post Standard (Mar. 23, 2011), http://www.syracuse.com/news/index.ssf/2011/03/rome_labs_supercomputer_is_mad.html.

²²⁴ See Justification and Review Document, [http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCQFjAA&url=https%3A%2F%2Fwww.fbo.gov%2Fdownload%2F6ec%2F6ec0ce98eda8db871e7ef75fae40c1cc%2FJustification_Review_Document_\(J%26A\).doc&ei=DwnHTuTIIOKXiAKTn7X3Dw&usq=AFQjCNFlyUnv8R9csNKUMekr3yZOaN5FXA&sig2=zXw-kT5a8zErSDhiYN2hog](http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCQFjAA&url=https%3A%2F%2Fwww.fbo.gov%2Fdownload%2F6ec%2F6ec0ce98eda8db871e7ef75fae40c1cc%2FJustification_Review_Document_(J%26A).doc&ei=DwnHTuTIIOKXiAKTn7X3Dw&usq=AFQjCNFlyUnv8R9csNKUMekr3yZOaN5FXA&sig2=zXw-kT5a8zErSDhiYN2hog).

²²⁵ Older PS3 models, unavailable for purchase outside of secondhand markets, can still be used for research, but as a practical matter, firmware updates are almost impossible to avoid. See, e.g., Nate Anderson, *Air Force May Suffer Collateral Damage from PS3 Firmware Update*, <http://arstechnica.com/gaming/news/2010/05/how-removing-ps3-linux-hurts-the-air-force.ars> (last visited Nov. 30, 2011) (“‘We will have to continue to use the systems we already have in hand,’ the [Air Force Research] lab told Ars [technica], but ‘this will make it difficult to replace systems that break or fail. The refurbished PS3s also have the problem that when they come back from

costs the public far more than it did previously.

4. The Effect on the Market for, or Value of, Copyrighted Works

Jailbreaking video game console firmware is not likely to adversely affect the market for the firmware. Allowing users to install pre-existing software or user-developed utilities, games, or research programs will not interfere with methods of official distribution that currently exist on these devices, because jailbroken video game consoles are still tethered to the official application stores available on these devices. Further, the technological restrictions that protect the firmware are not the same as the DRM that protects other kinds of copyrighted content distributed on video game consoles, such as music, movies, and applications. To the extent that jailbreaking might be used indirectly to facilitate infringement, the proposed exemption has been narrowly tailored to apply only to noninfringing uses.

Indeed, jailbreaking is likely to stimulate the market for such works by providing users with a variety of new applications created by homebrew developers, researchers, and/or applications that runs with the Linux operating system. As such, the exemption is likely to increase the value of such firmware. This factor weighs in favor of the proposed exemption.

5. Other Factors

As with smartphones and tablets, console firmware protections have not been put into place by manufacturers seeking to protect the copyrighted console firmware. Rather, they exist to preserve various aspects of the manufacturers business interests—interests that the Register have already determined to be unrelated to the purpose of this proceeding. *See* Section II.E.5 above for full analysis.

IV. Proposed Class #3: Circumvention Necessary to Extract Clips From DVDs For Use in Remix Videos

Proposed class: Audiovisual works on DVDs that are lawfully made and acquired and that are protected by the Content Scrambling System, where circumvention is undertaken for the purpose of extracting clips for inclusion in primarily noncommercial videos that do not infringe copyright, and the person engaging in the circumvention believes and has reasonable grounds for believing that circumvention is necessary to fulfill the purpose of the use.

A. Summary

Every day, thousands of Americans create and share original, primarily noncommercial videos that include clips taken from works released on DVD. We explained in the 2009 rulemaking that the practice of creating these works has grown from a niche hobby into a mainstream activity. Its popularity has increased exponentially over the past two years and will doubtlessly continue to do so as remix culture and creation of user-generated content becomes even more widespread.²²⁶

Sony, they have the firmware (gameOS) and it will not allow Other OS, which seems wrong. We are aware of class-action lawsuits against Sony for taking away this option on systems that use to have it.”).

²²⁶ *AccuStream Research: UGC Video Views Amp up 146.9% in 2010, Pre Roll Ad Spend at \$426 Mil.*, PR

The Register acknowledged in her 2010 recommendation that many of these videos are protected by the fair use doctrine and, therefore, do not infringe copyright.

If the previously granted exemption for noncommercial videos is not extended, the DMCA's anticircumvention provisions will once again threaten these lawful uses. Rightsholders will claim that once a creator circumvents a technological restriction to obtain clips from a lawfully obtained DVD, that creator cannot invoke the fair use doctrine in her defense against a claim brought under § 1201(a)(1). This will short-circuit the fair use inquiry, denying the non-infringing creator her day in court and drying up an important well of future fair use precedents to the detriment of remixers and rightsholders alike. This risk of circumvention liability will chill creators' desire to share their works publically and ability to resist DMCA "takedown" notices, which can discourage the sharing of lawful remix videos on the Internet. In contrast, remixers report that the current exemption enables them to counternotify when they believe they have a valid fair use defense, as contemplated by the drafters of the DMCA.

As before, some professional creative communities might be able to avoid this dilemma by extracting clips from DVDs without circumventing the Content Scramble System (CSS)—either by taking advantage of the "analog hole" or by obtaining copies from unauthorized Internet sources. Neither of these alternatives is as simple and straightforward as the use of software to copy digital video from DVDs using widely available DVD "rippers." Moreover, such alternatives can be expensive and result in low-quality source material. Finally, they would discourage the laudable impulse of many remixers—to lawfully purchase the works they use, so that the original creators are compensated.

Thus, an exemption to § 1201(a)(1) is still necessary for remix video creators to meaningfully engage in non-infringing creativity without unintentionally triggering assertions that their actions are prohibited by law. The exemption should encompass at least the class approved in the 2009 rulemaking proceeding: motion pictures released on DVDs, for the purpose of extracting clips for inclusion in noncommercial videos. As before, the proposed exemption is limited to uses that do not infringe copyright and is intended to afford remix artists an opportunity to fully assert their fair use defense in a legal proceeding. If they prevail, this exemption will shield them from circumvention liability; if they do not prevail, then the exemption would not apply. In this way, the exemption will benefit *only* non-infringing creators. As predicted, granting this exemption has had no significant impact on the market for motion pictures on DVDs.

However, the Librarian should clarify that the exemption's reference to noncommerciality is intended to embrace *all* primarily noncommercial uses, *i.e.*, where the work does more than simply propose or reflect a commercial transaction.²²⁷ Limiting the class to uses that do not involve any form of profit could improperly exclude many clear fair uses, such as videos that are

Newswire (March 3, 2011) <http://www.prnewswire.com/news-releases/accustream-research-ugc-video-views-amp-up-1469-in-2010-pre-roll-ad-spend-at-426-mil-117318388.html>.

²²⁷ Alternatively, the Librarian might simply clarify that "noncommercial" should be defined as it is in First Amendment doctrine. In this sense, the *New York Times*, *The Daily Show*, and other ad-supported and subscription media are noncommercial speakers fully protected by the First Amendment. See, e.g., *Hurley v. Irish-Am. Gay, Lesbian & Bisexual Group of Boston*, 515 U.S. 557, 570 (1995) (noting that opinions expressed in newspapers "fall squarely within the core of First Amendment security"); cf. *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 584 (1994) (pointing out that most favored fair uses are in fact created with some hope of financial reward); *Hoffman v. Capital Cities/ABC, Inc.*, 255 F.3d 1180, 1186 (9th Cir. 2001) ("A printed article meant to draw attention to the for-profit magazine in which it appears, however, does not fall outside of the protection of the First Amendment because it may help to sell copies.").

created by a film critic who hosts them on a site where she also happens to run ads to help cover the costs of software, equipment, and hosting.²²⁸ Video editors who are contracted to create political remixes or other fair use works that advance First Amendment principles could also be improperly excluded under the current wording.

The Librarian should also clarify that the exemption includes all audiovisual works (specifically movies, television shows, commercials, news, DVD extras, etc.).²²⁹ As explained below, the remix community regularly makes non-infringing fair uses of such material in order to comment on a variety of forms of popular culture. The 2009 rulemaking indicated that “motion pictures” were distinct from “video games and slide presentations,” but did not indicate the statutory basis for this distinction. Given the uncertainty surrounding the difference between “audiovisual works” and “motion pictures,” the lack of a clear definition of the latter other than the definition found in the Copyright Act; and the limitation of this class to works on DVD, the better course would be to use the term “audiovisual works” or clarify that the exception reflects the statutory definition of “motion pictures.”

B. Factual Background

The targeted practice of the proposed exemption—the creation of videos that include clips taken from lawfully obtained DVDs—is already widespread. It is certain to continue over the next three years. Accordingly, the Librarian should grant the exemption based on § 1201(a)(1)’s existing effect on non-infringing activities, as well as its likely future effect on those activities.

1. The Remix Continues to Be a Popular and Important Form of Creativity

The creative practice of “remixing” existing video content to create original expression is a time-honored tradition dating to 1918 when Lev Kuleshov began splicing and assembling film fragments to tell new stories.²³⁰ In the past few decades, video editing capabilities have become cheap enough to allow amateurs to engage in remix creativity. Today, the ability to remix and share video content has been democratized to an unprecedented degree, thanks to the combination of inexpensive video editing tools on personal computers and free, easy-to-use video hosting services such as YouTube.²³¹

In 2010, the Pew Internet and American Life Project on Remix reported that online content-creating activities among teenagers, including remixing (which Pew defines as “taking material they find online such as songs, text or images and remixing it into their own artistic creations”), have remained relatively constant since 2006. Twenty-one percent of teens online report remixing digital content, with girls outnumbering boys (26% vs. 15%), but with no other differences as a function of race, parental education, or family income. Remixing among young adults (aged 18-29) has also remained constant since 2007 (19% vs. 20%), but remixing among both male and female adults over the age of thirty has increased significantly (from 8% in 2005 to 13% in 2010). Remixing is also being recognized as an important pedagogical practice on

²²⁸ See, e.g., Press Play, <http://blogs.indiewire.com/pressplay/> (last visited Nov. 30, 2011) (showing an example of ad-supported film criticism).

²²⁹ See 17 U.S.C. § 101 (“‘Motion pictures’ are audiovisual works consisting of a series of related images which, when shown in succession, impart an impression of motion, together with accompanying sounds, if any.”).

²³⁰ Lev Kuleshov, *Kuleshov on Film* (1974).

²³¹ See Interview with Professor Mizuko Ito, attached as Appendix G (Nov. 22, 2011) (citing results from a study on video remix in anime music videos culture indicating a substantial growth in the numbers of such videos cataloged since 2000).

every educational level, with scholarship as well as practical classroom textbooks being written on this subject.²³²

Professor Michael Wesch continues to be the leading U.S. ethnographer studying YouTube. In 2008, he concluded that thousands of original videos that include clips from film or television sources are likely being uploaded to YouTube *each day*.²³³ During October and November 2008, Dr. Wesch's Digital Ethnography project examined two separate random samples of YouTube videos in an effort to estimate how many YouTube videos are "remixes" that include clips likely to have been drawn from DVD sources. Based on these experiments, he concluded that between 2,000 and 6,000 videos uploaded to YouTube every day fall into this category. According to Dr. Wesch, users continue to upload remixes at the same rate in 2011.²³⁴

Dr. Wesch has identified a number of genres of short-form videos on YouTube that are popular among viewers and frequently depend on clips drawn from film or television sources. These genres include:

- Movie trailer remixes: original "trailers" for famous films, made by movie fans, often for a humorous purpose.
- Film analysis: amateur film critics provide their commentary and criticism as a voice-over to clips taken from the films being analyzed.
- Movie mistakes: film buffs collect and comment on anachronisms, continuity errors, and other "mistakes" found in films and television programs.
- Comic juxtaposition remixes: often humorous videos created by combining video clips from one film with audio clips from another.
- Political commentary: videos intended to make a political statement that borrow clips from film or television to illustrate their message.
- Political criticism of movies: videos that utilize clips in the course of explicitly criticizing the underlying themes or politics of a film.
- "YouTube Poop": absurdist remixes that ape and mock the lowest technical and aesthetic standards of remix culture to comment on remix culture itself.

Furthermore, in the past few years a new genre has emerged: supercuts, or "fast-paced video montages that assemble dozens or hundreds of short clips on a common theme."²³⁵

²³² Colin Lankshear & Michele Knobel, *Remix: The Art and Craft of Endless Hybridization*, 52 *Journal of Adolescent & Adult Literacy* 22-33 (2008), available at <http://extendboundariesofliteracy.pbworks.com/f/remix.pdf>, Catherine Latterell, *Remix: Reading and Composing Culture* (2005).

²³³ Statement of Professor Michael Wesch, attached as Appendix H.

²³⁴ "Our study in 2008 revealed that approximately 2,000 to 6,000 fair use remixes using DRM-protected material were uploaded everyday on YouTube. Since then, YouTube has created an automatic content identification system that makes it more difficult for remixers to share their creations on YouTube by automatically blocking material that matches copyrighted material in their Content ID database. Despite this hindrance, our data show that users are still uploading nearly the same number of remixes every day." Email from Michael Wesch to authors (Nov. 2, 2011) (on file).

²³⁵ Andy Baio, *The Video Remix 'Supercut' Comes of Age*, *Wired* (Nov. 1, 2011),

All of these forms of remix are valuable not only as creative works, but also because they help create the next generation of artists, who can gain skills and exposure otherwise entirely unavailable to them.²³⁶ Consequently, to the extent § 1201(a)(1)'s prohibition on ripping DVDs applies to this activity, taking it away would put a large group of non-infringing creators in legal jeopardy, and inhibit a vibrant form of creative expression.

2. Snapshot of Remix Culture: The Vidding Community

Vidders continue to be an instructive example of remixing creators because they have a history that predates digital video technologies, a strong sense of community arising out of that history and, as beneficiaries of the 2009 exemptions, can comment on its importance for their creative work.²³⁷ Vidders create videos (or “vids”) by combining clips from one or more sources with music, often in order to comment on the works in question. The Organization for Transformative Works directs readers to four works on vidding published in September 2011 alone, and a Google search for the term “vidding” turned up over 13,000 videos uploaded in the past year.

Vidding arose in television fan communities in the mid-1970s. In the words of Professor Francesca Coppa, a scholar who has studied the vidding community:

Vidding is a form of grassroots filmmaking in which clips from television shows and movies are set to music. The result is called a vid or a songvid. Unlike professional MTV-style music videos, in which footage is created to promote and popularize a piece of music, fannish vidders use music in order to comment on or analyze a set of preexisting visuals, to stage a reading, or occasionally to use the footage to tell new stories. In vidding, the fans are fans of the visual source, and music is used as an interpretive lens to help the viewer to see the source text differently. A vid is a visual essay that stages an argument, and thus it is more akin to arts criticism than to traditional music video. As Margie, a vidder, explained: “The thing I've never been able to explain to anyone not in [media] fandom (or to fans with absolutely no exposure to vids) is that where pro music videos are visuals that illustrate the music, songvids are music that tells the story of the visuals. They don't get that it's actually a completely different emphasis.”²³⁸

<http://www.wired.com/epicenter/2011/11/supercut/>.

²³⁶ As one remixer, Lyle, told the Organization for Transformative Works, “I began vidding in 1999 as a teenager living in Australia, mainly in The X-Files fandom and long before the days of YouTube. The advent of that site gave a much larger audience for my work, including some Creative Directors at various trailer houses who began offering me paid work and beginning my career as a trailer editor and producer. I now live in New York city cutting high end theatrical trailers for cinema. The point is, had I not had the outlet such as YouTube to conceive, develop and showcase my work, I would not be in this profession today. There is a great need for trailer cutters in my highly competitive and niche industry, and we need to develop as many of the best next generation of trailer editors as we can. The recent DMCA clarification can hopefully allow for that.” Email from Lyle to OTW (July 27, 2010) (on file with authors). Another vidder recently secured a contract with the producers of *House* because of the editing capability she demonstrated in her *House* vids. See Live Journal, <http://vidding.livejournal.com/2751680.html> (last visited Nov. 30, 2011).

²³⁷ Vidders are certainly not the only established community of remix video creators. Movie trailer mashups, for example, have proven extremely popular since bursting on the scene in 2005. The anime music video (“AMV”) creator community has also received increasing attention as scholars begin documenting amateur creator communities that are arising around these new video technologies.

²³⁸ Francesca Coppa, *Women, “Star Trek” and the Early Development of Fannish Vidding*, 1 Transformative Works

This community embraces a strongly noncommercial ethos and views their works as “a visual essay responding to a visual source.”²³⁹ Vids are fundamentally transformative visual works, using clips of existing footage in order to comment and built on the meanings of the original source materials.

These videos include not only traditional vids, but also user-created video conversations between vidders about vidding that incorporate a call-and-response-style exchange within user-created vids. For example, in the first video shown in the screen shot below, the vidder LightNeverFades replies to a series of questions posted by the vidder MissLyraGW by using a series of short clips that express her own feelings about vidding, which she then shares with the larger vidding community by uploading her work. These questionnaire-style vids paint a picture of an inquisitive and vibrant vidding ecosystem that values personal expression and communication.



and Cultures (2008), available at <http://journal.transformativeworks.org/index.php/twc/article/view/44/64> [hereinafter *Women, Star Trek and the Early Development of Fannish Vidding*]; see also Francesca Coppa, *An Editing of One's Own: Vidding as Women's Work*, 26 *Camera Obscura* 2 77: 123-130 (2011).

²³⁹ *Id.*

Vidders Questionnaire "Why I Do What I Do."

HookedOnFeeling89 71 videos [Subscribe](#)



Like Add to Share

51 views

Uploaded by HookedOnFeeling89 on May 4, 2011

I stumbled upon this and couldn't resist. I'm still very new to making videos so this was very difficult but I had fun while doing it. I apologize for the fast paced text and I'm pretty sure I spelled questionnaire wrong. If you need anything else cleared up just ask me.

2 likes, 0 dislikes

Artist: Kate Voegelé

Buy "It's Only Life" on:

iTunes, AmazonMP3

[Show more](#)

VIDDING QUESTIONNAIRE

EgSparks 80 videos [Subscribe](#)



Like Add to Share

74 views

Uploaded by EgSparks on May 1, 2011

This is a video response to MissLyraGW's Questionnaire!

[Show more](#)

4 likes, 0 dislikes

Uploader Comments (EgSparks)

HOLY SMOKES your vidding questionnaire is so haunting and the editing is sexy! Love your answers and your music choice! <3 Absolutely stunning! :D LightNeverFades 6 months ago

@LightNeverFades thank you, really wanted to show a part of the answer as who I was tough the video too... althrough it miss some crack... really need some happy time :D EgSparks 6 months ago

Similarly, scholar Alexis Lothian discusses “scholarly vids” which speak to both scholars and vidders: “Vidders and academics often engage in similar analytic processes to comparable critical ends; vids offer condensed critiques of media texts that would take dozens of pages to unravel in academic analysis and whose impact would fall short of the emotional power of the vId. Moreover, the process of vidding is often analogous to the labor of producing scholarship in cultural theory. In both cases, finding one’s archive and articulating connections between the creative and/or scholarly work of others is central.”²⁴⁰

Vidders frequently rely on footage digitally copied (or “ripped”) from commercial DVDs to create their vids, an activity that previous rulemakings have treated as a violation of § 1201(a)(1).²⁴¹ Because the vast majority of vidders are amateur videographers who engage in video creation as a hobby, they are unlikely to have access to copyright counsel to explain the subtleties of the DMCA to them and are likely unaware of the counterintuitive nature of circumvention liability as applied to DVDs. It will strike many laypersons as bizarre that relying on infringing copies taken from unauthorized Internet sources are preferable (from a circumvention point of view) to ripping a DVD that you have purchased. Similarly, the public may find it hard to believe that taking excerpts by means of video capture carries different legal consequences than using a DVD ripper to accomplish the same result. In fact, vidders and Dr. Coppa agreed that many in the vidding community are not aware of the DMCA

²⁴⁰ Kristina Busse & Alexis Lothian, *Scholarly Critiques and Critiques of Scholarship: The Uses of Remix Video*, 26 Camera Obscura 2 77: 139, 142 (2011).

²⁴¹ See Ito Interview, Appendix H, 29 (reporting study findings that 75% of anime music videos remix artists “indicated that commercial DVDs are their first choice for anime source material in making their videos”); 2006 Recommendation, *supra* note 101, at 12; see also A&E’s Technical Guide to All Things Video, <http://www.animemusicvideos.org/guides/avtech/> (last visited Nov. 30, 2011) (recommending DVDDecrypter and Smartripper, two leading DVD rippers for Windows).

anticircumvention provisions and how they might affect the legal distinction between “ripping” a DVD and using alternative methods to obtain clips.²⁴²

To be clear, however, the vidding community’s practice of ripping DVDs is not merely an expression of legal naïveté or convenience. Vidders take video quality very seriously, so many of them favor DVD ripping for aesthetic reasons. The alternatives are lower quality for a variety of reasons, from technical features to new forms of advertising adopted by networks that distort the broadcast image. Vidder Vidyutpataka explains:

As someone who’s done a couple of videos I’ll point out an obvious reason not to use screen capture, at least from a TV feed: because most TV networks brand their feeds with a “screen bug” ... that continually occupies part of the screen. These bugs can be obtrusive or change, and if you’re planning to use a clip of that feed that thing can really ruin your day. ... That isn’t even getting into those obnoxious animated graphics some stations add in just as the show comes back from commercial that dance around in the bottom left and inform you that Show You Don’t Care About is Coming Up Next!! DVDs are really the only way to avoid these things.²⁴³

And as Dr. Coppa similarly notes:

[V]idders are visual artists. They are deeply invested in aesthetics. They want to make smart vids that are also beautiful. And the better the source footage you start with, the more you can do to it, the “shinier” it looks. All vidders value aesthetics, though there are other factors involved in when and how the work is created. While some vidders might make a vid quickly, almost urgently, as part of a current cultural conversation about a television show or film, others can spend easily half a year working on a single video, often working on it frame by frame like a painting.

Further, as various commenters noted in the 2009 rulemaking proceeding,²⁴⁴ remix often requires multiple rounds of editing. Each edit degrades the quality of the video, so unless a vidder starts with DVD-quality source, the output may be unwatchable or artistically insufficient. Dr. Coppa explains:

Vidders typically want the cleanest, biggest clips their systems can handle, because they want to transform/rework the footage in various ways—changing speed, color, adding effects, creating manipulations, masking out elements—and the better the footage you start with, the more you can do with it.²⁴⁵

²⁴² See Interview with Gianduja Kiss, attached as Appendix J, 38-39 (Nov. 30, 2011) (explaining that vidders, a diverse group, are generally unaware of the DMCA and need the exemption most when they receive a takedown notice or other challenge to works they believe are fair use).

²⁴³ Interview with Vidyutpataka (Nov. 20, 2011) (on file). Another vidder, Ynitsa, provided a similar report: “I actually made a vid with screen capture recently, because the source wasn’t otherwise available, and OMG never again. Capturing that length of footage in 10-minute increments (my computer/CamStudio couldn’t handle more) was painful enough, but then not only was the framerate far too low ... but it wasn’t until after I’d rendered and posted that I realised you could see my mouse in over half of the vid, when I swear it wasn’t visible while I was capturing.” (on file).

²⁴⁴ 2010 Recommendation, *supra* note 3, at 67.

²⁴⁵ Coppa Interview, Appendix I, 34; *see also* Statement of Tisha Turk, Appendix N, 52 (Nov. 28, 2011). (explaining

This is particularly true for vidders who intend to show their videos at conferences and other gatherings, where display technology is likely to be much better than the typical low-resolution YouTube video. Many vidders also distribute high-quality versions of their works from their own Internet sites, demonstrating a commitment to video quality that far exceeds that of most YouTube creators.

3. Snapshot of Remix Culture: Political Remix Videos

While vidders clearly engage in political commentary, another video genre called “political remix videos” (or PRVs) treats such commentary as its primary object. As with vidding, this form of creative expression has its roots in pre-Internet activities, but has exploded with new technologies for creating and sharing videos. Professor Eli Horwatt, who has studied the PRV community, finds the genre’s origins in video collective Emergency Broadcast Network (EBN) and the San Francisco Bay Area band Negativland, which “pioneered this form of activist remixing with videos that touched on copyright law and the military industrial complex through the 1990s with great prominence in the nascent ‘culture jamming’ community.”²⁴⁶

Today, PRVs are a powerful and persuasive way to raise public awareness of a variety of issues. For example, one popular video, “The Rent is too Damn UP – A Remix,” combines footage from Disney’s animated film *UP* with audio from a New York gubernatorial debate featuring Jimmy McMillan, candidate for governor from the Rent is Too Damn High Party.²⁴⁷ McMillan was a sensation at the debate, and the remix helped keep attention on the issues he raised.²⁴⁸ Another PRV, “Fellowship of the Ring of Free Trade” adds subtitles to clips from the popular movie *The Lord of the Rings* to comment on the recent history of international free trade agreements and the efforts to oppose them.²⁴⁹ The video uses the villainous Sauron as a symbol of corporate power citing the principles of “free trade” as an excuse to impose its will on the world.²⁵⁰

As these examples demonstrate, “[a]t the heart of political remixing lies an impulse to rebut mainstream media and promote contemporaneous critiques of culture through alternative channels free from endemic corporate censorship in journalism.”²⁵¹ And they are highly successful at doing so—millions of viewers have watched at least one of these videos.

Political remixes may also become the center of political activism. For example, the Move Your Money project, which encourages citizens to move their bank accounts from the major banks that received funds from the 2008 bailout to small community banks, came to popular attention in part through a video created by documentary filmmaker Eugene Jarecki.²⁵² The video juxtaposes excerpts from the classic film *It’s a Wonderful Life* (in which community banker George Bailey

that to be effective, vids need to be made using high quality source).

²⁴⁶ See, e.g., *Cultural Borrowings: Appropriation, Reworking, and Transformation*, 76-91 (Ian Robert Smith ed. 2009), available at http://www.scope.nottingham.ac.uk/cultborr/Cultural_Borrowings_Final.pdf (describing a history of “found footage” culture on the internet).

²⁴⁷ Joe Sabia, *The Rent is Too Damn Up*, Political Remix Video (Oct. 19, 2010), <http://www.politicalremixvideo.com/2010/10/19/the-rent-is-too-damn-high-up-remix>.

²⁴⁸ *Id.*

²⁴⁹ St01en Collective, *Fellowship of the Ring of Free Trade*, YouTube (Nov. 24, 2006), <http://www.youtube.com/watch?v=vkmczhkrKYA>.

²⁵⁰ *Id.*

²⁵¹ Smith, *supra* note 246, at 80.

²⁵² Eugene Jarecki, *Move Your Money*, YouTube (Dec. 29, 2009), <http://www.youtube.com/watch?v=IcqrX00imSs>.

helps his community fight off a predatory competitor) with television footage from congressional hearings about the bailout.²⁵³

PRV makers care tremendously about video quality, because low quality detracts from the message and makes it hard to reach audiences. As remixer Joe Sabia explains:

There's an innate prejudice in all of us to equate the integrity of the creation with the integrity of the footage. How would Lord of the Rings be received if it were shot with a flip phone? What would Two and a Half Men look like without proper stage lighting?

As a remixer, there's nothing more heartbreaking than realizing there are NO better alternatives to that one, down-rezzed, grainy YouTube video that is crucial to your project. That's why when DVDs are available for executing the remix idea, it's a no-brainer.²⁵⁴

Like vidders, PRV makers are unlikely to be aware of the legal distinctions between ripping a DVD and using screen capture or “the analog hole” to obtain source materials.²⁵⁵

C. The Content Scramble System (CSS) Used on DVDs Has Been Treated as an Access Control Under § 1201(a)(1).

The vast majority of mainstream commercial works released on DVD utilize CSS to encrypt the audiovisual work on the DVD. The Copyright Office and the courts have concluded that CSS is an “access control” protected by § 1201(a)(1).²⁵⁶ Major entertainment companies have repeatedly shown a willingness to file lawsuits against those who circumvent CSS or traffic in CSS circumvention tools.²⁵⁷ Thus, but for an exemption granted in this proceeding, those who

²⁵³ *Id.*

²⁵⁴ Interview with Joe Sabia, attached as Appendix K, 41 (Nov. 28, 2011); *see also* Interview with Eli Horwatt, attached as Appendix L, 44 (Nov. 14, 2011) (“One of the most interesting aesthetic qualities of PRVs and a cardinal feature of the humour and incisiveness presented by PRV makers, is their capacity to mimic the qualities of commercial media. This means that editors are both able to imitate the vernaculars of commercial media (whether that be a cartoon, trailer, commercial or television program) but also to make work which looks like commercial media, with high quality rips of source material. Using high quality video of appropriated materials is instrumental to the success of a PRV.”).

²⁵⁵ Interview with Elisa Kriesinger (Nov. 19, 2011) (on file); Horwatt Interview, Appendix L, 45.

²⁵⁶ *See, e.g., Realnetworks, Inc. v. DVD Copy Control Ass'n*, 641 F. Supp. 2d 913, 932 (N.D. Cal. 2009); 2010 Recommendation, *supra* note 3, at 44-46. Proponents note, however that case law is not settled as to whether fair use might be a defense to 17 U.S.C. §1201(a)(1). *Compare Universal City Studios, Inc. v. Corley*, 273 F.3d 429, 459 (2d Cir. 2001) with *Chamberlain Group, Inc. v. Skylink Techs., Inc.*, 381 F.3d 1178, 1202-03 (Fed. Cir. 2004) rehearing and rehearing en banc denied, certiorari denied 544 U.S. 923; *Accord Storage Tech. Corp. v. Custom Hardware Eng'g & Consulting, Inc.*, 421 F.3d 1307, 1318 (Fed. Cir. 2005); *but see also MDY Indus., LLC v. Blizzard Entm't, Inc.*, 629 F.3d 928, 944-942 (9th Cir., 2011), amended on denial of rehearing, amended and superseded on denial of rehearing, 2011 WL 538748, on remand 2011 WL 2533450. In addition, it is not perfectly clear how best to describe CSS as a “control measure.” *See* R. Anthony Reese, *Will Merging Access Controls and Rights Controls Undermine the Structure of Anticircumvention Law?*, 18 Berkeley Tech. L.J. 619, 643-47 (2003). However, as noted, *supra*, CSS has previously been characterized as an access control measure under Section 1201 of the DMCA and, at a minimum, the lack of legal certainty can be crippling for fair users who are ill-equipped to take on the legal risk.

²⁵⁷ *See id.*, *see also e.g., Universal v. Corley*, 273 F.3d 429 (2d Cir. 2001); *321 Studios v. Metro-Goldwyn-Myer*

circumvent CSS to take short clips for inclusion in original videos run the risk of legal threats under § 1201(a)(1).

D. Many Short-form Videos that Use Clips from Audiovisual Works are Non-infringing Fair Uses.

While some primarily noncommercial remix videos may not qualify as fair uses, many video remixes that use short clips will.

1. The Standard Fair Factors Favor a Fair Use Finding.

Courts generally consider four factors in a fair use analysis: 1) the purpose and character of the use, 2) the nature of the copyrighted work, 3) the amount and substantiality of the portion used, and 4) the effect of the use on the potential market for the work.²⁵⁸

With respect to the first factor—the purpose and character of the use—two characteristics of remix videos will generally favor a fair use finding. First, remix videos are inherently transformative in nature, using excerpts to create a new work that does not substitute for the original. Second, the exemption sought here for remix videos is limited to remix videos created for primarily noncommercial purposes—*i.e.*, that are not intended primarily to propose a commercial transaction, but rather to comment, criticize or educate. For example, Press Play ran a series of in-depth examinations of films combining classic written film criticism with shot-by-shot analysis of film clips; like other ad-supported publications, Press Play added new meaning and value through its commentary.²⁵⁹ Such activities have historically been favored under the first fair use factor.²⁶⁰

For example, Arab-American artist and filmmaker Jacqueline Salloum created an extraordinary remix video, “Planet of the Arabs,” which combines clips from decades of popular movies and television shows to comment on the demonization of Arabs in American media, particularly the common portrayal of Muslims as terrorists.²⁶¹ “Homophobic Friends,” by remixer Tijana Mamula, combines short clips from the popular TV show *Friends* to comment on homophobia in popular media.²⁶²

Commentary is also central to the activities of vidders, who focus on fleshing out marginalized (often female) perspectives.²⁶³ Some vids can be far-reaching commentaries on popular and fan culture itself, while other vids simply comment on characters in a favorite TV show. The 2010

Studios, 307 F. Supp. 2d 1085 (N.D. Cal. 2004); *Paramount Pictures Corp. v. 321 Studios*, 2004 WL 402756 (S.D.N.Y. Mar. 3, 2004).

²⁵⁸ *Campbell*, 510 U.S. at 577.

²⁵⁹ See, e.g., Jim Emerson, *In the Cut: Salt*, Sept. 13, 2011, http://blogs.indiewire.com/pressplay/IN_THE_CUT_Salt_by_PhillipNoyce#.

²⁶⁰ See, e.g., *Campbell*, 510 U.S. at 579 (transformative works “lie at the heart of the fair use doctrine’s guarantee of breathing space within the confines of copyright”); see also *Castle Rock Entm’t, Inc. v. Carol Pub. Group, Inc.*, 150 F.3d 132, 141 (2d Cir. 1998) (a transformative work “is the very type of activity that the fair use doctrine intends to protect for the enrichment of society”).

²⁶¹ hnassif, *Planet of the Arabs*, YouTube (Apr. 14, 2006), <http://www.youtube.com/watch?v=M11ZNEjEarw>.

²⁶² Tijana Mamula, *Homophobic Friends*, Political Remix Video (July 11, 2011), <http://www.politicalremixvideo.com/2011/07/11/homophobic-friends>.

²⁶³ *Women, Star Trek, and the Early Development of Fannish Vidding*, <http://journal.transformativeworks.org/index.php/twc/article/view/44> (2008).

Register considered several examples in 2009, and they remain as transformative today.²⁶⁴ And new vids are created constantly. For example, vidder talitha78's "'White' and Nerdy" responds to debates over race in popular culture by creating a vid focused on an African-American character on the TV show *Psych*. As vidder talitha78 explains, "putting this together became a way of working through my issues with regard to [fan debates over race known as] RaceFail 2009. Like Gus, I am a nerd of color in a society where nerdiness is frequently coded as 'white.' With this vid, I want to subvert that stereotype"²⁶⁵ Vidder Obsessive24's "Piece of Me"²⁶⁶ likewise uses a combination of DVD footage from Britney Spears' videos and other sources to, as Dr. Coppa puts it:

analyze not only the tabloid version of the singer's story (divorce, custody battles, substance abuse, bad behavior, etc.) but also Spears's counternarrative of control.... [T]he song [Piece of Me] and its official music video both repress an additional connotation of the metaphor: that of breakdown and collapse. It is this repressed meaning—cracking up, falling to pieces—that Obsessive24 explores in her vid. Taken together, the video undercuts Spears's provocative poses and bravado, reminding us that two months after this 'cry of defiance' was released, Spears was taken away on a gurney and held for a seventy-two-hour involuntary psychiatric evaluation. While the official video to "Piece of Me" creates fake tabloid covers and paparazzi video, Obsessive24 uses the real thing to heartbreaking effect."²⁶⁷

These uses are precisely what Section 107 was designed to shelter.

The second fair use factor—the nature of the work—grants greater protection to creative works than to factual ones. Nevertheless, courts have recognized that this factor is likely to be of little importance in fair use cases involving the creation of transformative, original works.²⁶⁸ Moreover, in the case of PRVs, the source work will often be highly factual, such as news footage.²⁶⁹ In addition, the works from which clips for remixes are drawn are usually widely voluntarily disseminated, which favors fair use in the second factor.²⁷⁰

The third fair use factor—the amount taken—also tips in favor of remix video creators. The excerpts taken from films or television programs will generally comprise only a small fraction of

²⁶⁴ 2010 Recommendation, *supra* note 3 at 67-68.

²⁶⁵ talitha78, *White and Nerdy*, YouTube (Mar. 31, 2009), <http://www.youtube.com/watch?v=Iquni9PMBMk>. See also talitha78, Comment to *New Psych Vid: "White" & Nerdy (Gus)* (Apr. 23, 2009) <http://talitha78.livejournal.com/191915.html>.

²⁶⁶ See <http://transformativeworks.org/projects/vidtestsuite>. Obsessive24, following accepted vidding practices, purchased Spears's videos on DVD in order to create the vid. Email from Obsessive24, Nov. 23, 2011.

²⁶⁷ Francesca Coppa, *An Editing Room of One's Own: Vidding as Women's Work*, 26 Camera Obscura 123, 125, 127 (2011).

²⁶⁸ See, e.g., *Campbell*, 510 U.S. at 598 (concluding that the second factor "adds little to the first" when the use is transformative); *Blanch v. Koons*, 467 F.3d 244, 256 (2d Cir. 2006).

²⁶⁹ *Harper & Row*, 471 U.S. at 563.

²⁷⁰ See, e.g., *Kelly*, 336 F.3d at 820 ("Published works are more likely to qualify as fair use because the first appearance of the artist's expression has already occurred."); *Arica Inst., Inc. v. Palmer*, 970 F.2d 1067, 1078 (2d Cir. 1992) (plaintiff's work was "a published work available to the general public," and the second factor thus favored the defendant).

the original work. Existing fair use precedents make it clear that where only small excerpts are taken, a fair use determination is favored.²⁷¹

The fourth fair use factor—the effect of the use on the potential market for the work—also supports remix video creators. Where noncommercial expression is concerned, copyright owners bear the burden of proving that the use in question undermines the economic value of the copyrighted work. It is unlikely that a copyright owner will be able to meet that burden in challenging remix videos. These videos do not substitute for the original works.²⁷² In many cases, a remix video will be hardly comprehensible to someone who has not already seen the original videos from which the clips are drawn. In the vidding community, for example, fan-made vids often presuppose a high level of familiarity with the source material. Moreover, to the extent that any particular remix video is a commentary on the original, such as a parody, or associates the original work with any political message or controversial subjects, it is unlikely that the copyright owner would license the remix. Courts have found that a fair use finding is appropriate where these considerations make licensing unlikely or impossible.²⁷³ Quite separately, remixers who work from DVDs support the original rather than harm it.²⁷⁴

Granting the proposed exemption, limited solely to those who may be accused of circumventing for purposes that qualify as fair uses, would preserve the breathing room for transformative expression the fair use doctrine has always provided, without giving a free pass to works that may be infringing.

2. The Fair Use Analysis Does Not Change for Remix Videos That Are Commissioned or Otherwise Reflect a Limited Degree of Commerciality.

EFF urges the Librarian to clarify that the exemption for Proposed Class #3 should include any video that does more than propose a commercial transaction, not solely “amateur” videos. As political remixer Jonathan McIntosh notes, “While the majority of political remix video is noncommercial, some remixers do go on to create remix video works for companies, non-profits or political campaigns.”²⁷⁵ Given the highly transformative nature of these works, indirect participation in commerce would not disqualify them as fair uses.²⁷⁶

The proposed clarification would also foster the purposes of copyright by spurring new creativity. For example, The Lear Center and the ACLU commissioned Joe Sabia to create a remix video in conjunction with a study they conducted on “the kinds of narratives about the War on Drugs and the War on Terror that are being told in mainstream television and to assess how these stories reflect or reimagine reality.”²⁷⁷ The video combines clips from several popular

²⁷¹ *Wright v. Warner Books*, 953 F.2d 731 (2nd Cir. 1991); *Monster Comms., Inc. v. Turner Broadcasting Sys.*, 935 F. Supp. 490 (S.D.N.Y. 1996); *Religions Tech. Ctr. v. Pagliarina*, 908 F. Supp. 1353 (E.D. Va. 1995).

²⁷² 2010 Recommendation, *supra*, note 3, at 39-40.

²⁷³ *Campbell*, 510 U.S. at 592-93.

²⁷⁴ See Ito Interview, Appendix H (finding that remixing supports DVD markets).

²⁷⁵ Interview with Jonathan McIntosh, attached as Appendix M, 47 (Nov. 17, 2011).

²⁷⁶ *Campbell*, 510 U.S. at 579; *Perfect 10*, 508 F.3d at 1166; *Bill Graham Archives v. Dorling Kindersley Ltd.*, 448 F.3d 605, 610 (2d Cir. 2006); *Hustler Magazine Inc. v. Moral Majority Inc.*, 796 F.2d 1148, 1152-53 (9th Cir. 1986).

²⁷⁷ Joe Sabia, *Prime Time Terror*, YouTube (Sept. 6, 2011), http://www.youtube.com/watch?feature=player_detailpage&v=8XIUCj9ymrs; Lear Center, <http://www.learcenter.org/html/projects/?cm=mcd/drugsterror> (last visited Nov. 30, 2011); The Internet Profile of Joe Sabia, <http://www.joesabia.co/client-based.html> (last visited Nov. 30, 2011).

primetime TV episodes depicting the “war on terror” including *NCIS*, *CSI*, *Law & Order* and 24 to create a work that is physically and functionally different from the originals. Some of the clips are heavily altered by the inclusion of original graphics, voiceovers, and manipulation of the footage speed. The resulting product is a completely new work that provides critical commentary about how television both reflects and reimagines reality. This type of comparison and analysis, using clips to prove its points, is a quintessential transformative fair use.

While the work was commissioned, its purposes were primarily noncommercial and educational: to comment and critique the portrayal of terrorists and drug users in the mainstream media, and to further education and research in the area of media studies and other social sciences.²⁷⁸ Further, the Lear Center video was provided to the public for free as streaming video on the Lear Center’s web site in association with the corresponding report.

Thus, the fact that the Lear Center hired an outside contractor to make the video because it needed the services of an experienced editor to translate its findings and arguments into a visual medium changes nothing about the political and social value of the work, or its fair use status. Indeed, Sabia is in a similar position to the documentarians whose exemption was granted in 2009, whose participation in the market for expression does not change the transformativeness and fairness of their uses.²⁷⁹ Other advocacy organizations have also successfully used primarily noncommercial remix as part of their advocacy. GreenPeace’s OnSlaught(er) video remix²⁸⁰ was created by professionals to draw attention to the rainforests GreenPeace contends are being destroyed in order to extract palm oil used in Dove products, and has been viewed over 1.5 million times.

E. Section 1201(a)(1) Adversely Affects Remix Video Creators.

Section 1201(a)(1)’s prohibition on circumvention has adversely affected the non-infringing activities of remix video creators, and will do so again if the proposed exemption is not granted. Most obviously, to the extent the provision prohibits ripping DVDs to extract clips, the law puts remix video creators back into legal jeopardy when they engage in authorship that would otherwise be protected by fair use. Without an exemption, a climate of fear inhibits even obvious fair uses. Eric Faden, associate professor of film and media studies at Bucknell University, created the important and widely disseminated remix *A Fair(y) Use Tale* using multiple Disney

²⁷⁸ As Sabia explains, “*Prime Time Terror* sought to convey academic research in an engaging and entertaining way in the form of a video which effectively served as a Hollywood movie trailer for the research. Why? Well, per tradition, the report was published in written format. Despite being open to the general public’s consumption, this research most likely finds itself trapped in the realm of peer-reviewed academia. Not surprisingly, it doesn’t break out into the public But by creating a remix video, you’re creating art on top of the research. And with new art, you can control the pace, the mood, the tenor of the experience. It ends up injecting color into this normally drab research paper existence.” Sabia Interview, Appendix K, 41.

²⁷⁹ Sabia elaborated: “The Lear Center didn’t create this itself because it was out of the scope of what they’re really good at. They did the research, I communicated it in a fun way. Toyota is good at making cars. [I’ts] the ad agency that communicates the brand to its audience. There’s not much of a difference. I chose not to do this for free because it took over 30 personal hours editing, alongside the efforts of a graphic animator, a musician, an audio engineer, and Steve Zirkilton, the voice of *Law & Order*. All of this requires a budget to get people paid for their time. As with everything, there’s an opportunity cost.” Sabia Interview, Appendix K, 43.

²⁸⁰ *Dove Onslaught(er)*, YouTube (April 21, 2008), <http://www.youtube.com/watch?v=odi7pQFyjso>.

clips to explain and criticize copyright law.²⁸¹ In response to a question about the impact of the existing DMCA exemption, he reports:

I have had students in the past literally afraid to do a project. I know that sounds ridiculous. And in fact that's how I knew—I tell this anecdote a lot—that's how I knew a Fair(y) Use Tale was a really great film, because when we were in the middle of cutting it, we showed it to a class of students that had not seen it before, and there was this girl who was squirming and I could tell she was uncomfortable, and she said, “Are we going to get into trouble for watching this?” ... [T]here is so much good that's come out of it. ... [A]ny time I do a video essay assignment, it's always at the bottom of the page, it says: It has to be better than a paper. Better than text, better than a paper. And so what they're doing is really taking advantage of a rich media environment but they need to have that legal room to be able to do that. Because I don't think in a university classroom we should necessarily be teaching students to express themselves *vis a vis* breaking the law.²⁸²

The Librarian should reject any suggestion that such a climate of fear be reinstated.

Moreover, there is another, more subtle, way in which § 1201(a)(1) would adversely affect the non-infringing activities of video remix creators absent a continuing and expanded exemption: the interaction between the DMCA's online service provider safe harbors and § 1201(a)(1) frequently makes it difficult for remix video creators to keep their videos online. Large media companies deliver hundreds of thousands of “takedown” notices under 17 U.S.C. § 512 each month to online service providers who host and link to information posted by Internet users. While many of those notices target clear cases of copyright infringement, remix video creators have found themselves mistakenly caught in the takedown notice driftnet.²⁸³ Assuming the creator has ripped the discs in order to obtain clips included in the video, she faces a difficult set of choices. If she insists on her right to counter-notice pursuant to 17 U.S.C. § 512(g) to have her video restored, she exposes herself to a potential circumvention claim from the copyright owner who sent the DMCA takedown demand. In other words, thanks to § 1201(a)(1)'s ban on circumvention, remix video creators may be unable to take full advantage of the protections they would otherwise enjoy against having their non-infringing works improperly censored off the Internet.

The same tension exists with respect to filters used by site such as YouTube. YouTube's Content I.D. system allows copyright owners to upload “fingerprint files” of their works. When a video maker tries to upload her video to YouTube, the Content I.D. system will compare the content against its fingerprint database. Depending on the preferences of the content owner, if there is a match—whether or not the use is a fair use—the video could be removed from YouTube completely, blocked in certain countries, or posted with accompanying ads. The

²⁸¹ Eric Faden, *A Fair(y) Use Tale*, The Center for Internet and Society (Mar. 1, 2007), <http://cyberlaw.stanford.edu/documentary-film-program/film/a-fair-y-use-tale>.

²⁸² Interview with Eric Faden (Nov. 20, 2011) (transcript on file with F. Coppa).

²⁸³ Oday, *DMCA Double Jeopardy*, YouTomb (Oct. 31, 2009), <http://youtomb.mit.edu/blog/>; see also MG Siegler, *Hitler is Very Upset That Constantin Film is Taking Down Hitler Parodies*, TechCrunch (Apr. 19, 2010), <http://techcrunch.com/2010/04/19/hitler-parody-takedown/> (reporting on the removal of the popular Hitler internet memes).

creator can dispute a Content I.D. flag, but, as with counter-notices, creators may hesitate to do so given the potential circumvention claim.

F. The Four Nonexclusive Statutory Factors

1. The Availability for Use of Copyrighted Works

Section 1201(a)(1)(C) instructs the Librarian of Congress to consider four nonexclusive considerations in weighing proposed circumvention exemptions. The first consideration is “the availability for use of copyrighted works.”²⁸⁴ As the Register noted in her report last year, “CSS-protected DVDs have continued to be the dominant format even though circumvention tools have long been widely available online . . . at this point in time, the suggestion that an exemption for certain non-infringing uses will cause the end of the digital distribution of motion pictures is without foundation.”²⁸⁵ There is no reason to believe that is any less true today.²⁸⁶

Adequate alternative means for accomplishing the non-infringing uses do not exist, for at least three practical reasons.

First, many in the remix community lack access to sophisticated copyright counseling in advance of creating their videos, which means they will not realize that simply ripping a DVD could put them at legal risk. While these creators may have a basic understanding of copyright law, and some notion of fair use, they are particularly unlikely to appreciate the different (and counterintuitive) ways that § 1201(a)(1) treats the following scenarios:

- Ripping from a DVD you lawfully possess, using widely available software such as Handbrake, RipIt, or Mac The Ripper in order to take short clips for use in a remix video (circumvention);
- Using a camcorder and flat screen TV in order to capture the same clips for the same purpose (not circumvention, though signs in movie theaters across the country indicate that doing the same thing in public would lead to arrest²⁸⁷);
- Connecting the analog outputs from a DVD or VHS player to a personal computer equipped with video capture capabilities in order to capture the same clips for the same purpose (not circumvention);
- Downloading a digital copy of a DVD or Blu-Ray disc from an unauthorized BitTorrent site, like those that can be found through The Pirate Bay, in order to excerpt the same clips for the same purpose (not circumvention).

Absent an exemption, creators who take the course that seems the most intuitively “legitimate”—namely, using their own computer to take excerpts from a DVD they lawfully possess—will have unknowingly violated § 1201(a)(1). Their first encounter with § 1201(a)(1) and its

²⁸⁴ 17 U.S.C. § 1201(a)(1)(C)(i) (2006).

²⁸⁵ 2010 Recommendation, *supra* note 3, at 57.

²⁸⁶ Of course, other formats are emerging. Nonetheless, DVDs remain a very substantial form of audiovisual distribution, with sales of top-name films earning hundreds of millions of dollars in revenue. According to the MPAA, DVD sales increased 10% in 2009. Carl DiOrio, *MPAA: Domestic Boxoffice Up 10% in '09*, *The Hollywood Reporter* (Oct. 13, 2010), <http://www.hollywoodreporter.com/news/mpaa-domestic-boxoffice-10-09-21493>.

²⁸⁷ *See* 18 U.S.C. § 2319B (2006).

counterintuitive set of distinctions is likely to come only if a motion picture studio targets their video for enforcement action, whether by DMCA takedown notice or direct threat of suit.²⁸⁸

The law will create perverse incentives for remix video creators if the proposed exemption is not granted. Of all the “alternatives” available to creators who actually understand the circumvention restrictions imposed by § 1201(a)(1), the easiest and least cumbersome would be to simply download content from unauthorized BitTorrent sources. This outcome seems distinctly less desirable than permitting remix video creators, many of whom are fans who eagerly purchase the works that they remix, to use their own lawfully obtained copies in the course of creating non-infringing remix videos. Absent a continued exemption, remixers who understand the prohibitions of § 1201 will be chilled, and those who do not will unknowingly risk legal liability. Neither option is palatable where, as here, the uses in question are fair uses and the remixers are willing to pay for the content they use.

Second, as the Register recognized in the prior rulemaking proceeding, many “alternatives” for taking clips from DVDs result in a compromise in video quality.²⁸⁹ Video quality continues to matter to remix creators. Indeed, in the words of one vidder, video quality is a “critical” consideration:

Vids are a visual art form; vidders work incredibly hard to get just the right colors, timing, movement, and flow—and all of that is disrupted when the source is fuzzy or degraded. The impact of the vid is lessened tremendously if you can’t see the images clearly; you might just as well ask whether it matters to a photographer whether their shots are in focus. Like with a photograph, the vid isn’t just the literal image that appears in the frame; it’s about the overall aesthetics of the piece. Sometimes photographers might intentionally create a blurry picture, but when they do so, it’s under circumstances that the photographers control. It’s the same with vidding.²⁹⁰

Further, now, as in 2009, many remix videos are not intended (or at least not solely intended) for distribution in low-quality mediums like YouTube.²⁹¹ Rather, as personal computers and home theater systems continue down the road to convergence, remix videos will increasingly be called upon to deliver their messages on large, high-definition screens. If remix video creators are to have meaningful access to this medium, they have to be able to take high-quality, full-resolution excerpts from DVDs.²⁹²

Like vidders, PRV creators need footage that is powerful and will “scale.” However, it is also essential that the PRV genre be able to mimic the qualities of the media sources on which the videos comment. As Dr. Horwatt notes:

²⁸⁸ See Rebecca Tushnet, *I Put You There: User-Generated Content and Anticircumvention*, 12 Vand. J. Ent. & Tech. L. 889, 927-34 (2010), available at http://tushnet.com/law/Tushnet_online.pdf.

²⁸⁹ 2010 Recommendation, *supra* note 3 at 60.

²⁹⁰ Kiss Interview, Appendix J, 38; *see also* Interview with Jackie Kjono (Nov. 21, 2011) (on file) (“I was a late adopter of ripped source and was still using capture devices up until three years ago when we got the exemption. . . . Images are blurry and bright colors end up too bright while dark colors end up too dark.”).

²⁹¹ Fan Vidding Tips, <http://www.foolishpassion.org/vidding-tips/video-quality-xvid-youtube-dv.html> (last visited Nov. 30, 2011).

²⁹² 2010 Recommendation, *supra* note 3, at 59-60.

One of the most interesting aesthetic qualities of PRVs and a cardinal feature of the humour and incisiveness presented by PRV makers, is their capacity to mimic the qualities of commercial media. This means that editors are both able to imitate the vernaculars of commercial media (whether that be a cartoon, trailer, commercial or television program) but also to make work which looks like commercial media, with high quality rips of source material. Using high quality video of appropriated materials is instrumental to the success of a PRV.²⁹³

Sabia agrees:

[B]ecause of the standards set by Hollywood and professional media organizations, the use of high quality footage is important because it tends to add a sense of legitimacy to an audiovisual argument; for better or worse, higher quality video footage tends to be taken more seriously by the public.²⁹⁴

Quality matters as much now as in 2009; screen capture, camcording from a screen, etc., will not do where there is a better quality source.

Third, many of the “alternatives” theoretically available to remix video creators require additional equipment and technical expertise that are beyond the reach of many remix video creators, as well as additional cost.²⁹⁵ By contrast, simply downloading a free DVD “ripper” software program equips the aspiring remix video creator with the tools to take high-quality excerpts from DVDs.

2. The Availability for Use of Works for Nonprofit Archival, Preservation, and Educational Purposes

According to the Copyright Office, “the second factor requires a more particularized inquiry than the first,” examining the impact of technical protection measures on nonprofit archival, preservation, and educational uses.²⁹⁶ While EFF believes that CSS has also had a deleterious effect on these uses, the proposed exemption for remix video creators is not aimed at those categories of uses. In any event, for the reasons discussed below, there is no reason to believe that granting an exemption to noncommercial video remix creators will harm the availability of copyrighted works for these nonprofit uses.

3. The Impact on Criticism, Comment, News Reporting, Teaching, Scholarship, or Research

The third statutory factor “requires consideration of whether the [§ 1201(a)(1)] prohibition has an impact on criticism, comment, news reporting, teaching, scholarship, or research.”²⁹⁷ This consideration reflects Congress’ special solicitude for these “traditionally socially productive non-infringing uses.”²⁹⁸

For the reasons discussed above, failing to renew the exemption for noncommercial videos would have a chilling effect on a wide variety of remix video creators who are engaged in

²⁹³ Horwatt Interview, Appendix L, 44.

²⁹⁴ McIntosh Interview, Appendix M; *see also supra* at note 254 (quoting Sabia on the importance of quality).

²⁹⁵ 2010 Recommendation, *supra* note 3, at 59; *see also* Kjono Interview.

²⁹⁶ 2006 Recommendation, *supra* note 101, at 22.

²⁹⁷ *Id.* at 23.

²⁹⁸ *Id.*

criticism and commentary. It is no coincidence that many of the most widely known web videos are (often humorous) commentary or criticism. To take just a few:

- In one supercut, “The Price is Creepy,” Rich Juzwiak uses short clips to call attention to the sexist behavior of famous TV game show host Bob Barker of *The Price is Right*.²⁹⁹
- In 2009-10, many vidders started creating “Downfall” parodies, or remixes of the bunker scene from the German film *Downfall: Hitler and the End of the Third Reich (aka Der Untergang)*. The parodies comment on everything from the misuse of DMCA to problems with new technologies and cultural events.³⁰⁰
- A video by 16-year-old vidder ImaginarySanity comments on sexism in popular culture by juxtaposing clips from Star Trek with Britney Spears’ pop hit, “Womanizer.”³⁰¹
- Jonathan McIntosh mashes up *Buffy the Vampire Slayer* with *Twilight* to illustrate the criticism that the *Twilight* phenomenon celebrates female disempowerment and romanticizes male stalking, leading to over 4 million views, translation into over 30 languages, and even positive reactions from young *Twilight* fans.³⁰²

Dr. Coppa also emphasizes the centrality of commentary and criticism to vidding: “Vids are arguments. A vidder makes you see something. Like a literary essay, a vid is a close reading. It’s about directing the viewer’s attention to make a point.”³⁰³

Of course, political remixers such as Sabia and McIntosh are explicitly engaged in commentary, criticism and education. When such works seek to comment on mainstream media, video is often an effective and necessary medium for communicating a particular perspective. Further, in a world where use of social media and interactive digital environments is on the rise, a message communicated via video is often more appropriate and compelling than one presented in print. When asked if he could have illustrated the Lear Center report without using video clips, Sabia responded:

Sure I could have! I could have commissioned a cartoonist to animate Dr. House. I could have used animated lego figures to act out a crucial scene from *24*. I could have filmed my friends doing theatrical NCIS interrogations in my basement.

²⁹⁹ Jonathan McIntosh, *The Price is Creepy-Bob Barker Supercut*, Political Remix Video (Nov. 8, 2011) <http://www.politicalremixvideo.com/2010/11/08/the-price-is-creepy/>.

³⁰⁰ *Top 10 Hitler Downfall Parodies of All Time*, Ranker, <http://www.ranker.com/list/top-10-hitler-downfall-parodies-of-all-time/the-master> (last visited Nov. 30, 2011).

³⁰¹ *Captain Kirk is a Womanizer*, Political Remix Video (Mar. 7, 2009) <http://www.politicalremixvideo.com/2009/03/07/kirk-is-a-womanizer/>.

³⁰² See Jonathan McIntosh, *Buffy vs. Edward Remixed*, Rebellious Pixels (June 20, 2009) <http://www.rebelliouspixels.com/2009/buffy-vs-edward-twilight-remixed> (noting coverage in outlets ranging from NPR to the *New York Post* to *Vanity Fair*).

³⁰³ Jesse Walker, *Remixing Television*, Reason, <http://www.reason.com/news/show/127432.html> (last visited Nov. 30, 2011); see also Henry Jenkins, *DIY Media 2010: Fan Vids (Part One)*, Confessions of an Aca-Fan (Nov. 24, 2010), http://henryjenkins.org/2010/11/diy_media_2010_fan_vids.html (“Vids can make very sophisticated arguments about the source text’s plot and characters, and even its ideology. While some vids are edited to broadly emphasize certain themes, images, or characters, and are thus easily understandable to the uninvested spectator, other vids are made specifically for fellow fans who are assumed to be familiar not only with the source text but also with the conventions and established aesthetics of vidding.”).

But let's be real. These options are absurd. If the only focus of this research is on the television shows themselves, doesn't it make sense to use the television shows as the only visual accompaniment? When a weatherman is talking about where rain will fall over the next 5 days, he shows a map with moving precipitation. If the Lear Center is citing how there were fourteen forced entries during Primetime TV, then we show the scenes of forced entry. There's nothing more elegant and logical about the situation.³⁰⁴

Thus, here too the proposed exemption would promote socially productive non-infringing uses.

In addition, scholars report that they use vids in their teaching practice, particularly given the growing centrality of visual media. Professor Jane Tolmie notes that developing an ability to critique visual media is a critical skill for a generation of students that has been inundated with audiovisual works. Vids are a powerful means of teaching this skill.

Exposure to a particular fanvid based on Joss Whedon's *Firefly* series taught the class about the unreflexive white privilege involved in producing a show in which the main characters all speak Chinese but there are no Asian actors. Exposure to a fanvid on the rebooted *Star Trek* franchise taught the students that the action movie, no matter how 'futuristic,' is still considered primarily a theatre for men. These lessons were all the more effective for being delivered as miniature and coherent visual spectacles, with the scenes and actions of the shows themselves being deployed to convey the key lessons.³⁰⁵

In this context, remix videos are not only a vehicle for criticism and commentary, they are also a means for helping others develop the ability to do the same.

Because remix videos are so often created for the purpose of commentary, criticism, and teaching, the third statutory factor favors the granting of a narrow exemption to alleviate the adverse effects that § 1201(a)(1) has imposed and will impose on remix video creators.

4. The Effect on the Market for, or Value of, Copyrighted Works

It is unlikely that the proposed exemption will have any demonstrable effect on the market for DVDs. Previous DVD exemptions did not: although DVD sales were down in 2010 according to some press accounts, commentators attribute that effect to the rise to the economic downturn and increasing use of alternative rental and streaming services such as RedBox and NetFlix.³⁰⁶

This result should not be surprising. As the Register noted in her 2010 recommendation, the uses in question are transformative and, therefore unlikely to affect the markets for the original works.³⁰⁷ Vidders and creators of AMVs pay to acquire copies of DVDs, supporting rather than harming the market.³⁰⁸ And, as EFF explained in its 2009 exemption proposal, free, easy-to-use

³⁰⁴ Sabia Interview, Appendix K.

³⁰⁵ Tolmie Interview, Appendix O.

³⁰⁶ Thomas K. Arnold, *Netflix and Redbox gained in 2010 as DVD sales slid*, Reuters (Dec. 27, 2010), <http://www.reuters.com/article/2010/12/27/industry-us-dvd-idUSTRE6BM0E120101227>; see also David Kehr, *Goodbye, DVD. Hello, Future.* New York Times (Mar. 4, 2011) <http://www.nytimes.com/2011/03/06/movies/homevideo/06dvds.html?pagewanted=all>.

³⁰⁷ 2010 Recommendation, *supra* note 3, at 70-71; see also Ito Interview, Appendix H, 29-30 (presenting evidence that anime music videos support rather than detract from the US DVD market).

³⁰⁸ See Ito Interview, Appendix H.

DVD ripping software has been continually available on the Internet for all major personal computer operating systems. DVD Shrink, Mac The Ripper, Handbrake, and dvd:rip are among the most popular DVD decryption solutions—all are available free-of-charge and have remained continually available for several years.³⁰⁹ Similar ripping software is also available for tablets and smartphones.³¹⁰ Many less popular DVD ripper alternatives, some distributed for free, others for a small fee, also compete with these leading products. Even DeCSS, the first widely distributed DVD decryption software, remains widely available online, even though it has long since been surpassed in ease-of-use and sophistication by its descendants.³¹¹ In light of this reality, millions of Americans have had DVD circumvention tools at their disposal for years.

Moreover, camcording and other alternatives to circumvention, while insufficient for critical purposes or use in editing where quality deteriorates with each instance of processing, do create first-generation digital copies watchable enough for pure consumption.³¹² A pirate interested only in distributing full copies of a work can easily use those alternatives, providing another reason that the existing exemption has been irrelevant to non-remix uses.

Finally, the proposed exemption for remix video creators would authorize circumvention solely for non-infringing purposes and would not authorize distribution of CSS circumvention devices.³¹³ Accordingly, when compared with the widespread circumvention already being practiced, it is highly unlikely that the activities of remix video creators would adversely impact incentives for DVD distribution.

5. Other Factors

As the Register noted in her previous recommendations, “times have changed.”³¹⁴ Prior to the last round of exemptions, CSS, backed by § 1201, inhibited socially beneficial and entirely legitimate fair uses of audiovisual works.³¹⁵

Removing that legal inhibition has done precisely what Congress intended when it created the exemption procedure: helped ensure that the strong protections of § 1201(a)(1) do not adversely affect non-infringing uses. Indeed, remix artists and scholars alike agree that it has been tremendously beneficial to the remix community.³¹⁶ For example, the Organization for Transformative Works has heard from numerous vidders and other noncommercial remixers who have taken advantage of the exemption to stand up for their fair use rights in the face of a takedown notice:

³⁰⁹ *Rip, Save, Watch*, MacWorld, <http://www.macworld.com/weblogs/macgems/2005/03/mactheripper/index.php> (last visited Nov. 30, 2010); Dan Frakes, *DVD to iPod Made Easy*, MacWorld (Jan. 3, 2006), <http://www.macworld.com/weblogs/macgems/2006/01/handbrakelite/index.php>.

³¹⁰ *WinX DVD Ripper Platinum Upgraded for Android Phone and Tab*, SF Gate (Nov. 8, 2011), <http://www.sfgate.com/cgi-bin/article.cgi?f=/g/a/2011/11/08/prweb8946052.DTL>.

³¹¹ Anuj C. Desai, *Software as Protest: the Unexpected Resiliency of U.S. Based DeCSS Posting and Linking*, 20 *The Information Society* 101 (2004), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=729931.

³¹² See Tushnet, *supra* note 284, at 930.

³¹³ Should the DVD Exemptions be renewed, those who come within their scope would be entitled to develop CSS decryption tools for their own use, or to acquire such tools. The “anti-trafficking” provisions do not prohibit possession, acquisition or receipt of circumvention tools.

³¹⁴ 2010 Recommendation, *supra* note 3, at 71.

³¹⁵ *Id.*

³¹⁶ Coppa Interview, Appendix I, 36; Gianduja Interview, Appendix J, 39; Interview with Pogo (Nov. 16, 2011) (on file).

The DMCA is a large part of that confidence: many vidders now understand that their use of the cultural material was fair and that they didn't break any laws by ripping their DVDs either. It is so crucial for vidders to have confidence in the legitimacy of their work and the validity of their speech, and I do believe that the DMCA exemption has given that to vidders.³¹⁷

Similarly, PRV pioneer Jonathan McIntosh notes that the exemption has been “critically important” for PRV makers:

Before the exemptions many remixers would be afraid of making a fair use video commentary with DVD footage even if they owned the disc(s). Some remixers, including myself, would resort to using the bit torrent file sharing protocol to download DVDs ripped by others rather than decrypting the DVDs from our own home collections.³¹⁸

It can hardly serve the purposes of the Copyright Act or the DMCA to foster such concerns where the uses in question are not only fair, but important forms of creative expressions that spur political debate.

EFF urges the Librarian to renew and clarify the exemption for CSS to extract video clips, so that the vibrant remix community described here can continue to thrive, uninhibited by a fear of § 1201 liability.

V. Proposed Class #4: Circumvention Necessary to Extract Clips From Non-DVD Sources for Use in Remix Videos

Proposed Class: Audiovisual works that are lawfully made and acquired via online distribution services, where circumvention is undertaken for the purpose of extracting clips for inclusion in primarily noncommercial videos that do not infringe copyright, and the person engaging in the circumvention believes and has reasonable grounds for believing that circumvention is necessary to fulfill the purpose of the use, and the works in question are not readily available on DVD.

A. Summary

Remix video creators do not always have the option of drawing from DVDs. All too often, the cultural works from which they need to excerpt to engage in their critical commentary are not available in that format. Some television shows are not currently and may never be offered on DVD. Then video makers turn to other sources, such as Amazon Unbox, to obtain the audiovisual works they need.³¹⁹ Because these uses, too, are clearly non-infringing fair uses, they should be sheltered from any risk of DMCA § 1201 liability.

B. Factual Background

The general background regarding the remix communities and practices described above in the discussion of Proposed Class #3 applies equally here. To avoid unnecessary repetition, we incorporate it by reference. However, this proposed exemption applies to a different class of

³¹⁷ Coppa Interview, Appendix I, 36.

³¹⁸ McIntosh Interview, Appendix M, 48-49.

³¹⁹ Amazon now calls this service “Amazon Instant Video” but it is nonetheless commonly referenced by its former name in the remix community.

works: audiovisual works available from authorized sources, where creators have no choice but to turn to non-DVD sources because the works they seek are difficult or impossible to obtain in that format.

For example, vidder Gianduja Kiss created a powerful and disturbing vid in 2009 commenting on the popular American television show *Dollhouse*. The plot of *Dollhouse* revolved around a corporation running underground establishments (known as “Dollhouses”) that erase the memories of individuals (“Dolls”) and replace them with new custom personalities. Wealthy clients may rent these specially tailored Dolls for their personal, often sexual, use. Many fans and critics of *Dollhouse* feel that although the show artfully portrays a terrifying idea, it does so in a misogynistic way. Kiss’s vid *It Depends on What You Pay*³²⁰ weaves together scenes from *Dollhouse* with an unsettling yet upbeat song about rape featured in the 1960 off-Broadway musical *The Fantasticks*.³²¹ By blending the controversial song with cleverly cut images from the show, Kiss created a new work that poses intriguing questions about the show’s portrayal of sexuality and personal autonomy.

At the time Kiss created the vid, *Dollhouse* was not available on DVD, so Kiss took the *Dollhouse* clips from footage she downloaded from Amazon Unbox (for which Kiss had paid). The use of Amazon Unbox enabled her to comment on the show when it was on the air and participate in an ongoing conversation, rather than requiring her to wait months for the DVD release (at which point the show had been cancelled). She explains:

I personally only use Amazon Unbox when the source is not available on DVD; I even replace my Amazon Unbox source with DVD footage once the DVD becomes available. In general, I think most vidders would prefer to use DVD footage, and if they’re using something else, it’s either because DVDs aren’t available or because they literally can’t afford the DVD and it’s simply not an option for them.³²²

Thus, Kiss did not turn to non-DVD sources by choice, but because she lacked a viable, good-quality alternative.

This type of use is not unusual for remixers who wish to comment on a currently airing show. Waiting for the DVD would in many cases require up to a year, since DVDs are regularly released just before the beginning of the next season (or, if a show is cancelled, they may never appear). Timeliness is particularly urgent for political remixers, who often need to create and share their videos while their message is still timely. As McIntosh explains:

The creation and publishing of a remix video may be extremely time-sensitive if it focuses on a current issue in the news cycle. Examples of time-sensitive remixes might include responding to statements by a celebrity or public figure, discussing

³²⁰ Gianduja Kiss, *It Depends on What You Pay*, Monsters From the Vids (Apr. 25, 2009) <http://www.giandujakiss.com/index.php?set=videos&category=Dollhouse>.

³²¹ Although the song was featured in early productions of the musical, recent versions either remove it completely or replace it with a new song.

³²² See, e.g., Gianduja Interview, Appendix J, 38; Interview with Killa (Nov. 17, 2011) (on file).

a political campaign, or commenting on piece of legislation while its being debated.

In these cases, online streaming/downloading can be the only option to gather footage if the physical DVDs are difficult to find locally or have gone out of print (as is often the case especially with older, independent or small scale documentary productions). In addition, a great many of the popular news and commentary TV programs are simply not available on DVD and most likely never will be and so remixers can either try to record TV live which is expensive, time consuming and does not guarantee capturing the exact media moments they may want to comment on—or they can get search and gather the specific footage they need from online sources.³²³

For this community, delayed access can mean a less effective message—or no message at all.

Some remixers use screen capture to accomplish their purpose. However, that technique will not always produce the best quality footage. For these communities and others, the quality of the footage remains a concern.³²⁴ Says McIntosh:

I and other remixers tend to use the best footage that is readily available: this includes downloading video source As a last resort, remixers will use screen-capturing tools but the results can be unreliable depending on video buffering and/or end user bandwidth speeds.³²⁵

Indeed, remixers who use non-DVD sources frequently purchase the same material on DVD when it becomes available.³²⁶ Where that is not possible, acquiring video source may be the best alternative—and one that will strike may remixers as more fair and legally permissible than downloading from unauthorized sources.

C. Acquiring Audiovisual Works in Order to Extract Clips For Inclusion in Primarily Noncommercial Videos Does Not Infringe Copyright.

Virtually the same fair use analysis set forth with respect to Proposed Class #3 applies here. Rather than repeating the analysis in its entirety, we will focus here on an illustrative example of a remix that could not have existed without materials that were not (and in some cases, will never be) available on DVDs.

With respect to the purpose and character of the use, this factor will tend to support the uses the proposed exemption will shelter almost by definition, since it is tailored to primarily noncommercial, generally transformative uses that, in many if not all cases, will comment on the underlying work(s). *It Depends on What You Pay* is excellent example, as it recuts carefully chosen clips of lyrics and music to provoke thoughtful analysis of the source material. To

³²³ McIntosh Interview, Appendix M, 48. Moreover, appellate courts have expressly recognized the importance of “timely” political expression. *Arizona Right to Life Political Action Committee v. Bayless*, 320 F.3d. 1002 (2003).

³²⁴ See, e.g., Ynitsa, *supra* note 239 (discussing the failure of screen capture).

³²⁵ McIntosh Interview, Appendix M, 48.

³²⁶ Gianduja Interview, Appendix J; Interview with Killa (Nov. 17, 2011) (on file).

illustrate, the phrase “the spectacular rape, with costumes ordered from the East” is paired with quick shots of Dolls attending a lavish party with clients, one dressed in an exquisite geisha costume. When the chorus (“so you see the sort of rape depends on what you pay”) is repeated, *Dollhouse* clients are shown with suitcases of money and credit cards, negotiating a price for their desired services. Each scene is handpicked to convey a particular point of view. Together, the images and sound create a new transformative work that points out *Dollhouse*’s failure to acknowledge a connection between rape and the apparently consensual encounters presented in the original. Kiss’s distribution of the video was also completely non-commercial.

The second factor may or may not favor a finding of fair use, as remix creators draw from a wide variety of sources. However, if the remix creator is relying on non-DVD sources, it is possible that she is doing so because she needs news footage (which is difficult to obtain via DVD, especially in a timely fashion) and, therefore, more likely that the second factor would not weigh against her.³²⁷

As for the amount taken, in each of these examples, as is standard for remix, the exemption would apply only to taking short clips as reasonably necessary to accomplish a transformative purpose. The artistic and political uses of remix are the same whatever the underlying technology.

As for market harm, this factor, too, will commonly favor a finding of non-infringement. Taking short clips of news and entertainment programs that have already been widely disseminated to critique how they present an issue is appropriate and proportional to the purpose of the use. Kiss’s vid is under three minutes in length, and could never substitute for 27 episodes of *Dollhouse*, each running around 40 minutes. In fact, one probably needs to have seen a number of episodes of *Dollhouse* to fully grasp the critical meaning of the video.³²⁸

It is impossible to be certain that every remix video that uses non-DVD sources makes a non-infringing fair use of those sources. But, as the Register recognized with respect to remix videos that make use of DVD material, there is little question that at least some, if not many, are nonfringing. To be clear, if the uses in question are not fair, they would not qualify for the proposed class.

D. The Encryption and Authentication Schemes Used by Services such as Amazon UnBox and Hulu

There are many encryption and authentication schemes used by sites that seek to make videos available to end users. Based on EFF’s research, it appears that one of the most used platforms for online music and video publishing is the Adobe Flash Player, originally developed by Macromedia, Inc., and published by Adobe Systems, Inc., following its 2005 acquisition of Macromedia. As such, we will use this as our primary example in discussing how the technology works, as well as the ways in which these schemes could be treated as access controls under

³²⁷ McIntosh Interview, Appendix M, 48-49.

³²⁸ See, e.g., Sarah Trombley, *Visions and Revisions: Fanvids and Fair Use*, 25 Cardozo Arts & Ent. J. 647, 669 (2008) (presenting the argument that fanvids often demand that the original source material be consumed in order to be understood).

§ 1201(a)(1).³²⁹

The Adobe Flash Player can play audio or video content encoded with the Flash Video (FLV) format. Although many major online media sites use no encryption at all, several of the most popular sites providing commercially licensed television and motion picture content do encrypt some or all of their video streams.³³⁰ RTMPE (Real Time Messaging Protocol Encryption) is an extension that adds an encryption layer to the Adobe-designed RTMP streaming media protocol. Adobe markets RTMPE in its multimedia streaming products, such as Flash Media Server, as a means of deterring people from recording videos and says RTMPE was designed for this purpose. Adobe also markets a technology called SWF Verification that attempts to ensure that only whitelisted SWF players are capable of streaming content from a given Flash Media Server. According to Adobe:

Stream capture software providers are trying many ways to capture and archive video delivered to Adobe Flash. Today, few of these “rippers” support RTMP (Real-Time Messaging Protocol)—the protocol used by Adobe Flash Media Server (FMS). To help prevent the ripping of video streamed through Flash, Adobe created the RTMPE protocol—a real-time encryption solution—and SWF Verification. These new technologies were introduced in Flash Media Server 3.0 and Adobe Flash Player 9.0.115. Today, over 86% of Internet-connected computers have adopted this Flash Player version, and all Content Delivery Networks (CDN) support Flash Media Server 3.³³¹

Adobe continues to maintain that third parties are not supposed to implement RTMPE and other “secure RTMP measures,” the details of which it has not published.

Nonetheless, RTMPE has long since been successfully reverse-engineered by third parties, and several implementations have been produced that successfully interoperate with Adobe's Flash Media Server, easily bypassing SWF Verification when necessary.³³² These implementations have formed the basis of tools that help users acquire video from services that use RTMPE, such as Hulu and UnBox. Similarly, there are numerous tools available to break technological restrictions on other services.³³³

³²⁹ To be clear, encryption and authentication protocols may or may not “effectively” control access within the meaning of § 1201. In either event, however, most lay people will not be well-positioned to make that determination.

³³⁰ For example, Last.fm, Pandora, and Vimeo do not encrypt their video streams, while Hulu, Netflix, and Amazon do.

³³¹ See, e.g., *Protect video content (Flash Media Server)*, Adobe (May 24, 2010), <http://kb2.adobe.com/cps/405/kb405456.html>.

³³² For example, the first release of RTMPdump software was in 2008. It was able to work with RTMPE and SWF verification by April 2009 (<http://rtmpdump.mplayerhq.hu/ChangeLog>), just months after RTMPE and SWF verification started to become more widespread.

³³³ Widely available tools that help users acquire video from RTMPE-enabled sites include RTMPdump (<http://rtmpdump.mplayerhq.hu/>) and wrappers to it such as RTMPEXplorer (<http://all-streaming-media.com/record-video-stream/RTMPEXplorer-freeware-GUI-for-rtmpsrv-Windows.htm>), StreamTransport (<http://www.streamtransport.com/>), TubeDigger (<http://www.tubedigger.com/>), GetFLV (<http://www.getflv.net/>). Many tools similarly exist and have been long available to acquire video wrapped in Windows Media DRM, such as Wondershare (<http://www.wondershare.com/pro/media-converter.html>), and FairUse4WM

Adobe has maintained that these tools are unlawful and has gone to court to enforce that claim. For example, on January 20, 2009, Adobe filed a lawsuit alleging that a computer program called Replay Media Catcher distributed by Applian Technologies, Inc., violated §1201(a) and (b) because it implemented RTMPE.³³⁴ Adobe's complaint makes clear that Adobe considers RTMPE and related technologies (which it collectively refers to as "Secure RTMP Measures") to be technological protection measures and that it is prepared to engage in litigation against firms that distribute RTMPE implementations. Adobe and Applian subsequently settled this lawsuit by a stipulated order of dismissal entered February 17, 2009.

Of course, other services can and do use technologies other than RTMPE. For example, Amazon Unbox uses RTMPE for in-browser playback but also lets users download Microsoft Windows Media DRM files using its separate Unbox Player application. Vidders have reportedly used tools such as FairUse4WM to decrypt these files, converting them to unencrypted WMV video. On September 22, 2006, Microsoft filed an action against Viodentia, the developer of FairUse4WM, alleging infringement of Microsoft's copyrights.³³⁵ Microsoft's complaint states that FairUse4WM "enables users to alter or remove Microsoft's DRM from Windows Media files (*i.e.*, it allows users to wrongfully access or copy a copyrighted music or movie file)."³³⁶ Although Microsoft's complaint did not assert any causes of action under §1201, Microsoft's characterization of Windows Media DRM and FairUse4WM suggests that Microsoft would consider such causes of action available to it.

E. Section 1201(a)(1) Adversely Affects Remix Video Creators.

For the same reasons set forth with respect to Proposed Class #3, the anticircumvention provisions of the DMCA adversely affect remix creators who wish to use nonDVD sources. Given the substantial litigation involving allegations of CSS circumvention for DVDs, and threats against companies that provide tools for breaking encryption on Adobe (see Section IV.C, above), remix creators must necessarily fear such claims against users in this newer context.

Thus, remix creators have a legitimate reason to worry about circumvention liability, even though their activities are otherwise protected by the fair use doctrine. Certainly, any competent legal counsel they might obtain would have to advise them of the risk—which means fair uses will be chilled. Alternatively, if they do not obtain such counsel, they may inadvertently engage in circumventing activity, unknowingly subjecting themselves to liability. In either event, legitimate creative activity is harmed to the detriment of both the creator and his or her potential audience. As Horwatt observes:

While many may be technically aware of the legal measures that the DMCA implies, most PRV makers believe their work falls under the umbrella of fair use,

(<http://www.engadget.com/2006/08/25/fairuse4wm-strips-windows-media-drm>), which has been available for over 5 years.

³³⁴ *Adobe Sys. Inc v. Applian Techs., Inc.*, N.D. Cal. Case No. 09-cv-0228-WHA (filed Jan. 2, 2009)

³³⁵ *Microsoft Corporation v. Does 1-10 aka Viodentia*, W.D.Wash. Case 2:06-cv-01380-JCC.

³³⁶ Microsoft dismissed this action without prejudice in April 2007 because it "was unable to locate these defendants through discovery." See Joel Hruska, *Microsoft drops lawsuit against FairUse4WM creator*, Ars Technica, <http://arstechnica.com/microsoft/news/2007/04/microsoft-drops-lawsuit-against-fairuse4wm-creator.ars> (last visited Nov. 30, 2011).

and thus trumps those restrictions implied by the DMCA. ... On the one hand remixers are protected by the right to make derivative transformative works and on the other hand are legally rebuked for doing so based on the technological requirements involved.³³⁷

At the same time, a remix creator that finds herself on the wrong end of a DMCA takedown notice could be chilled from counter-noticing, no matter how non-infringing her work, by the threat of a circumvention claim. This is particularly true if, as will often be the case, the takedown notice has spurred her to consult a lawyer for the first time.³³⁸

Finally, the same perverse incentives and traps for the unwary that apply with respect to DVD-ripping apply here. As it stands, remixers turn to online sources such as UnBox in part because they can be confident that they have paid for the right to access the content. Dr. Coppa's observation that "for most vidders, the big legal (and ethical) line remains between 'paying' and 'not paying' for source footage" applies equally whether the compensation is in the form of a DVD sale or an UnBox purchase.³³⁹ Remixers concerned about § 1201 liability, however, are likely to turn to unauthorized Internet sources that offer no means for compensating the rightsholder.³⁴⁰ Surely this is not the best outcome for either rightsholders or the rule of law.

F. The Four Nonexclusive Statutory Factors

1. The Availability for Use of Copyrighted Works Would Not Be Adversely Affected

We anticipate that opponents of the exemption will argue that it would interfere with the continue growth of authorized online distribution models. However, the proposed exemption will have no affect on those business models, because it is narrowly tailored to primarily noncommercial fair uses, *i.e.*, extracting clips for use in remix videos. Moreover, tools for accomplishing such circumvention have existed virtually from the inception of these services, but that has not slowed the growth of digital sales and rentals.³⁴¹

As for whether alternative means for accomplishing the purpose exist, the analysis is similar to that for DVD-ripping. First, as a practical matter, many remix creators will not realize that screen capture or unauthorized sources (for example) might put them at less legal risk, and, therefore, will opt for the strategy that seems most ethical – paying to access the work from an authorized source. Second, these alternatives may result in a loss in quality which, as the Register recognized in her report (and numerous scholars and video creators concur), would be significantly detrimental to the creator's purpose. Third, many of the "alternatives" theoretically available to remix video creators require additional equipment, technical expertise, and cost that are beyond the reach of many remix video creators.³⁴²

Further, the exemption will apply only where the works in question are *not* readily available in other formats, such as DVDs. Remixers agree that they overwhelmingly prefer to extract clips

³³⁷ Horwatt Interview, Appendix L, 45.

³³⁸ McIntosh Interview, Appendix M, 48

³³⁹ Coppa Interview, Appendix I, 31.

³⁴⁰ McIntosh Interview, Appendix M, 48-49

³⁴¹ See Erik Gruenvald, *DEG: Q3 Home Entertainment Spending Up 5%*, Home Media Magazine (Oct. 31, 2011), <http://www.homemediamagazine.com/studios/deg-q3-home-entertainment-spending-up-5-25507>. See also *supra*, note 333.

³⁴² 2010 Recommendation, *supra* note 3, at 59.

from DVDs, because the quality is normally much better than online sources.³⁴³ And, unfortunately, viable alternative legal means of accomplishing the non-infringing use are not always available. For example, screen-capturing tools are unreliable and recording live from television can be expensive, time consuming and potentially fruitless because the remixer cannot be sure he will capture the footage he needs.³⁴⁴

2. The Availability for Use of Works For Nonprofit Archival, Preservation and Education Purposes Would Not Be Affected

The proposed exemption is unlikely to have any negative affect on the availability of works for these purposes.

3. The Exemption Would Have a Positive Impact on Criticism, Comment, News Reporting, Scholarship and Research

As the Register noted in the last Rulemaking, this factor is critical.³⁴⁵ Here, the factor weighs heavily in favor of the proposed exemption, for the same reasons set forth with respect to Proposed Class #3. Many remix videos are created precisely for the purpose of criticizing, commenting and educating the public about an array of social and political issues. PRV makers, for example, are often inspired to create their remixes precisely because of “their passion for an issue and a desire to engage in a public, media-based debate on that issue.”³⁴⁶ Vidders are similarly interested in commentary and criticism; protecting their ability to access and use good-quality nonDVD footage clipped from authorized distribution sources, where necessary, will help ensure that they can do so in a timely matter.³⁴⁷

4. The Exemption Would Not Harm the Market for Copyrighted Works

The proposed exemption is tailored to the extraction of short clips for transformative purposes, and, therefore, is “unlikely to affect the relevant markets for the original work.”³⁴⁸ Indeed, for purposes of the fair use analysis, such a use would not, almost by definition, cause market harm.³⁴⁹ Further, the tools in question have existed for years, but have not hampered the success of these new services—nor, presumably, the licensing revenue rightsholders receive when their works are made available. Indeed, the exemption would arguably benefit the market for the works, by encouraging remix creators to take advantage of authorized services rather than turning to unauthorized online sources.

³⁴³ Kjono Interview; Ito interview, Appendix H, 29; Turk Interview, Appendix N, 50; Gianduja Interview, Appendix J, 38; Coppa Interview, Appendix I, 34.

³⁴⁴ McIntosh Interview, Appendix M, 48.

³⁴⁵ 2010 Recommendation, *supra* note 3, at 70.

³⁴⁶ McIntosh Interview, Appendix M, 46.

³⁴⁷ See Killa Interview. (“I was making a vid for a show that was currently airing. I owned the DVDs for the previous four seasons of the show, but needed clips from a recent episode. The vid was timely, and had to be presented immediately to have relevance to its audience, so I couldn’t wait for the DVDs to be released if I wanted to make the artistic statement I envisioned. The vid was extremely well-received, thanks to that timeliness. I don’t feel the vid would have been nearly as strong, or artistically sound, if it had had TV network logos on it, or the image had been small and pixelated.”). (on file).

³⁴⁸ 2010 Recommendation, *supra* note 3, at 71.

³⁴⁹ *Id.* at 52.

VI. Conclusion

For the reasons described above, the Librarian should determine that the non-infringing uses described herein are, and are likely to be, adversely affected by the prohibitions of § 1201(a)(1), and therefore approve the proposed exemptions for the period 2012-2015.

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Respectfully submitted,
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Appendix

APPENDIX

Materials in Support of Proposed Class #1

<u>Appendix A</u>	
Statement of Michael DeGusta.....	1
<u>Appendix B</u>	
Statement of Trevor Eckhart.....	6

Materials Submitted in Support of Proposed Class #2

<u>Appendix C</u>	
Statement of Prof. Gaurav Khanna.....	10
<u>Appendix D</u>	
Statement of Nicolas Pinto	14
<u>Appendix E</u>	
Statement of Byron Guernsey.....	18
<u>Appendix F</u>	
Statement of Aaron Morris.....	20

Materials Submitted in Support of Proposed Classes #3 and #4

<u>Appendix G</u>	
Statement of Prof. Michael Wesch.....	24
<u>Appendix H</u>	
Interview with Professor Mizuko Ito.....	27
<u>Appendix I</u>	
Interview with Professor Francesca Coppa	31
<u>Appendix J</u>	
Interview with Gianduja Kiss.....	37
<u>Appendix K</u>	
Interview with Joe Sabia.....	40
<u>Appendix L</u>	
Interview with Eli Horwatt.....	44
<u>Appendix M</u>	
Interview with Jonathan McIntosh	46
<u>Appendix N</u>	
Statement of Tisha Turk	50
<u>Appendix O</u>	
Statement of Jane Tolmie	54

Appendix A

Statement of Michael DeGusta

Entrepreneur
Santa Barbara, California

November 23, 2011

1. I am a Santa Barbara-based entrepreneur. I started the web-based software company Steel Card in 1998 and have worked at other technology-based companies such as ChoicePoint, eCoverage, GreenTree, and Apple. I run a blog called “the understatement” that attempts to provide concrete factual support and visual representations of technology trends.¹ The statements below reflect my own personal knowledge, which I have gathered from various publicly available sources such as manufacturer websites, press releases, and other web-based materials.
2. I’ve researched the history of operation system (OS) updates for smartphones over several years. In doing so, I have recently noticed a disturbing trend among phone manufacturers that install the Android OS on their phones and then do not update them. Despite the fact that this trend has been treated as conventional wisdom, I realized that no comprehensive studies detailing the extent of this problem had been conducted. As such, I decided to conduct a thorough investigation into the lack of support for smartphones. For example, recently HTC, the manufacturer of the Nexus One phone, announced that Nexus One users will not be getting upgraded to the latest version of Android, Android 4.0 Ice Cream Sandwich.² This led some to justifiably question Google’s support of devices on the Android platform.³ I look at it a little differently: Nexus One owners are lucky. I’ve been researching the history of OS updates on Android phones and Nexus One users have fared much, much better than most Android buyers.
3. Using Internet sources such as CNET and Wikipedia, I recently found statistics, release dates, and details about every Android phone shipped in the United States up through the middle of 2010. I then tracked down every update that was released for each device—be it a major OS upgrade or a minor support patch—as well as Android phone prices and release and discontinuation dates.⁴ I compared these dates and versions to the currently shipping version of Android at the time. The resulting research demonstrates the widespread harms to innovation and device security that Android users and innovators have suffered as a result of this lack of support.

¹ <http://theunderstatement.com/>.

² <http://techcrunch.com/2011/10/26/the-nexus-one-isnt-invited-to-the-ice-cream-sandwich-social/>. For reference, the following is a list of major versions of the Android OS: 4.0 Ice Cream Sandwich, 3.x.x Honeycomb, 2.3.x Gingerbread, 2.2 Froyo, 2.1 Éclair, 1.6 Donut, and 1.5 Cupcake.

³ <http://www.marco.org/2011/10/26/no-android-4-for-nexus-one>.

⁴ For the major Android version release dates, I used the date at which it was actually available on an Android phone you could purchase or receive via normal commercial means, such as from a wireless carrier or from an electronics retailer. I did not use the earlier Software Development Kit release date provided in advance to developers, nor the date at which alternative firmware, hacks, *et cetera* were made available from unofficial sources.

4. My research indicates that other than the original G1 and MyTouch, two of the earliest phones released on the Android platform, virtually all of the millions of phones represented by the chart found in Exhibit 1 are still under mobile-phone service provider contracts today. Specifically:
 - 7 of the 18 Android phones never ran a current version of the OS at the time they were first sold to the public.
 - 12 of 18 only ran a current version of the OS for a matter of weeks or less.
 - 10 of 18 were at least two major versions behind well within their two-year service provider contract period.
 - 11 of 18 stopped getting any support updates less than a year after release.
 - 13 of 18 stopped getting any support updates before they even stopped selling the device or very shortly thereafter.
 - 15 of 18 don't run Gingerbread, which shipped in December 2010.
 - In a few weeks, when Ice Cream Sandwich comes out, every device on here will be another major version behind.
 - At least 16 of 18 will almost certainly never get Ice Cream Sandwich.⁵

Also worth noting is that each bar in the chart starts from the first day of release—so a user who purchased their phone later in its sales period will likely experience outdated support for a greater portion of their service provider contract.

The Current State of Android Updates is Harmful for Three Reasons.

A. Consumers Are Harmed

5. Ever since the iPhone illustrated the potential of every smartphone to be a general-purpose personal computer, the value of a phone is largely derived from the software it can run and how well the phone can run it. When you're making a two-year commitment to a mobile-phone service provider in exchange for a subsidized device, it would be nice to have some way to tell if the software was going to be remotely current in a year or even a month. As it turns out, that is nearly impossible. Here are two examples:
 - The Samsung Behold II on T-Mobile was the most expensive Android phone ever released. Samsung promoted the fact that it would minimally upgrade the Behold II's OS to Android 2.1 Eclair.⁶ But at launch, the phone was already two major versions behind—

⁵ Based on the 15 phones that still don't even run Gingerbread, plus the Nexus One, which Google has specifically said will not receive the update. <http://techcrunch.com/2011/10/26/the-nexus-one-isnt-invited-to-the-ice-cream-sandwich-social/>.

⁶ <http://www.engadget.com/2010/05/27/samsung-behold-ii-fails-to-fulfill-android-2-0-promise-jilted-u/>.

and then Samsung decided not to do the update after all.⁷ As a result, it fell three major OS versions behind. Every Behold II ever sold is still under contract today, but none of them have a current Android OS unless they are jailbroken and upgraded directly by the user.

- The Motorola Devour on Verizon launched in 2010 with a Megan Fox Super Bowl ad,⁸ accompanied by reviews that said it was “built to last and it delivers on features.”⁹ As it turned out, the Devour shipped with Android 1.6 Donut, an OS that was already outdated. Before the next Super Bowl came around, it was three major versions behind Android 2.3 Gingerbread, which was released in December of 2010. Every Devour ever sold is still under contract until sometime next year.

B. Developers Are Constrained

6. Fragmentation problems emerge when developers have to develop numerous versions of applications for a variety of devices with outdated OS, imposing extra costs and burdens on them. Consider this comparison: iOS developers, like Instapaper’s Marco Arment, waited patiently until just this month to upgrade their apps’ minimum OS requirement for iPhones to the 11 month old iOS 4.2.1.¹⁰ They can do so knowing that it has been well over three years since anyone bought an iPhone under a service provider contract that couldn’t run that particular version of iOS. If app developers apply that same standard to Android, it will be at least 2015, based on the current lag time for Android Update adoption, before they can start requiring their apps to run on 2010’s Gingerbread OS. That is because every US carrier¹¹ is still selling—and even still introducing¹²—smartphones that will almost certainly never run Gingerbread and beyond, limiting purchasers to the even more outdated operating systems for the duration of their two-year service provider contract. Further, those are phones that manufacturers sell for money—I’m not even counting the free phones that are generally even more outdated as they are often older phones that have been discounted.¹³

⁷ <http://androidheadlines.com/2010/05/samsung-behold-ii-not-getting-2-x-legal-action-being-considered.html>.

⁸ <http://www.androidcentral.com/super-bowl-megan-fox-motorola-devour-motorola>.

⁹ http://reviews.cnet.com/smartphones/motorola-devour-silver-verizon/4505-6452_7-33971093.html.

¹⁰ <http://www.marco.org/2011/10/17/instapaper-4-released>.

¹¹ See, e.g.,

http://shop.sprint.com/mysprint/shop/phone_details.jsp?prodId=dvc2260007prd&deviceSKUId=22400038&flow=AL&planSKUId=&ptn=&tabId=dt_phones;

<http://www.verizonwireless.com/b2c/store/controller?&item=phoneFirst&action=viewPhoneDetail&selectedPhoneId=5562%0A>; <http://www.t-mobile.com/shop/phones/>.

¹² See, e.g., [http://reviews.cnet.com/smartphones/huawei-impulse-4g-at/4505-6452_7-](http://reviews.cnet.com/smartphones/huawei-impulse-4g-at/4505-6452_7-35016039.html?tag=mncol;lst;1)

35016039.html?tag=mncol;lst;1 (AT&T committed to Gingerbread updates for its 2011 Android phones, but only those that had already been released at the time of the July 25 press release. The Impulse and Sharp FX Plus do not meet that Criterion).

¹³ See, e.g.,

http://shop.sprint.com/mysprint/shop/phone_details.jsp?prodId=dvc4990001prd&deviceSKUId=50300012&flow=AL&planSKUId=null&tabId=dt_phones&ptn=; [http://www.wireless.att.com/cell-phone-service/cell-phone-details/?device=Pantech+Crossover+\(TM\)&q_sku=sku5200270#fbid=9wX3A2nvAgV](http://www.wireless.att.com/cell-phone-service/cell-phone-details/?device=Pantech+Crossover+(TM)&q_sku=sku5200270#fbid=9wX3A2nvAgV); <http://www.t-mobile.com/shop/Phones/cell-phone-detail.aspx?cell-phone=LG-Optimus-T-Black>.

7. The unfortunate consequence of this is that most app developers will necessarily target ancient versions of the OS in order to maximize market reach. This result impedes innovation, as many developers will not be utilizing the latest features and developments in the current Android OS.

C. Security Risks Loom

8. In the chart found in Exhibit 1, the dashed line in the middle of each bar indicates how long the phone at issue received any kind of support updates—not just major OS upgrades. The significant majority of models have received very limited support after sales were discontinued. If a security or privacy problem popped up in old versions of Android or its associated apps (*e.g.*, the browser), it is hard to imagine that all of these no-longer-supported phones would be updated to fix such a problem. As the number of phones that manufacturers would have to go back and deal with increases, it is less likely they would spend the money to fix these problems. For example, Motorola, Samsung, and HTC have at least 20 models in the field already, each with a range of carriers that seemingly have to be dealt with individually.

Why Don't Android Phones Get Updated?

9. Why don't Android phones get updated? Obviously a big part of the problem is that any Android updates have to go from Google to the phone manufacturers to the carriers to the devices. In contrast, iOS just goes from Apple directly to the devices. The hacker community (*e.g.*, CyanogenMod¹⁴, etc.) has frequently managed to get these devices to run newer operating systems via jailbreaking them, so this problem has not resulted from a hardware limitation.

¹⁴ <http://en.wikipedia.org/wiki/CyanogenMod>.

Appendix B

Statement of Trevor Eckhart
Network Administrator
Independent Security Researcher

November 18, 2011

1. I am a professional network administrator who works with data centers. In September 2011, while investigating wireless data traffic going to and from my personal HTC-brand Android phone, I uncovered a series of serious security vulnerabilities in the implementation of the operating system on the device.
2. These vulnerabilities leverage applications that HTC originally installed on their smartphones to collect data about the devices and return them to a variety of third parties including the carrier. One of the background applications that facilitates this data collection is called HTCLoggers.apk. It currently runs on many of the latest and most popular HTC devices, including the Sensation, EVO 3D, Thunderbolt, and other models.¹ It appears to have been a set of logging tools that were originally designed and installed by HTC, but were poorly implemented.
3. As a result, one vulnerability I identified potentially allowed any malicious user to easily query HTCLogger.apk without restriction. This would enable a third party to gain unauthorized access to a significant amount of sensitive information about the smartphone and its owner. This includes the current location of the phone, a listing of the applications running on the phone, and even information as granular as statistics on the current battery level of the device.²
4. Beyond the threat of unauthorized access to such sensitive information, a malicious user could leverage this data to accomplish even more invasive manipulations of the phone. For instance, a malicious party could clone the smartphone, effectively stealing the identity of the device owner.
5. It is important to recognize that HTCLoggers.apk is only one part of the problem. There are multiple pieces of software that providers install on their smartphones that track

¹ egzthunder, *Remember the CIQ Apps Found in HTC Devices? Well, There Is More And It Isn't Pretty*, XDA Developers (Sept. 30, 2011), www.xda-developers.com/android/remember-the-ciq-apps-found-in-htc-devices-well-there-is-more-and-it-isnt-pretty/.

² TrevE, *Vulnerability #1: Android Security Elevation*, InfectedROM (Sept. 24, 2011), <http://infectedrom.com/showthread.php/559-Vulnerability-1-Android-Security-Elevation> (describing the vulnerability); Trevor Eckhart, *Android Security Elevation With HTCLoggers.apk (EVO 3D/4G, Thunderbolt, more)*, <http://www.youtube.com/watch?v=Y0TukQ7SINU> (last visited Nov. 18, 2011) (video demonstrating the vulnerability).

sensitive information without disclosure to the device owners.³ The purpose of sending this information is ostensibly to improve the products and services offered around the smartphone. However, I have discovered similar vulnerabilities in the other pieces of software which are operating to conduct unauthorized and unannounced logging of data from the smartphone owner.

6. Upon discovery, I contacted HTC privately to alert them to these problems so they would be able to take steps to remedy the vulnerabilities.⁴ However, at the time of this declaration, nearly two months after the problems were first reported, most of the vulnerabilities I have discovered have not yet been remedied. The HTCLoggers.apk vulnerability finally was patched more than a month after it was discovered and only after I took proactive action to publicize it to the community. In subsequent communications, I have been urged by representatives of HTC to not publicly disclose the further vulnerabilities I have discovered despite this continuing inaction.
7. The technological measures deployed by HTC on their products prevent smartphone owners from remedying these problems themselves. The operating system installed on these devices does not provide any setting that would allow owners to easily turn off these logging applications. In fact, owner control over the application is completely barred by encryption designed to limit access to the device firmware.
8. I have designed software that will safely remedy these problems. However, given the technological restrictions put into place by HTC, the patch would require owners to “root” or “jailbreak” their phones in order to have the complete administrative access necessary to shut down the background logging applications. There is no way to remedy these problems without rooting/jailbreaking the smartphone.
9. It is important to recognize that these types of vulnerabilities are not isolated incidents. The scale of the security threat facing the Android platform is very large. A recent report estimated that a half million to one million people were affected by Android malware in the first half of 2011.⁵ Android applications infected with malware grew from 80 applications in January 2011 to over 400 applications only five months later.⁶ By the end of October, researchers had detected 1,916 malicious Android programs.⁷ I personally have also discovered several other vulnerabilities on HTC smartphones that are as serious as the

³ See, e.g., ANDROID SECURITY TEST, CARRIERIQ, <http://androidsecuritytest.com/features/logs-and-services/loggers/carrieriq/> (last visited Nov. 18, 2011); Artem Russakovskii, *Massive Security Vulnerability in HTC Android Devices*, ANDROID POLICE (Oct. 5, 2011), <http://www.androidpolice.com/2011/10/01/massive-security-vulnerability-in-htc-android-devices-evo-3d-4g-thunderbolt-others-exposes-phone-numbers-gps-sms-emails-addresses-much-more/> (showing other logging applications schematically).

⁴ TrevE, *[DEV]APPv7] CIQ / HTC & Google Checkin / HTC Loggers / Tell HTC Info & Removal*, XDA DEVELOPERS (Sept. 24, 2011), <http://forum.xda-developers.com/showpost.php?p=17819987&postcount=153>.

⁵ LOOKOUT MOBILE SECURITY, MOBILE THREAT REPORT, <https://www.mylookout.com/mobile-threat-report> (last visited Nov. 18, 2011).

⁶ *Id.*

⁷ Neil Rubenking, *Android Malware Surges Nearly Five-Fold Since July*, SecurityWatch (Nov. 16, 2011), <http://http://securitywatch.pcmag.com/none/290654-android-malware-surges-nearly-five-fold-since-july>.

one described above.⁸ Delays in fixing vulnerabilities like that seen for HTCLoggers.apk and the others I have discovered contribute to growth of this malware ecosystem, placing numerous users at considerable risk.

10. While HTC offers an official method to “unlock” the phone, this does not remedy the problem. The unlocking only permits developers to access and edit certain, predefined modules on the phone.⁹ Furthermore, only certain devices are permitted by HTC to be unlocked under the official process, and the unlocking process is only enabled by HTC some time after phones are released.
11. The unlocking functionality does not give developers complete access. While it eases somewhat the problems discovered in the functions and devices that HTC permits developers to access, several of the most important modules remain blocked off. This bars smartphone owners from remedying problems or information leaks discovered in those parts of the phone.
12. For example, HTC and Sprint have configured Carrier IQ, one of many logging programs on their smartphones, to be hidden from users and monitor sensitive information without owner consent or control.¹⁰ The logging application is spread over multiple components of the phone, only some of which are covered by the official unlock. In the event that a security vulnerability was discovered in Carrier IQ, the problem could not be eliminated using the official unlocking process for the device.
13. The failure of HTC and smartphone manufacturers in general to provide full access to their products also threatens public disclosure of important, new vulnerabilities. Exploits that allow users to “root” their devices to gain complete access and fix weaknesses like those found for HTCLoggers.apk can also be leveraged for malicious ends. I have received pressure from the Android enthusiast community online to not release the root exploits I have discovered. The fear is that disclosure may lead HTC to repair those weaknesses, depriving the community of control over the devices they own. This suggests that numerous major vulnerabilities may remain undisclosed and go unrepaired.
14. My belief is that perverse incentives are at work that make it unlikely that manufacturers will become more engaged in protecting user security into the future. My observation is that manufacturers often stop supporting and updating their products upon release of new smartphone models. I believe that smartphone manufacturers have commercial incentives not to repair these vulnerabilities on older models, since it creates pressure for consumers to purchase new models of their devices to remain secure.
15. Although manufacturers fail to remedy known and resolvable vulnerabilities in their products, full rooting/jailbreaking provides the power for owners to protect themselves.

⁸ See, e.g., TrevE, *Vulnerability #2: WiMax Connectivity Reprogramming*, INFECTEDROM, <http://infectedrom.com/showthread.php/600-Vulnerability-2-WiMax-Connectivity-Reprogramming>.

⁹ HTCDEV, UNLOCK BOOTLOADER, <http://htcdev.com/bootloader> (last visited Nov. 18, 2011).

¹⁰ Paul King, *Carrier IQ Isn't The Problem, It's HTC and Sprint*, Good and EVO (Nov. 19, 2011), <http://www.goodandev0.net/2011/11/carrier-iq-isnt-the-problem-its-htc-and-sprint.html>.

However, without the ability to circumvent the technological measures put in place by the same manufacturers, these users are forced to remain at risk.

Appendix C

Statement of Prof. Gaurav Khanna
Associate Professor of Physics
University of Massachusetts, Dartmouth

November 23, 2011

1. I am an associate professor of Physics at the University of Massachusetts, Dartmouth. My research focuses on theoretical and computational astrophysics. More information about my publications and research interests can be found at my website, Gravity Grid (<http://gravity.phy.umassd.edu/main.html>).
2. My research depends upon access to supercomputers. Their advanced processing power is necessary for me to make the kind of the repetitive, complicated mathematical computations that are essential to cutting edge astrophysics research. However, getting access to such supercomputers requires either research funding or an allocation. The supercomputer rental option costs \$1 per hour per processor. This can become quite costly, as a single simulation can take more than 5,000 hours to complete. While a researcher can get a free allocation of a supercomputer's resources, this option is only available for US academics and is also done through a competitive peer-review process. An additional problem associated with shared supercomputers is the wait time in the job queues. Because supercomputers are in high demand, there can sometimes be a delay of several days to run even a short, half-hour simulation on such machines.
3. In the mid-2000s, I faced significant challenges in obtaining the funds necessary to continue my research on these supercomputers. Budget cuts made during the Bush administration made obtaining such federal funding difficult. In addition, the National Science Foundation had been unable to keep up with the demand for supercomputer usage, causing long job queues to form. Having to wait for extended periods of time made it enormously more difficult for me to complete my research, as I did not have any flexibility to tinker with calculations and respond in real time to the results I was receiving. Instead, I was forced to wait and conduct my research in impractical, punctured periods of time.
4. In 2005, the hype for Sony's PlayStation 3 began to build. Sony spent more than a year publicizing the console and touting the power of its onboard processor. I am not a video game person, but I paid attention to the hype surrounding the PS3 because I realized that a machine with that kind of high performance power would also be capable of performing the advanced number crunching my research requires. In addition, I realized that the PS3 was being sold at a comparatively low price in comparison to the amount of processing power that it offered (it was being sold below cost price!). It became clear to me that the PS3 would offer a very high processing power-to-dollar ratio. The PS3 also saves money by consuming significantly less energy than traditional supercomputers. These cost-saving factors made me realize the real opportunities home video game consoles might present if adapted for use in scientific contexts.

5. Another reason the PS3 in particular stood out to me was because Sony had made the decision to make it legal and easy to run Linux on the machine. Because Linux is a fully functioning computer operating system, I realized that it would be possible to create applications that are tailored to the device and take advantage of its power to conduct scientific computation. Developing scientific applications that took advantage of the PS3's power was fairly easy, thanks to the console's Linux capabilities. In fact, I would have to say that at that time, the most difficult part of the process was simply finding the video game console to begin with, as it was in high demand that holiday season.
6. I was eventually able to obtain one PS3 over winter break of 2006. I proceeded to spend the entire break getting Linux to run on the machine and putting my scientific applications on it. I eventually was able to customize the applications so that they would run very quickly on the device. The next logical step for me was to expand the applications so that they could run on more than one machine. I wanted, essentially, to turn a group of PS3s (a "cluster") into a supercomputer. I believed that this would be a cost-efficient way for me to create my own supercomputer cluster that would allow me to continue my research without having to rely on disruptive supercomputer rentals.
7. I was initially unsure of where to procure funding to buy the additional PS3s necessary to create the cluster. I did not think that the National Science Foundation would be receptive to requests for funds to purchase a video game console. I eventually turned to Sony for help, as I thought they might be interested in developing such alternative usages for the device. I prepared a PowerPoint presentation that described what I planned to use the PS3s for, as well as what the results of my research might be. After viewing the presentation, Sony decided to donate four additional PlayStation 3s to my research. I then purchased an additional four machines to complete the cluster.
8. After the cluster was assembled, the results were quite impressive, especially in comparison to the cluster's cost and power consumption. For approximately \$5,000, I was able to get the kind of processing performance that a \$50,000 computer would produce. This meant that I no longer had wait to use a shared supercomputer. I was finally able to conduct my research in real time.
9. I have subsequently used my PS3 supercomputer cluster to complete the following research that has been published in numerous peer-reviewed, reputable journals:
 - Jonathan L. Barton, David J. Lazar, Daniel J. Kennefick, Gaurav Khanna, & Lior M. Burko, *Computational Efficiency of Frequency-- and Time--Domain Calculations of Extreme Mass--Ratio Binaries: Equatorial Orbits*, Phys. Rev. D Vol. 78, Iss. 6 (2008), available at <http://arxiv.org/abs/0804.1075>.
 - Lior M. Burko & Gaurav Khanna, *Late-time Kerr Tails Revisited*, Class. Quantum Grav. Vol. 26, Iss. 1 (2009), available at <http://arxiv.org/abs/0711.0960>.

- Jens Breitbart & Gaurav Khanna, *An Exploration of CUDA and CBEA for a Gravitational Wave Data-Analysis Application (Einstein@Home)*, International Conference on Parallel Processing and Applied Mathematics (2009) available at <http://arxiv.org/abs/0904.1826>.
 - Gaurav Khanna & Justin McKennon, *The CBE Hardware Accelerator for Numerical Relativity: A Simple Approach*, Parallel and Distributed Computing and Systems (2009), available at <http://arxiv.org/abs/0909.4039>.
 - Pranesh A. Sundararajan, Gaurav Khanna & Scott A. Hughes, *Binary Black Hole Merger Gravitational Waves and Recoil in the Large Mass Ratio Limit*, American Physical Society, available at <http://hdl.handle.net/1721.1/56556>.
 - Gaurav Khanna & Justin McKennon, *Numerical Modeling of Gravitational Wave Sources Accelerated by OpenCL*, Comput. Phys. Commun. 181, 1605-1611 (2010), available at <http://arxiv.org/abs/1001.3631>.
 - Rakesh Gijupalli & Gaurav Khanna, *High-Precision Numerical Simulations of Rotating Black Holes Accelerated by CUDA*, International Conference on High Performance Computing Systems (2010) available at <http://arxiv.org/abs/1006.0663>.
 - Lior M. Burko & Gaurav Khanna, *Late-Time Kerr Tails: Generic and Non-Generic Initial Data Sets, "Up" Modes, and Superposition*, Class. Quant. Grav. Vol. 28 (2011), available at <http://arxiv.org/abs/1001.0541>.
 - Richard H. Price, Gaurav Khanna & Scott A. Hughes, *Systematics of Black Hole Binary Inspiral Kicks and the Slowness Approximation*, Physical Review (2011), available at <http://arxiv.org/abs/1104.0387>.
10. In the years since creating the cluster, it has become slightly easier to get access to shared supercomputer devices, as national research funding has increased and additional supercomputers have been created. However, the local PS3 cluster remains very useful as a training device. It is also much easier for me to run test experiments on the local cluster, and if I crash one of the machines, it is much easier for me to reset it myself rather than having to go through to process of getting a cluster administrator to reset the machine remotely.
 11. After I built my cluster, numerous media outlets contacted me to cover the story involving my novel use of the PS3 console. In addition, research labs at several universities such as Harvard and MIT contacted me for advice on how to set-up their own clusters. During this initial time period, I was receiving an upwards of 100 emails a week asking me about the PS3 cluster. In response to this demand, I set-up my own website explaining how I built the PS3 supercomputer cluster (<http://www.ps3cluster.umassd.edu/index.html>).
 12. In March of 2010, I was dismayed to learn that Sony was eliminating support for Linux on the console. In order to preserve the long-term functionality of my cluster, I had to

purchase four spare consoles. The removal of Linux support on the PS3 was painful for me because I really thought that Sony was starting a revolution in the field of scientific supercomputing. I was inspired by the idea of utilizing the power of consumer devices for advanced scientific research. I feel that it is very unfortunate that the very company that made the start of this revolution possible made the choice to take the ability away from the scientific community. I am very concerned that such openness will not make a return to the field of consumer electronics. Rival video game console developers will have no reason to allow for native support of computer operating systems now that Sony has removed the functionality from its console.

13. Because Sony no longer sells PS3s that have the native ability to run Linux, I cannot expand the size of my current cluster. I originally envisioned scaling up the size of the supercomputer cluster over time. Such scaling is inherently necessary in the field of supercomputer research. Over long periods of time, any limited amount of computer power is insufficient for a researcher such as myself, as I constantly want to explore further and learn about new subjects. This exploration and research will benefit from (and at some point, eventually require) more advanced computing power. Sony's decision to eliminate Linux support is unfortunate because it cuts off an affordable way to create scalable computing power.
14. To this day, I still get a few emails every so often from a researcher who wants to use the PS3 to create a supercomputer cluster. I unfortunately have to tell them that it is simply not possible currently to make use of the machine in that way. It really is unfortunate that I have to do this. I fear that the researcher at the other end of the line may be left with no alternative to complete the project they are working on, and thus important scientific research may go unanswered.

Appendix D

Statement of Nicolas Pinto
Computational Neuroscientist
Massachusetts Institute of Technology
Harvard University

November 23, 2011

1. I am presently employed as a research scientist at both Harvard University's Rowland Institute and MIT's McGovern Institute for Brain Research. I am also a lecturer in Computer Science at Harvard's School of Engineering and Applied Sciences and Harvard's Division of Continuing Education.
2. I have been actively working in the field of brain-inspired machine perception and general artificial intelligence (with a focus on large-scale computer vision) for five years. I have been most interested in creating and developing new artificial cortical models based directly upon the mammalian visual cortex, especially relating to functions of high-level object and facial recognition, scene and video understanding, biomedical imaging, etc.
3. My background as a neuroscientist has placed me in a unique position to work towards a model of machine perception that is based directly upon the human brain, while my extensive training and experience with computer hardware and software engineering has allowed me to be able to develop software and systems to comprehensively implement these models.
4. One way to try to learn more about how the brain recognizes objects is to use computers to reverse engineer the human visual system—essentially, to build an artificial mathematical system that works the same way the brain does. We want to build computational models that not only emulate the brain's anatomy and physiology, but also ultimately match its performance on visual tasks.
5. One of the biggest obstacles to understanding the computational underpinnings of biological vision, however, is the sheer scale of the human visual system. The human visual system is like a massively parallel computer, comprising billions of elements. This scale has historically put efficient computational modeling beyond the reach of even the fastest and most powerful super-computing systems. In the past, computational biologists have been able to build and test only a small number of computational models at a time to see how well they approximate human vision, adjusting the parameter settings of each model individually to better approximate the brain's performance. But this is a very inefficient way to conduct research.
6. In our labs, we've drawn inspiration from molecular biologists who build thousands of models and then screen them to select those that perform best on a given complex task.

The idea here is that instead of trying to build one perfect model from scratch, we create a huge number—thousands—of mathematical models in parallel, run each of them on the same data set, and then select the ones that perform the task most accurately. We then study what aspects of those high-performing models make them so successful at object recognition. This process is called “high throughput screening.”

7. Unfortunately, high throughput screening is rarely done in vision science because running thousands of simulations at a time is expensive and time consuming. When we began our research, we had no money and no budget to do this kind of computational research. However, modern graphics hardware presented a solution to this problem.
8. In 2005-2006, commercially available Graphics Processing Units (GPUs) (basically, the technology that designers of video games use to create graphics) became computationally powerful enough to support high throughput screening. In 2007, we started looking into the Sony Playstation 3 (“PS3”) as soon as it was available to purchase, because we saw very quickly that we could get a big performance boost to our high throughput screening research for a relatively low cost. In total, we bought 23 PS3 and, using their OtherOS feature, build two PS3 computing clusters—one at MIT and one at Harvard—to help us build these artificial visual systems inspired by the brain.
9. The PS3 clusters were impressive. They were inexpensive, compact, and far more powerful than traditional computers. We discuss the virtues of these PS3 clusters in a recent paper that we have published in the Public Library of Science journal *Computational Biology*.¹ In the figure below, for example (which is Figure 1 in our research paper), we compare the performance and costs of various computer modeling systems. The PS3 cluster (identified in the fifth column from the left) was by far the least expensive, and it was 222 times more powerful than the second most affordable system. As the last line shows, the relative performance per dollar for PS3-based systems was 833 times that of the nearest competitor.

¹ Pinto N, Doukhan D, DiCarlo JJ, Cox DD. A high-throughput screening approach to good forms of biologically-inspired visual representation. *PLoS Computational Biology*. Nov 26 2009. Available online at <http://www.ploscompbiol.org/article/info%3Adoi%2F10.1371%2Fjournal.pcbi.1000579>.

Hardware	CPUs			GPUs			
	Manufacturer	Intel	Intel	Intel	NVIDIA	Sony, IBM, Toshiba	NVIDIA
Model	Q9450	Q9450	Q9450	7900 GTX	PlayStation 3	8800 GTX	GTX 280
# cores used	1	4	4	4x96	2+6	4x128	4x240
Implementation	MATLAB	MATLAB	SSE2	Cg	Cell SDK	CUDA	CUDA
Year	2008	2008	2008	2006	2007	2007	2008
Performance / Cost							
Full System Cost (approx.)	\$1,500**	\$2,700**	\$1,000	\$3,000*	\$400	\$3,000*	\$3,000*
Relative Speedup	1x	4x	80x	544x	222x	1544x	2712x
Relative Perf. / \$	1x	2x	120x	272x	833x	772x	1356x

10. The two PS3 clusters gave us massive improvements in terms of research performance. In approximately one week, we were able to test 7,500 model instantiations, which would have taken approximately two years using a conventional (e.g. MATLAB-based) approach. With this extra computational power, we generated a library of visual perception models that we could then screen to figure out which ones best approximate human vision.
11. The computational models that we discovered using the PS3 clusters consistently outperformed our baseline “reference” model that was derived from experimental data. In other words, they were very accurate. In fact, the best of our computational models consistently outperformed a variety of state-of-the-art artificial visual systems for all of the tests that we ran.
12. Though not conceptually critical to our approach, modern graphics hardware played an essential role in making our experiments possible. With the extra computational power, we were able to discover new vision models that traditional methods missed. Our use of the PS3 clusters has since been profiled in numerous places, such as MIT Press² and the websites “Engadget,”³ and “Slashdot.”⁴ Our resulting research was featured as an Editor’s Choice by the journal Science in January 2010.⁵
13. When Sony dropped their support for Linux on the PS3, we were in the process of transitioning to other computer systems. Among the reasons was that, given Sony’s prohibition on running your own software, you needed to hack and modify PS3 firmware to install the research applications in the first place. The legal ramifications of doing so are off-putting. Our lab would not want to hack PS3s for circumvention purposes if there were legal risks involved.

² <http://web.mit.edu/press/2009/visual-systems.html>.

³ <http://www.engadget.com/2009/12/04/harvard-and-mit-researchers-working-to-simulate-the-visual-corte/>.

⁴ <http://hardware.slashdot.org/story/08/07/27/0721222/mit-artificial-vision-researchers-assemble-16-gpu-machine>; <http://slashdot.org/story/09/12/05/1410231/MIT-amp-Harvard-On-Brain-Inspired-AI-Vision>.

⁵ <http://www.sciencemag.org/content/327/5961/twil.full>.

14. Computational neuroscience is a relatively new field, and this is a very exciting time to be a part of it. Further developments in this critical area will directly improve a broad range of technologies. These include applications as diverse as advanced medical diagnostics in hospitals and threat analysis systems for military and national security purposes to everyday uses such as cell phones and self-piloting vehicles.
15. However, before working with PS3 computing clusters, we had no funding for our computational neuroscience work. Thanks to being among the first neuroscientists to work with PS3 clusters, my research has now been directly funded by grants from industry partners such as Google, Microsoft, NVIDIA, and Amazon, as well as federal grant money from the National Science Foundation and the Department of Defense. I have also actively worked in collaboration with teams at Los Alamos National Laboratory, the Department of Defense's Defense Advanced Projects Research Agency, the Texas Advanced Computing Center, and the SyNAPSE Project--a special partnership between Boston University, DARPA, Hewlett-Packard, and others.

Appendix E

Statement of Byron Guernsey
Nintendo Wii Homebrew User

November 23, 2011

1. My name is Byron Guernsey. I am an active user of the Nintendo Wii videogame console. Since 2007, I have also been an active user and developer of homebrew applications on the Wii console. I participate in the Wii homebrew community under the username of "Okachobi." More information about me can be obtained via my user page at WiiBrew.org, accessible at <http://wiibrew.org/wiki/User:Okachobi>.
2. After I purchased my Wii console, I became interested in the homebrew community because I wanted to find new ways of extending the use of the console. So I followed the instructions that were available on WiiBrew.org and I installed the homebrew channel on my console. The homebrew channel allows for the installation of independently created homebrew applications. It is also the central place to launch such applications once they have been installed. The only way to currently install the homebrew channel and gain access to these applications is by jailbreaking the console.
3. One of my primary reasons for using homebrew on the Wii is that it allows my son, who is now five years old, to really take advantage of the console. Because of his age, it can often be difficult to find nonviolent games suited for his educational level that will maintain his interest yet be developmentally stimulating. Many such titles exist in the open source community and have been modified to work on the Wii Homebrew Channel. Without homebrew, I would likely have to spend a considerable amount of money buying or renting multiple games just to find one that he will like and be able to play. The great thing about homebrew, though, is that there are so many applications and games developed by people from the community that are just begging to be played. Since all of them are free to download, it's very easy for me to just let my son try them all out and see which applications are to his liking.
4. Kids Paint is just one example of a homebrew application that my son has fallen in love with. The application allows my son to use the WiiMote and paint on the screen, essentially transforming the TV into an interactive canvas, on which my son is free to paint whatever he so desires. The application has simplified controls suitable for ages 1 through 5. Unlike the Wii's default included paint program, Kids Paint can be configured in a mode that my 1-year-old daughter can use.
5. It has become relatively easy to find and install such homebrew content on the Wii. Once the console has been jailbroken and the homebrew channel has been

installed, users can install a second homebrew channel called the Homebrew Browser. This functions similar to how the App store on an iPhone does: a user can navigate to the channel, search for a homebrew application, and then download the application directly to their SD memory card. Under this relatively new system, the need to use a computer to download homebrew applications has been eliminated, making the process much more streamlined. Thus, my son and I can pick out titles that look interesting for us to play together and immediately download them onto the console.

6. In addition to using homebrew on the Wii, I have also experimented with creating my own homebrew applications and have made a game available to others on the Homebrew Browser. One of the great things about the homebrew community on the Wii is that it allows for this kind of small-time, hobby game development. In the past, I have tried to directly contact Nintendo to ask them about developing content for the console. I was told that I needed a business address that was separate from my home address, as well as several other requirements that I would not be able to meet. They clearly communicated to me that they were not interested in dealing with developers who were not already established as videogame companies. Thus, the only way I could create such content myself was to jailbreak the device. It seems very anticompetitive and unfair to me that Nintendo should be able to create such a restrictive policy surrounding the use of the console, particularly when the only thing I want to do is create and use new applications that extend its functionality.

Appendix F

Statement of Aaron Morris Nintendo Wii Homebrew Developer and User

November 23, 2011

1. My name is Aaron Morris. I am an active user of the Nintendo Wii videogame console. Since 2007, I have also been an active member of the Wii Homebrew Community. As part of this community, I have developed several applications on my own and with others that have subsequently been downloaded over 500,000 times. I release homebrew applications under the username "Scanff." Information about my homebrew applications can be found on my personal website, <http://scanff.com/wordpress/>.
2. I have always been the kind of person who has an interest in the way things work. I love figuring out the processes behind how a program or computer application works. I was active in the Linux development community for many years prior to the release of the Wii.
3. I purchased the Nintendo Wii around the time of its official release. For a period of time, I used only the official software available for the console. But after a few months, I got rather bored of the console in its limited state. I felt like, because there weren't enough games and applications that really took advantage of the Wii's potential, I had just spent \$250 on something that was starting to look more and more like a gimmick. There just wasn't anything available that really interested me and made want to pick up the controller on a daily basis because, at that time, almost all of the games on the console were really just aimed at kids.
4. Then I discovered the homebrew community associated with the console. My introduction to homebrew on the console was through the website WiiBrew.org, which has really become the central hub of the Wii homebrew community. After reading about some of the applications that had already been developed for the console, it seemed like something I might be interested in, as it would greatly expand the capabilities of the console. This also fueled my own interest in developing my own programs for the console. It seemed like a great way for me to find a new use for my console that was otherwise just sitting unused on the shelf.
5. So, I followed the guides posted on the WiiBrew site and I installed the Homebrew Channel on my Wii. Once I jailbroke the console by following the steps provided on the website, the process of installing the Channel was fairly easy. I subsequently downloaded and used several different applications that had been released by the community. I was generally impressed by the new functionality the homebrew applications brought to the console.

6. However, I quickly discovered something that the Wii homebrew scene was missing: there was no application that allowed users to listen to the radio on their console. I've always enjoyed listening to music, especially with the visual background that a videogame console can provide. I wanted a way to be able to listen to content available on SHOUTcast, a directory of free Internet radio stations. I had previously done some coding in creating my own shoutCAST player on Linux, so I worked on bringing this application to the Wii.
7. In order to bring the radio application to the Wii, I made use of a lot of software packages that other homebrew developers had already created. These software packages contained the code needed for doing things like accessing the console's WiiMote and writing to the console's SD memory cards. The software packages are all available to download from the WiiBrew.org website, and are meant for other developers like myself to download to assist in the coding of future applications.
8. I finalized the very first version of the WiiRadio application in early 2009. The application was met with an encouraging response from the Wii community. Over the next few months, I continued to listen to feedback from the community and subsequently released several updates to the application that added requested new features and fixed bugs that others had pointed out. These updates added a completely new graphical user interface to the application and introduced several customizable themes for the player. I released the most recent version of the application (version 0.7) in May of 2011. All told, the application has been downloaded over 400,000 times.
9. Individuals can download the application through the WiiBrew.org website, or through the Wii Homebrew browser channel. The source code for the application is also available for anyone to look at and learn from at <http://code.google.com/p/wiiradio/source/checkout>.
10. I released the game SuperTux Wii in June 2009. This game is a translation of the free Linux game called SuperTux which I wrote for the Wii. The game is a 2D side-scroller game where the player assumes the role of a penguin and must run and jump through levels while avoiding obstacles. The original Linux game is covered under a GNU General Public License, which allows for such translations – or “ports” – as long as they are released under the same license as the original, which I did. I have subsequently released two updates to this game, which added features and addressed bugs that users brought to my attention on the WiiBrew message boards. Individuals can download the application through the WiiBrew.org website, as well as the homebrew browser channel. The source code for the application is also available at <http://code.google.com/p/supertux-wii/source/checkout>.

11. Developing homebrew games and applications like these is important to me because it is really the only way that I can create projects on a videogame console. I have tried in the past to reach out to the videogame console manufacturers to get official permission to develop for a console, but the process is expensive. The console manufacturers are also not interested in talking to small, independent developers like myself. They essentially require you to be a fully established video game company first. So really, the homebrew community is the only way for me to create and share such applications.
12. It is common for me to work collaboratively in creating homebrew games for the Wii. It is relatively easy to get in touch with other developers on the WiiBrew website to help make a game. I usually focus on creating the code for the game, while other users create the background art and music. This work often involves two open source libraries: Box 2D, a two dimension physics library, and the SDL library, which provides the code that handles access to the Wii's audio, controller and graphics. These collaborative projects thus really shows off the truly interactive and communal nature of the Wii homebrew community. Not only do I work and communicate with others in the community to develop games, but I also depend on community-developed tools to make the coding process feasible. Having other developers help out in the process really decreases the amount of time it takes to make a game.
13. The website WiiBrew.org really helps make this collaborative process possible. It provides a great place to interact, and has some really active message boards that developers and users alike can use to discuss projects that they are involved with. There are also several IRC Channels, or chat rooms, dedicated to the Wii homebrew community. The IRC chats allow for interaction in real time, so developers can easily pop in to the chat room and ask questions like, "why isn't this library working with my application?" or "how do I get access to this part of the Wii so that my application will perform this function?" Other developers that are present in the chat can then provide a quick answer to the question. The whole Wii homebrew community is really collaborative in this way, helping each other solve the problems they face in creating new applications.
14. All of these community tools (the IRC chats and the WiiBrew.org message boards) are all actively monitored and controlled. It is against the rules of the community to post anything to do with encouraging illegal downloading or creating applications that are in violation of copyright. Officials on the sites watch what people post and talk about very closely. Administrators will quickly remove any discussion that is related to such infringing activities. The community has always been focused on working to extend the functionality of the console, rather than merely copying the hard work of others. The goal of the homebrew community is to develop new and innovative applications that allow individuals to make use of the console in ways that would otherwise not be possible. To that end, discussion of illegal activities has never had a place within the community, and active steps have always been taken to make sure that this remains the case.

15. I have talked to several people in the community that are afraid to jailbreak their consoles and install homebrew applications. The contentious litigation process initiated by Sony over the PS3 jailbreak contributed greatly to this fear. Some people are afraid of the whole circumvention process, and are unsure that it is something that they want to do to their console. I believe that part of the reason for this uncertainty is that while there is generally a lot of information out there about how to install homebrew applications, it is still limited out of fear of legal repercussions. I do know several people who have refused to jailbreak their consoles because of this fear.
16. I am still very interested in continuing to develop applications for the Wii, should the need or opportunity arise and I have the time to work on the project. Going forward, Nintendo has recently announced the Wii U videogame console, which will hopefully present all new opportunities for the homebrew community so that the homebrew community definitely remains active to this day, and there remains a strong need for developers like myself to continue to get full access to the console.

Appendix G

Statement of Prof. Michael Wesch

Assistant Professor of Cultural Anthropology and Digital Ethnography

Kansas State University

November 28, 2008

I am Assistant Professor of Cultural Anthropology and Digital Ethnography at Kansas State University in Manhattan, Kansas. My research is focused on exploring the impact of new media on society and culture. More information about my publications and research interests can be found at my website, Mediated Cultures (<<http://mediatedcultures.net/ksudigg/>>).

As part of my research, I teach a course in digital ethnography and am the project director for the Digital Ethnography of YouTube project. Combining the efforts of both professors and students, the project has since 2007 simultaneously participated in and observed (a technique known as “participant observation”) the YouTube community. On June 23, 2008, I presented a talk entitled “An Anthropological Introduction to YouTube” at the Library of Congress describing some of the early insights gleaned from this research effort.¹

During October and November 2008, the Digital Ethnography project examined two separate random samples of YouTube videos in an effort to roughly estimate how many YouTube videos are “remixes” that include clips taken from television or films.

Our October random sample consisted of 240 videos, of which 18 were remixes. Of the 18 remixes, half (9) involved clips that appear to have been taken from DVDs, and thus whose creation may have involved a violation of the Digital Millennium Copyright Act’s prohibition on ripping DVDs. Although this sample suggests that only 7.5% of the videos uploaded to YouTube are remixes, and only 3.75% include clips taken from DVD sources, even these small percentages translate into large numbers of videos, given the enormous number of videos uploaded to YouTube. For example, 7.5% of YouTube videos translates into approximately 15,000 videos uploaded each day.

In November, we repeated our experiment and found 5 remixes that included movie clips in a relatively random sample of 240, suggesting that about 4,000 are uploaded every day. However, given the small number in our sample, the actual daily average is more likely to fall somewhere between 2,000 and 6,000.

Given the small sample sizes involved, these numbers are necessarily only suggestive. We would have to do several more studies before coming to firm conclusions regarding the overall number of movie-related remixes on YouTube. Nevertheless, based on these two samples, as well as my anecdotal experience with the Digital Ethnography project, I believe that there are large communities of YouTube users who regularly, albeit unintentionally, violate the DMCA’s ban on ripping DVDs in the course of creating original remixes.

The following constitute a sampling of established, popular YouTube remix genres and communities that are likely to fall into this category of unintentional DMCA violators:

¹ The presentation can be viewed at <http://www.youtube.com/watch?v=TPAO-lZ4_hU>.

1. Movie Trailer Remixes.

A search for “remix trailer” on YouTube returns more than 17,000 hits, and, based on analysis of a sample of these results, we estimate that there are probably about 13,000 of these posted on YouTube.

Examples include:

- Brokeback to the Future (viewed more than 5 million times)

<<http://www.youtube.com/watch?v=8uwuLxrv8jY> >

- Scary Mary Poppins (viewed more than 7 million times)

<http://www.youtube.com/watch?v=2T5_0AGdFic>

2. Film Analysis.

There are probably about 10,000 of these, such as:

- Psychological Aspects of the Matrix

<<http://www.youtube.com/watch?v=AEisRob4xKw>>

3. Movie Mistakes.

People like to share little inconsistencies, anachronisms, and other mistakes they find in the movies. It is hard to estimate how many of these there are. Here is an example:

Movie Mistakes 1

<<http://www.youtube.com/watch?v=8ra-7brEEsg>>

Harry Potter Movie Mistakes

<<http://www.youtube.com/watch?v=FiZHji1CE9I>>

4. Comic Juxtaposition Remixes.

The most popular of late would be the Downfall remixes (Hitler Remixes)

<<http://blog.wired.com/underwire/2008/05/adolf-hitler-is.html>>

5. Political commentary.

People often borrow clips from movies and television to illustrate political points in various ways. Here is an example:

- Jeremiah Wright Illustrated with Movies

<<http://www.youtube.com/watch?v=xQkHBJS19F8>>

6. Political Criticism of Movies

Here are 2 examples:

- 300 Epithets <<http://www.youtube.com/watch?v=XwFOpYOXBQ0>>

- Disney Racism <<http://www.youtube.com/watch?v=LibK0SCpIkk>>

7. "YouTube Poop"

A small but thriving community making remixes that ape and mock the lowest technical and aesthetic standards of remix culture to comment on remix culture itself. For example:

- Youtube Poop: Arthur's Massive, Throbbing Hit

<<http://www.youtube.com/watch?v=RJk4N9gEEmk>

Appendix H

Interview with Professor Mizuko Ito

John D. and Catherine T. MacArthur Foundation Chair in Digital Media and Learning
University of California Humanities Research Institute
University of California, Irvine

November 22, 2011

Comment submitted to the Library of Congress in support of the proposal for an exemption to prohibition of copyright systems for access control technologies, submitted by the Electronic Frontier Foundation

I am a Professor at the Department of Informatics, Department of Anthropology, and the University of California Humanities Research Institute at the University of California, Irvine and specialize in the ethnographic study of digital media use. One of my areas of focus is remix video, and I have been studying amateur remix video communities for the past seven years. Between 2005-2008, I was lead researcher on a \$3.3 million large-scale ethnographic study, funded by the MacArthur Foundation, which is the largest qualitative study to date of new media use by U.S. youth. The results of my study of video remix in the anime music video (AMV) community can be found at the following URL: <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2968/2528>. A more extensive treatment will be published in an edited collection, *Fandom Unbound*, in January 2012, by Yale University Press.

AMVs are videos that involve the remixing of clips from Japanese animation (anime) with a soundtrack of the editors choosing, usually a popular song or the audio track from an advertisement or trailer. My study of the AMV community included a survey of 227 participants in animemusicvideos.org, and interviews with 20 AMV creators, conducted in 2006-2007. In addition, I co-chaired an event, “24/7: A DIY Video Summit,” in February 2008 and a follow up event in April 2011, that involved extensive dialog with video remix artists and the curation of videos that were representative of a wide range of amateur video. As part of the curation of these events, I reviewed hundreds of remix video in a variety of genres.

Based on my research and my review of an extensive corpus of remix video, I would like to submit factual support and arguments in support of the proposed exemption.

1. Amateur and non-commercial remix will continue to grow as an everyday form of expression and communication.

As described in the EFF exemption proposal, the practices of video remix are becoming much more widespread due to the growing availability of low-cost video editing tools and Internet culture that use video in everyday communication. The proposal mentions some broad indicators of the growth of remix activity among youth and the growth of remix videos on YouTube. In addition, a closer look at one remix community can provide some sense of the vector of growth in historical perspective. Although the history of AMVs does not date as far back as the live action vidding community, there have been remixes of Japanese animation created in the US as

far back as the early eighties. AMV screenings and competitions started appearing at anime conventions in the early nineties, and by the late nineties became an established part of almost all major anime conventions. The advent of low-cost video editing tools and widespread Internet access in the late nineties catalyzed a growth in AMV creation and the development on online communities. AMV organizers began connecting with one another in 1992 through Usenet, and then later through mailing lists. In 2000, animemusicvideos.org was founded for editors to share their videos, and this site continues to be one of the central sites for accessing AMVs. The growth in the number of videos cataloged on the site is one indication of the growth in the practice of AMVs:

2000: 1037
2001: 3860
2002: 7042
2003: 16443
2004: 29860
2005: 37990
2006: 30180
2007: 16164
2008: 9205

The numbers roughly double each year until 2005, when YouTube was founded. Since then, the AMV community has continued to grow, but the center of gravity has shifted from animemusicvideos.org to other video sharing sites. To say that the numbers have continued to double since 2005 would be a conservative estimate given how much visibility AMVs have had in Internet culture with the broader publicity afforded by sites like YouTube.

Today, AMVs are well established and thriving part of the everyday creative production of anime fans, and they are shared on the Internet as well as in screenings and competitions at every major anime convention around the country. They represent a form of creative expression that was created by fans in the amateur, non-commercial sector, and these works have never been framed as competitive with the commercial anime industry. The anime industry has tolerated these forms of fan remixes for decades, and has even gone so far as to commission commercial remixes by well-known AMV editors.

2. *AMVs are entirely non-commercial and largely involve non-infringing uses of video.*

Almost all AMVs are fundamentally transformative, and are entirely non-commercial, except in the handful of cases where the animation industries have commissioned AMVs. The process of creating an AMV involves culling through a large corpus of video footage for a small number of clips that are edited together into a short video compilation that makes a focused creative statement. As one editor described it, he sees his videos as “synthesis, 1+1=3. I’m not sure... but you get something new, something different. You take two different elements and together they become something greater.”

3. *AMV editors rely overwhelmingly on DVD footage over other video sources for creative, practical, and ethical reasons.*

In our survey of the AMV community, among 200 who reported that they were AMV creators, 75% indicated that commercial DVDs are their first choice for anime source material in making their videos.

One reason for this preference is the desire for high quality video. As one editor put it succinctly, “I buy the DVDs you know to get the best quality possible because I love the quality.” In this, AMV creators are similar to their live action vidding counterparts. In addition, however, there are additional reasons for AMV editors to turn to DVDs for their source material. Unlike media that has been created primarily for the U.S. market, only a small proportion of anime is released via broadcast in the U.S. For the vast majority of anime, editors must turn to online sources or to DVDs, and do not have the option of analog capture.

In addition, the AMV community has historically operated based on a set of social norms and ethical guidelines that seek to support the anime industry. AMVs are predominantly “fannish” celebrations of anime culture, and editors see themselves as evangelists for anime in the English-speaking world. In animemusicvideos.org, this ethic is embedded into one of the site rules: “Thou shalt not use downloaded video footage, music, or pirated software to make AMVs.” The organizers of the site, by banning the use of downloaded video are advocating for the use of DVD footage in order to generate revenue for the anime industry. Even as the industry has been transitioning to online forms of distribution, we see AMV editors continuing to rely on the highest quality source material available.

4. *AMV creators actively support the U.S. DVD market in spirit and practice.*

Most AMV creators I interviewed stated that they have large collections of anime DVDs for their own viewing and in order to get source material for their AMVs. Fans who become interested in AMV creation represent “hardcore” fans who are more likely to purchase DVDs than casual anime viewers. Legal barriers to AMV creation are thus likely to disproportionately impact the enthusiasm of those anime consumers who are among the most likely to purchase DVDs.

AMV creators also see themselves as supporters of the anime industry. Describing AMVs as “free promotion” was a frequent refrain among the editors I interviewed. One editor explains, “I don’t understand how AMVs, which by and large come from personally bought items, hinder the [commercial] artists. If anything it magnifies them and spreads them far and wide on the web... That’s free and beneficial advertising in my book.” One editor describes the informal polling that he does at anime conventions about whether AMVs help to promote anime. “I’ve been on a few AMV panels. We often ask people if they’ve bought anime based on an AMV they’ve seen. Most hands go up.” These experiences reflect the reality that fan communication, including AMVs, act as form of advertising for DVD. They also illustrate the stance among creators that they are working to support the DVD industry.

Conclusions

In summary, AMV editing is an entirely non-commercial practice representing largely non-infringing uses of video, and relying predominantly on the use of DVD source material. Further, AMV creation and viewing functions to support rather than detract from the U.S. DVD market. For these reasons, the case of AMV editing clearly supports the DMCA exemption for noncommercial remixers.

Although AMVs represent only one among many video remix genres that make use of DVD footage, the dynamics of amateur video editing span different video fan cultures. The anime community represents one of the more technically savvy communities that took to video remix early in its evolution, relying on DVD releases of foreign media. As media from other countries increasingly flows into the US via DVDs, we are likely to see the dynamics witnessed among AMV creators replicated in among diverse media audiences.

Appendix I

Interview with Professor Francesca Coppa

Muhlenberg College / Organization for Transformative Works

November 18, 2011

Professor Francesca Coppa is the founding Director of Film Studies at Muhlenberg College as well as a founder and current board member of the Organization for Transformative Works (OTW), a nonprofit organization dedicated to celebrating and preserving fanworks and fan practices, including vidding.

She has written and lectured extensively on vidding and directed a series of short films explaining vidding to middle and high schoolers for MIT's New Media Literacy project.¹ She is also the director of the OTW's "Vidding History" project, which is documenting the oral history of some of the first vidders. She is currently at work on a book called *Vidding: A History of Fan Music Video*. Her lectures and publications on vidding include:

"Pop culture, fans, and social media," in *Routledge Handbook of Social Media* (edited by Theresa Senft and Jeremy Hunsinger; forthcoming, 2012)

"An Editing Room of One's Own: Vidding as Women's Work" p. 123-130 and "How To Suppress Women's Remix" (co-written with Rebecca Tushnet) p. 131-138 in *Camera Obscura*, Duke University Press, Volume 26, 2011.

"A Fannish Taxonomy Of Hotness." *Cinema Journal*, 48:4 Summer, 2009, p. 107 - 113.

"Vidding," for *Women in Science Fiction and Fantasy: An Encyclopedia*, ed. Robin Reid (North Carolina: Greenwood, 2008)

"Women, Star Trek and the Early Development of Fannish Vidding," for *Transformative Works and Cultures*. Issue 1, September 15, 2008.²

"A Brief History of Media Fandom," in *Fan Fiction and Fan Communities in the Age of the Internet*, ed. Hellekson & Busse, (MacFarland, 2006) p. 41-59.

Curator, In Media Res, an experiment in collaborative, multi-modal scholarship sponsored by Media Commons.

Public Talk, "Fair Use and Remix Culture: Transforming Consumers into Makers of Culture," *Yale Law Tech Speakers Series*, Yale University, September 21, 2011.³

Panelist, *Transmedia, Hollywood 2: Visual Culture and Design*, April 8, 2011. UCLA.⁴

Public Talk, University of Pennsylvania Cinema Studies Faculty Colloquium, Dec 1, 2010. Talk: "Remix Before YouTube: Analog Remix."

¹ Available at <<http://techtv.mit.edu/tags/2522-otw/videos>>.

² Available at <<http://journal.transformativeworks.org/index.php/twc/article/view/44>>.

³ Available at <<http://www.youtube.com/watch?v=yVzKgxhGdUc>>.

⁴ Available at <<http://vimeo.com/25691436>>.

Public Talk, "Fan Art as Counternarrative: Responding to Popular Culture." Cooper Union's Interdisciplinary Seminar, November 9, 2010.

Panelist, "Theory of Remix: Part I," at Open Video Conference, October 1, 2010.

Curator, with Elisa Kreisinger, Vidding Exhibition for Open Video Conference, October 1-2 2010.

Public Talk, Bard College: "Minority Report: Fan Works and Multicultural Voices." March 4, 2010.

Panelist, "Musical Literacy," in "Participatory Cultures: From Wikipedia to Vidding," *Digital Media and Learning*, MacArthur Foundation, Feb 19, 2010.

Public Talk, "Things We Don't Have in the Future...And How Fan Arts Can Help!" *ReMix, ReWrite, ReAct*, University of the Arts, September 23, 2009.⁵

Panelist, "Who Owns Pop Culture? Remix and Fair-Use in the Age of Corporate Mass Media," *Open Video Conference*, NYU Law School, June 20, 2009.

Co-organizer and presenter, *IP/Gender* interdisciplinary Spring 2009 conference, American University School of Law, April 23-24, 2009. Presentation: 'Swap Audio?' Theorizing Music in Fan Vidding." Moderator: "Is There A Text In This Work? Transformation Beyond the Written Word."

Panelist, "Women's Work" (with Rebecca Tushnet). *Gender on the Frontiers: Confronting Intersectionalities. Columbia Journal of Gender and Law Triennial Symposium*: April 10, 2009.

Invited Speaker, "Opening Roundtable on Mashup, User-Generated Content, and the Future of Cultural Production," and "Mashup as Political and Social Expression" at *Mashup: The Future of Cultural Production and Ownership*. March 12-13, 2009. The Ohio State University Moritz College of Law.

Panelist, "Media Cannibals: A History of Vidding Women," *IP/Gender: Mapping the Connections* (American University School of Law, April 4, 2008).

Speaker, "Media Fetish: The Vidshow," *Beyond Queer: The Spectacle of the Performing Body* (Brown University, April 6, 2008).

Panelist, "From Number One to First Lady: Trek's Christine Chapel and the Development of Fannish Music Video," *Slash 3: The Final Cut* (Leicester, UK; Feb 25, 2008).

Presenter, "Genealogy of Vidding," *24/7: A DIY Video Summit* (February 8-10, 2008; School of Cinematic Arts, University of Southern California)⁶.

Panelist, "'We are controlling transmission': Female Video Editors and the Literary Music Video," "Creative Transformation: Specificity and Continuity in Unofficial

⁵ Available at <<http://blip.tv/francesca-coppa/things-we-don-t-have-in-the-future-and-how-fan-arts-can-help-3118672>>.

⁶ Available at <<http://www.youtube.com/watch?v=aYdllH7jZxg>>

Creative Authorship,” MIT5: Creativity, Ownership, and Collaboration in the Digital Age (MIT, April 27-29, 2007).

Panelist, “Media Cannibals: A History of Vidding Women,” Inside/Outside: The Gaze and PsychoAnalysis. Feminism(s): Film, Video, and Politics Symposium. (University of Hartford, April 21, 2007).

1. Could you briefly describe what sets the vidding community apart from other clip-based video creators? Do vidders see themselves as different from many more recent creator communities who have been getting attention on sites like YouTube?

Vidders, who are overwhelmingly female, differ from many other DIY video communities in their aesthetics and purpose. Many vidders create vids to analyze or supplement their mainstream film and television viewing, to draw out their preferred subtextual readings or otherwise reframe visual and narrative elements of mass media storytelling.

Vids are visual essays that respond to a visual source. Many vidders use music to create, extrapolate, or analyze the relationships between television and film characters, or to articulate a character's otherwise opaque interiority. (One of the first VCR vids ever made, in 1980, set the Who's “Behind Blue Eyes” to a single, wavering frame of Starsky from *Starsky and Hutch*--the best she could do—thereby imputing an interiority and emotional subjectivity to the Starsky character that the show never gave him.)

Vidders were making “user-generated content” long before the internet and the rise of digital culture. The organized vidding community dates their art form from the slideshows that Kandy Fong made in 1975, and there was a twenty-five year period where VCRs were the dominant technology. Many of the aesthetic and technical problems vidders face existed before the web and digital video. For example, vidders have always wanted the cleanest, sharpest source, to isolate the most beautiful frames, to be able to tint footage or otherwise create emotionally meaningful color palettes. They're now artists working with digital tools, but they're trying to solve technical problems and work to aesthetic standards that predate the digital world.

2. Are most vidders amateurs in video editing? Are their activities generally noncommercial? Are there also "professional" vidders?

Most vidders are amateurs, though in the years since the exemption I have seen more vidders studying filmmaking or digital film editing at school and who aspire to become, or do become, professionals. This reflects a change in high school and college curricula to include digital literacies; my college, Muhlenberg, added a film studies major with a production component to its offerings in 2006, when digital tools made video production affordable. It is also more and more common for people to know digital art programs like Photoshop and After Effects, which are both often used in vidding. That being said, historically many of the best vidders had art training (drawing, painting, graphic design), and others have, or also have, technical or computer backgrounds. This latter point is important: vidding women, then and now, tend to be women who are not afraid of technology, and they tend to see vidding as a series of technical and aesthetic challenges without being particularly aware of the legal issues associated with those technologies. The vidding community continues to be a great source of technical and aesthetic mentoring; it is also increasingly trying to help vidders navigate legal questions, though this is

still within a relatively small circle compared to the exponentially growing number of vidders and other remix artists in the post-YouTube era.

Vidding is, at the moment, still entirely noncommercial. Most vidders just want to share their work with like-minded fans, and so will stream their vids online, offer them for download, or give DVDs away at conventions. Some vidders charge for the cost of the DVD discs or for shipping. (I saw my first vids on VHS, on a tape that was mailed to me at cost.) This noncommerciality is both due to fandom's "gift culture," which is a culture of creative exchange, but also because historically, many vidders were convinced that their work was illegal.

That being said, noncommercial does not mean "not serious." Vidders take their art seriously, and there is a culture of public review and criticism modeled on the art review of art schools. There is a community that makes "Vidder Profiles" - documentary films that interview notable vidders and examine their artistic careers and preoccupations⁷ – and a community devoted to doing "DVD Commentaries" of notable vids⁸ as a form of analysis.

Moreover, vids are also being recognized as "art" outside the community. I have published my own work on vidding in film and media journals like *Cinema Journal* and *Camera Obscura*. Vids have appeared in gallery exhibitions (Lim's vid "Us" appeared in an exhibition entitled "Mediated" at the California Museum of Photography January 24, 2009 - April 4, 2009⁹) and been profiled by major national news outlets, including *New York Magazine*¹⁰, *Reason Magazine*¹¹, and National Public Radio.¹²

3. Do vidders frequently rip commercially-released DVDs in order to extract clips? It sounds like some vidders use .avis downloaded from unauthorized BitTorrent sources (are all the source materials available that way? obscure shows?). Others rely on video capture from analog outputs. Is DVD viewed as superior to these alternatives? What about Blu-Ray?

Vidders want the best-looking footage available, and will rate "crisp source" highly when discussing a vid's merits. While there are some folks who still capture, capturing is more expensive, requires more technical expertise, and typically looks less good. Ripping from DVDs tends to get you better source than downloaded .avis, which are frequently recorded off broadcast television, and may be low-resolution or have bugs or other visual artifacts. Downloading is enabled by file compression, but vidders don't want compressed files, which can't withstand the processing that is now common with digital tools without breaking up or getting muddy.

So vidders typically want the cleanest, biggest clips their systems can handle, because they want to transform/rework the footage in various ways—changing speed or color, adding effects, creating manipulations, masking out elements, only using a portion of the frame—and the better the footage you start with, the more you can do with it. Vis a vis Blu Ray, my own sense is that,

⁷ See their YouTube channel at <http://www.youtube.com/user/vidderprofile>.

⁸ Vid Commentary community at <http://vid-commentary.livejournal.com/>.

⁹ See the exhibition catalog at <http://www.forger.com/pdfs/MEDIATED-Catalog.pdf>

¹⁰ Logan Hill, The Vidder, *New York Magazine*, Nov. 12, 2007, available at <http://nymag.com/movies/features/videos/40622/>.

¹¹ Jesse Walker, *Remixing Television*, *Reason Magazine*. August/September 2008.

¹² Neda Ulaby, *Vidders Talk Back To Their Pop Culture Muses*, NPR, February 25, 2009. <http://www.npr.org/templates/story/story.php?storyId=101154811>

at the moment, most vidders – who are, as I said, amateurs – simply don't have the computer processing power to handle Blu-Ray footage yet, though the few vidders who do are admired for the "shininess" of their source. I suspect, however, that this is only a matter of time: as computers get more powerful, vidders will inevitably begin to use Blu Ray because it is simply best to start any artistic manipulation with the largest, least compressed image available.

Vidders have always sought the best source available, even before DVDs. First generation broadcast tapes (VHS taped off television) were prized; in the days before everything was on DVD, you might only have seen an old show because someone had double-taped their tapes for you, so most vidders were working from tapes of tapes of tapes. Vidders raced to buy the first professional VHS sets of popular fannish shows like *Star Trek* and *Highlander* when they became available, though few TV shows made it to professional VHS. Vidders then bought the DVDs of those same shows when they became available, and are likely customers for anything with bonus footage or extended editions. (For example, the blooper clip version/easter egg clip of Yoda dancing that appeared on the *Star Wars* extended edition was featured in a vid; more recently, a first, unaired version of the pilot episode of the BBC's *Sherlock* which was on the DVD set has been used by vidders to extend the amount of available footage.) It is also worth noting that vidders tend to keep every version of a beloved source, so many *Star Wars* vidders are holding onto their VHS cassettes of *Star Wars* to vid with since Lucas changed the source in subsequent editions.)

4. What other sources do they use? For example, YouTube, Hulu or Amazon UnBox? Would they choose these sources if the works were available on DVD?

Vidders also use YouTube and Unbox (I don't personally know of any who use Hulu but then again, most vidders don't advertise what sources they use in their blurbs, so I only have knowledge of a relatively small sample of vidders whose work I've had the chance to discuss with them; I presume that some vidders have used Hulu.) I know that all of these are considered inferior to DVD in quality and would only be used 1) if nothing better was available, and it was important to make the vid sooner rather than later so as to be part of a critical conversation of the moment or 2) if "YouTube video" was itself the effect. An example of the first kind of vid is Giandjua Kiss's vid "It Depends On What You Pay," which uses Amazon Unbox footage of Joss Whedon's short-lived television *Dollhouse* to argue that the show's central conceit – of a woman with no memory who you can rent – is akin to rape. The show was soon cancelled, and so the vid's timeliness was an issue. An example of the second kind of vid is Obsessive 24's "Piece of Me,"¹³ which argues that Britney Spears is the victim of exploitation by the industry, her family, and the camera itself. Obsessive 24, one of the best vidders working, and one who typically produces vids with very high-quality visuals, chose in this video to contrast the glossy self-promotional DVD footage of Spears (she bought a DVD of Britney's Greatest Hits specifically to make this vid) with tabloid photography and pixellated YouTube videos, including user-generated videos by others ("Leave Britney Alone!" the tearful plea of internet celebrity Chris Crocker) and gossip show footage covering her various scandals and breakdowns.

¹³ For more about "Piece of Me," see Coppa, Francesca. "An Editing Room of One's Own: Vidding as Women's Work" in *Camera Obscura*, Volume 26, 2011 p. 123-130.

5. Could you make a rough order of magnitude estimate of the number of vids that have been created by self-identified vidders?

By self-identified vidders, tens of thousands easily. That number goes into the millions if you look at YouTube and what organized vidders sometimes call the “feral” vidders—vidders who have been inspired by vids they've seen, or have just invented some version of the idea for themselves without becoming involved in an organized community of self-identified vidders.

6. Is the quality of the video source important to members of the vidding community?

Yes, very much so, see question four, above. I want to reiterate again that vidders are visual artists. They are deeply invested in aesthetics. They want to make smart vids that are also beautiful. And the better the source footage you start with, the more you can do to it, the "shinier" it looks. All vidders value aesthetics, though there are other factors involved in when and how the work is created. While some vidders might make a vid quickly, almost urgently, as part of a current cultural conversation about a television show or film, others can spend easily half a year working on a single video, often working on it frame by frame like a painting.

7. Do you think the vidding community has a clear understanding of what the DMCA prohibits?

The organization I helped found, The Organization For Transformative Works, has tried hard over the last two years to disseminate information about the DMCA exemption for noncommercial remixers, and we have had some success in the sphere of self-identified, organized vidders. However, we are a small nonprofit and there are many vidders out there; it is inevitable that our blog posts and outreach efforts have limited reach, especially when many are still receiving automated takedowns from YouTube and other sites. For most vidders, the big legal (and ethical) line remains between "paying" and "not paying" for source footage; vidders tend to feel that if they've paid for the DVDs, they have the moral right to make art out of them.

8. Do you think the 2009 exemption for noncommercial uses has been helpful to the vidding community? How?

Absolutely. We at the OTW have been cheered by blog comments and emails from vidders and other noncommercial remixers who have told us that the exemption emboldened them to counternotify in the face of a YouTube takedown and that their work has subsequently been restored. The DMCA is a large part of that confidence: many vidders now understand that their use of the cultural material was fair and that they didn't break any laws by ripping their DVDs either. It is so crucial for vidders to have confidence in the legitimacy of their work and the validity of their speech, and I do believe that the DMCA exemption has given that to vidders.

Appendix J

Interview with Gianduja Kiss

Vidder

November 30, 2011

1. Could you briefly describe what sets the vidding community apart from other clip-based video creators? Do vidders see themselves as different from many more recent creator communities who have been getting attention on sites like YouTube?

I'm not entirely sure what communities you're referring to. Vidders generally consider themselves part of remix culture, but we're a distinctive subset - vids are very different than, say, live action films (like fan films), requiring entirely different skills and different aesthetics.

When you're talking about the universe of content that involves setting clips from movies or television shows to music, trying to define a fanvid as distinct from other types of creations is a classic case of "I know it when I see it." I've engaged in online discussions with vidders about how to define fanvids, and those can get rather heated and people have very different opinions about it. My own view is that though some vids can be comedic or poke fun at the source material, vidding in general is different than some of the pure parody remixes that you can find on Youtube (like, Brokeback to the Future as a famous example) because vids tend to come from a place of greater personal engagement with the source material. And vids are certainly very different from pieces that combine clips together but don't include the music element, or only use the music as a kind of background - for a vid, music is an integral part of the piece, and an important part of the art is to coordinate the images with the music. (Although I always have to offer caveats, because, as I said, it's really hard to define "fanvid" as a category, and I've seen vids set to monologues instead of music or that use music in other unusual ways - but for most vids, what vidders generally think of when they think "fanvid," the mesh of music and visuals is critical).

2. Are most vidders amateurs in video editing? Are their activities generally noncommercial? Are there also "professional" vidders?

The vast majority of vidders that I know are amateurs. Some have formal arts training either at the undergraduate or graduate levels. A lot of them work with computers professionally, which probably gives them a leg up on using the software. Many are students. I do know a few vidders who are also interested in professional editing, but they're the exception rather than the rule. And even then, the vids themselves aren't "professional," in the sense that they don't earn money and aren't made in conjunction with the producers of the source material; the vids are simply a hobby and a chance to use one's editing skills.

Vidding itself is almost always noncommercial; there simply isn't a professional market for it. I've only ever heard of one instance of vids being used "professionally" - I believe that at one point, the creators of a particular television show showed an interest in including one vidder's work on a DVD set, but only vids that were set to music that was composed for the show. And

that was an extraordinarily unusual situation; I've never heard of anything else like it before or since.

3. Is the quality of the video source still important to the vidding community?

It's critical. Vids are a visual art form; vidders work incredibly hard to get just the right colors, timing, movement, and flow - and all of that is disrupted when the source is fuzzy or degraded. The impact of the vid is lessened tremendously if you can't see the images clearly; you might just as well ask whether it matters to a photographer whether their shots are in focus. Like with a photograph, the vid isn't just the literal image that appears in the frame; it's about the overall aesthetics of the piece. Sometimes photographers might intentionally create a blurry picture, but when they do so, it's under circumstances that the photographers control. It's the same with vidding.

4. Do vidders continue to rip commercially-released DVDs in order to extract clips? Others rely on video capture from analog outputs. Is DVD viewed as superior to these alternatives?

DVD rips are generally considered to be the highest-quality source you can get - the picture is the clearest and most precise.

I'm actually not certain what you mean by capture from analog outputs. Certainly taking the broadcast footage - however obtained - is vastly inferior to DVDs because it has network logos, network ratings ("TV-14," etc), and these days, advertisements that pop up along the bottom of the screen. That sort of thing can render large swaths of footage unusable.

5. What other sources do they/you use? For example, YouTube, Hulu or Amazon UnBox? Would they/you choose these sources if the works were available on DVD?

I've used Amazon Unbox; I know people who use YouTube as well. To my knowledge, people only use YouTube for sources that are entirely unavailable in any other way - YouTube captures aren't very high quality. I personally only use Amazon Unbox when the source is not available on DVD; I even replace my Amazon Unbox source with DVD footage once the DVD becomes available. In general, I think most vidders would prefer to use DVD footage, and if they're using something else, it's because DVDs aren't available to them.

6. Could you make a rough order of magnitude estimate of the number of vids you have created?

I don't even have to be that rough - I've made 59 vids so far, with one currently in progress.

7. Do you think the vidding community has a clear understanding of what the DMCA prohibits?

As a whole? I doubt it. Some vidders know more than others, but most vidders have no legal training, a lot aren't in the U.S., and many are high school or college students. From what I've seen, people have a vague sense of the concept of fair use under US copyright law - and they

may or may not have a good idea of what counts as fair use - but I don't think most vidders know the ins and outs of how US copyright law functions, including the DMCA.

8. Do you think the 2009 exemption for noncommercial uses has been helpful to the vidding community? How?

Vidders rip DVDs because they consider it necessary to make vids; they did that before the exemption and they're going to continue to do it. But things like the exemption - or news articles that mention vidding, or online contests that acknowledge and encourage vidding, or even things like an actor or a professional TV critic linking to a favorite fanvid - I think they generally make vidders feel a bit safer about being open about what we do, more willing to talk about it and publicize our work. Like, once upon a time, vidding was incredibly underground and secretive; with the creation of YouTube vidding began to come out of the shadows but a lot of vidders still feared publicity, and would only make their vids available in password-protected spaces or spaces that were not well known. That's changed a lot, but at the same time, many vidders are still quite wary. (When the OTW posted seeking comments from vidders, I know there were vidders who were afraid to give comments, even anonymously). I think things like the DMCA exemption help eliminate some of the fear.

I don't think most vidders generally have a clear idea of the difference between fair use and the DMCA/DRM issues. And that means that as a practical matter, these issues matter most when they get a takedown notice, or when (very often) YT blocks them from uploading their vids in the first place. The ability to challenge those decisions would have the most direct, practical impact on how vidders operate on a day to day basis.

Appendix K

Interview with Joe Sabia

Digital Artist, Video Editor, Creative Consultant

November 28, 2011

1. Please write a biography describing your work including the types of projects you work on both commercially and personally. It might also be useful to include links to some exemplary videos.

I am a NYC based digital remix artist, video director, speaker, panelist, and creative consultant. I create conceptual videos that communicate unique and compelling stories. I have a heavy slant towards socially important videos which include a direct and honest message of making a difference.

Commercially, I've counted Google, Interscope Records, NOKIA, BBC America, AirBnb, HBO, and YouTube as corporate clients, as well as a dozen ad agencies I pitch and consult for.

Pro bono-wise, I am also the Chief Creative Officer for African-focused non-profit, Mama Hope. And I am the co-curator and co-host of Boing Boing Video on Virgin America Airlines.

Examples of videos include:

Seven Minute Sopranos - A first of its kind video recap of the entire Sopranos series. Was the inspiration for Lost, Battlestar Galactica, and The Wire recaps, and cited as the reason for launch of CBS's Eyalab.

Tupac in Kazakhstan - A music video that sought to depict the culture of Kazakhstan by including 40 of its natives singing Tupac Shakur's "Changes".

Alex Presents Commando - A Tanzanian boy recaps the 1985 Schwarzenegger film "Commando". Kicked off the launch of the "Stop the pity. Unlock the Potential" campaign for Mama Hope.

Google Wave Fiction - The first "Infotainment Demo" created to feature at the time a new Google Product - Google Wave - by sound tracking its functionality to a famous scene from Pulp Fiction.

Obama Raps Kanye - Over 90 speeches given by Barack Obama, finding lyrics that match Kanye West's hit, "Stronger".

2. Can you explain how making *Prime Time Terror* helped convey the message of the academic research in the Lear Center's study? How did the video function differently than the written report in communicating the same information?

Primetime Terror sought to convey academic research in an engaging and entertaining way in the form of a video which effectively served as a Hollywood movie trailer for the research.

Why? Well, per tradition, the report was published in written format. Despite being open to the general public's consumption, this research most likely finds itself trapped in the realm of peer-reviewed academia. Not surprisingly, it doesn't break out into the public.

Typically, the only other life a written research will have is in the form of a panel presentation or keynote speech. But there's not much excitement in a 45-minute, single-take, grainy conference video. If that were uploaded on YouTube it might get a couple hundred hits, tops.

But by creating a remix video, you're creating art on top of the research. And with new art, you can control the pace, the mood, the tenor of the experience. It ends up injecting color into this normally drab research paper existence.

3. How did you obtain all of the different types of footage used in the *Prime Time Terror* video? Generally how do you obtain source material for other remix videos that you make? Do you view any particular type of source as useful or superior? If so, why?

For *Primetime Terror*, assets were derived from a flurry of apps, DVDs, and subscription based media services. The DVDs were ripped onto my hard drive using the free application HANDBRAKE for Mac. Once the episodes became files on my laptop, I dragged them into my editing software, Final Cut Pro.

For non-DVD usage, I found necessary episodes on Amazon streaming. For the scenes I needed in certain episodes, I used Snapz Pro screen recording software to record the streaming video through my screen.

For miscellaneous clips found on YouTube, I used keepvid.com for conversion into files.

The most useful type of extraction is always DVD ripping. Because DVDs allow for little to no loss of quality.

4. In producing remix videos, is the quality of your source footage important? If so, why?

The quality of the source footage is incredibly important. There's an innate prejudice in all of us to equate the integrity of the creation with the integrity of the footage. How would Lord of the Rings be received if it were shot with a flip phone? What would Two and a Half Men look like without proper stage lighting?

As a remixer, there's nothing more heartbreaking than realizing there are NO better alternatives to that one, down-rezzed, grainy YouTube video that is crucial to your project. That's why when

DVDs are available for executing the remix idea, it's a no-brainer.

5. Do you think that you could have created the *Prime Time Terror* video without the clips from the various shows that were the subject of the report?

Sure I could have! I could have commissioned a cartoonist to animate Dr. House. I could have used animated Lego figures to act out a crucial scene from "24". I could have filmed my friends doing theatrical NCIS interrogations in my basement.

But let's be real. These options are absurd. If the only focus of this research is on the television shows themselves, doesn't it make sense to use the television shows as the only visual accompaniment? When a weatherman is talking about where rain will fall over the next 5 days, he shows a map with moving precipitation. If the Lear Center is citing how there were fourteen forced entries during Primetime TV, then we show the scenes of forced entry. There's nothing more elegant and logical about the situation.

Primetime Terror - as an entertaining take on research - proves the importance in capturing the largest audience possible, if not for the health of public discourse and intellect, than for the purpose of shattering the often stodgy stereotypes of academia. Because reading is dead. No one can sit through an article in the Economist anymore, let alone most children's books. Our attention doesn't warrant the ability to process stolid, insipid and unmoving black words in plain white background. It mandates the presence of moving imagery. Fast clips. Exciting music. Don't just consume the data. *Experience* the data.

Academics are good at focusing. The general public isn't. Acquiring the public's attention requires creativity in doing much more than publishing a hundred pages of text.

6. Do you think the remix artist community has a clear understanding of what the DMCA prohibits? How do you think intellectual property constraints are impacting the community?

It'd be naive to say the remix artist community knows the tenets of the DMCA inside and out. Artists are artists. There's a tendency to pay more attention to art than to laws.

But artists are creators. And to create means to not copy. The absolute least artistic thing an artist can do is upload a whole, unedited chunk of CSI: Miami. That person is a pirate with zero regard for creativity.

It's not so much an issue of how the artist community is affected by intellectual property constraints - we'll keep creating this stuff regardless of how many DMCA take downs we might get. But the fear I have is how society itself is impacted by constraints. This transmedia culture we live in requires a new, adopted literacy that most people over the age of 40 simply don't understand. This sharing, this mashing, provides a collaborative and essential form of communication that just doesn't warrant the luxury of time and resources to ask for usage permission that will ultimately be denied by unsympathetic Hollywood rights holders.

Constraints on fair use will simply stifle art and stifle a digital language of criticism, commentary crucial for a digital society. And the effects are broad. The fair-use friendly internet that allows me to screen record episodes for non-commercial research uses like in *Primetime Terror* is the same fair-use friendly internet that allowed a kid in his Harvard dorm to create the most impactful social networking site on the planet. Any chipping away at fair use is a slippery slope. Let's just leave the thing alone.

7. Why couldn't the Lear Center do this itself? Why hire you? Why didn't you do it for free?

The Lear Center didn't create this itself because it was out of the scope of what they're really good at. They did the research, I communicated it in a fun way. Toyota is good at making cars. It's the ad agency that communicates the brand to its audience. There's not much of a difference.

I didn't do this for free because it took over 30 personal hours editing, alongside the efforts of a graphic animator, a musician, an audio engineer, and Steve Zirnkilton, the voice of *Law & Order*. All of this requires a budget to get people paid for their time. As with everything, there's an opportunity cost. And like the above ad agency analogy, time is paid for.

I chose not to do this for free because the Lear Center was able to muster up a budget, and that was hard to refuse. Was it a budget that I'd normally get from most clients? No. But because of the socially important aspect of the nature of the video, my colleagues and I undertook the project at a discounted rate. It's kinda like an artist-patron relationship. I like it a lot.

Appendix L

Interview with Eli Horwatt

York University, Canada

November 14, 2011

Eli Horwatt is a graduate student in Cinema Studies at York University. His area of expertise is found footage and its influence on internet video forums like YouTube, in the form of mashups, recuts and machinima. Eli worked for several years in preproduction in Los Angeles and Toronto and has worked for nearly ten years in film archives. His article, "A Taxonomy of Digital Video Remixing: Contemporary Found Footage Practice on the Internet,"¹ is an often-cited guide to political remix and other forms of user-generated content. Horwatt blogs at recycledcinema.blogspot.com/.

1. Could you briefly describe what sets the political remix community apart from other clip-based video creators? Do political remixers see themselves as different from other creator communities who have been getting attention on sites like YouTube?

The political remix video community engages in transformative editing to work rhetorically with video, the way essayists do with words. Political remixers recognize the centrality of moving images in contemporary culture and have elected to work with these images, as a medium, in an effort to speak through the prism of popular culture. Unlike other video creators online, political remix video-makers are invested in using existing video as a form of address to interrogate and critique the world we live in. The spirit in which they work, as thoughtful and critical observers of mass culture, exemplifies one of the very best features of artists, as self-reflexive observers able to make us see in new ways, that which we take for granted everyday.

2. Is the quality of the video source important to the PRV community?

One of the most interesting aesthetic qualities of PRVs and a cardinal feature of the humour and incisiveness presented by PRV makers, is their capacity to mimic the qualities of commercial media. This means that editors are both able to imitate the vernaculars of commercial media (whether that be a cartoon, trailer, commercial or television program) but also to make work which looks like commercial media, with high quality rips of source material. Using high quality video of appropriated materials is instrumental to the success of a PRV.

3. Do PRV makers rip commercially-released DVDs in order to extract clips? Others rely on video capture from analog outputs. Is DVD viewed as superior to these alternatives?

I am unaware of the practices of all PRV makers, but I am mostly aware of individuals ripping commercially-released DVDs in order to extract clips. DVD usually offers the highest quality materials.

¹ Available at <<http://www.scope.nottingham.ac.uk/cultborr/chapter.php?id=8>>.

4. Do you think the PRV community has a clear understanding of what the DMCA prohibits?

I think the answer is no. While many may be technically aware of the legal measures that the DMCA implies, most PRV makers believe their work falls under the umbrella of fair use, and thus trumps those restrictions implied by the DMCA. To speak of these two doctrines in tandem is to speak of an enormous contradiction in American copyright law. On the one hand remixers are protected by the right to make derivative transformative works and on the other hand are legally rebuked for doing so based on the technological requirements involved. This is a contradiction that must be resolved by giving non-commercial remixers an exemption from the DMCA.

5. Do you think the 2009 exemption for noncommercial uses has been helpful to the PRV community? How?

Yes, it is always important to differentiate artistic works which are clearly protected speech from illegal activities done in the name of piracy. There is no debate around whether PRV makers are engaged in activities which inhibit, damage or circumvent the sale of copyrighted material. Clearly the activities of PRV makers works in the public interest and should be protected with legal exemption. Conflating art with piracy poses a clear danger to the continued protection of speech in the United States.

Appendix M

Interview with Jonathan McIntosh

Video Remix Artist

November 17, 2011

Self-described "pop culture hacker" Jonathan McIntosh is a political remix video artist. His videos "Buffy Vs. Edward"¹ (a feminist critique of the Twilight saga in which Buffy the vampire slayer meets Edward, Twilight's vampire protagonist) and "Right Wing Radio Duck"² (in which Donald Duck listens to Glenn Beck and joins the Tea Party with pitiable results) went viral, getting millions of views as well as national media coverage in such venues as Entertainment Weekly, NPR, The New York Times, The Boston Globe, LA Weekly, Vanity Fair, Slate and others.³ (Right Wing Radio Duck also the attention of its target, Glenn Beck. On his radio show, Beck called "Right Wing Radio Duck," "some of the best, well-made propaganda I have ever seen. We are looking into the funding of this gentleman and this incredible propaganda against me. We'll find out if it's been federally funded – as part of the stimulus package."⁴ Needless to say, McIntosh is not federally funded; he's an amateur remixer who makes and releases his work for free.) McIntosh's most recent video was 2011's "Too Many Dicks on The Daily Show,"⁵ a music-video style remix which critiques Jon Stewart's male-dominated writers' room. McIntosh has lectured internationally on political remix and is the curator of an online exhibition of political remix videos for the March, 2012 issue of Transformative Works and Cultures. He blogs at rebelliouspixels.com and co-moderates politicalremixvideo.com.

1. Could you briefly describe what sets the political remix community apart from other clip-based video creators? Do political remixers see themselves as different from other creator communities who have been getting attention on sites like YouTube?

Political remix is a broad category of transformative works that focus on topics ranging from government policy and political elections to issues of race, sexuality and gender representations in mass media productions. Political remix makers may or may not overlap with other clip-based video communities. Certainly there exists a small subsection of dedicated video creators who see themselves primarily as political video remix creators but I would venture to say that the majority are simply simply feel strongly about a particular issue and are compelled to make an audiovisual statement about it. One thing that distinguishes political remix works is the tendency to be highly critical of and/or very unsympathetic towards the source media.

¹ Available at <<http://www.rebelliouspixels.com/2009/buffy-vs-edward-twilight-remixed>>

² Available at <<http://www.rebelliouspixels.com/2010/right-wing-radio-duck-donald-discovers-glenn-beck>>

³ See, for example, "Meet the man who staked 'Twilight's' leading Vamp (<<http://latimesblogs.latimes.com/showtracker/2009/07/buffy-v-edward.html>> LA Times, July 1, 2009; "Interview: How Right Wing Radio Duck Was Done," <<http://www.nytimes.com/external/gigaom/2010/10/06/06gigaom-interview-how-right-wing-radio-duck-was-done-70752.html?partner=rss&emc=rss>> New York Times, October 6, 2010.

⁴ <<http://www.rebelliouspixels.com/2010/right-wing-radio-duck-donald-discovers-glenn-beck>>

⁵ Available at <<http://www.rebelliouspixels.com/2011/too-many-dicks-on-the-daily-show>>

2. Are most PRV makers amateurs in video editing? Are their activities generally noncommercial? Are there also "professional" PRV makers?

Many political remixers start out as video editing amateurs inspired to create a remix because of their passion for an issue and a desire to engage in a public, media-based debate on that issue. They may learn the technology specifically to make their audiovisual commentary. That said, many quickly become experts in video making as they continue to make remix videos. While the majority of political remix video is noncommercial, some remixers do go on to create remix video works for companies, non-profits or political campaigns. More recently, non-profit organizations in particular have become interested in using fair use remix videos in their campaign strategies, which has increased the number and variety of politically-orientated transformative works being created.

3. Is the quality of the video source important to the PRV community?

Yes the quality of the video source is important for a number of reasons. First, because higher resolution sources, like HD and Blu-ray, allow for cropping, zooming and other video effects which can be essential to the audiovisual argument being made. The ability to crop or zoom in on the media source (without the distortion, blurring or pixelization that comes with lower quality web video sources) is a critical tool for remixers who wish to highlight or focus on one figure or element in a piece of video footage. These techniques are employed in a wide variety of ways by remixers, including: zooming in on a figure's lips as he or she speaks, cropping out other figures in the frame, focusing on one person in a group, highlighting reactions, gestures, actions or facial expressions, etc. Second, because of the standards set by Hollywood and professional media organizations, the use of high quality footage is important because it tends to add a sense of legitimacy to a audiovisual argument; for better or worse, higher quality video footage tends to be taken more seriously by the public. Third, if the remixed video work needs to be screened outside of a small web-based video box - for example, on larger tv screens or via video projection - higher resolution source media will make those transitions much better.

4. Do PRV makers rip commercially-released DVDs in order to extract clips? Others rely on video capture from analog outputs. Is DVD viewed as superior to these alternatives?

Political remixers collect clips from a wide variety of sources including from ripped DVD (and increasingly from HD/Blu-ray discs). The discs are superior because the remixer can get the original and best quality footage directly from the source. Discs allow remixers to pull or rip only the portions of the source footage they intend to use in their remix rather than download the entire film or series to their computer first. Disc ripping also allows remixers to control the quality, aspect ratio, frame-rate and codex used to import the footage into their video project (which can be important for matching other source footage from other sources). Additionally many remixers also make extensive use of DVD/Blu-ray disc extras in their mash-up video projects - these extras include deleted scenes, interviews, making of videos and trailers - many of which can only be found on the actual commercially-released discs.

5. *What other sources do they/you use? For example, YouTube, Hulu or Amazon UnBox? Would they/you choose these sources if the works were available on DVD?*

Political remixers often rely on the fair use of news footage, TV show and Hollywood films clips as well as documentary films clips for much of their source media (in addition to the 24 hour news channels, shows like PBS's Frontline and Comedy Central's The Daily Show are popular sources). I and other remixers tend to use the best footage that is readily available: this includes downloading video source from YouTube, Hulu or iTunes-style services as well as stream-capturing/recording from Netflix or Amazon style streaming services. As a last resort, remixers will use screen-capturing tools but the results can be unreliable depending on video buffering and/or end user bandwidth speeds.

The creation and publishing of a remix video may be extremely time-sensitive if it focuses on a current issue in the news cycle. Examples of time-sensitive remixes might include responding to statements by a celebrity or public figure, discussing a political campaign, or commenting on piece of legislation while its being debated.

In these cases, online streaming/downloading can be the only option to gather footage if the physical DVDs are difficult to find locally or have gone out of print (as is often the case especially with older, independent or small scale documentary productions). In addition, a great many of the popular news and commentary TV programs are simply not available on DVD and most likely never will be and so remixers can either try to record TV live which is expensive, time consuming and does not guarantee capturing the exact media moments they may want to comment on - or they can get search and gather the specific footage they need from online sources.

6. *Could you make a rough order of magnitude estimate of the number of vids you have created?*

Personally I have made about 25 transformative remix videos of various lengths and levels of complexity. Some have been ad or trailer spoofs while others are more in-depth narrative short film remixing projects. My remix videos have commented on issues of gender, foreign policy, race, economics, corporate power, elections, and mass media.

7. *Do you think the PRV community has a clear understanding of what the DMCA prohibits?*

My sense is that it varies from creator to creator. Certainly those of us who have been making critical remix videos for a number of years and have formed a small community around the practice are more familiar with the DMCA. Most often makers are simply interested in creating a video to add to the larger public debate on important or contentious topics of the day and only become aware of the DMCA after a takedown notice or other run ins with IP concerns.

8. *Do you think the 2009 exemption for noncommercial uses has been helpful to the PRV community? How?*

Critically important. Before the exemptions many remixers would be afraid of making a fair use video commentary with DVD footage even if they owned the disc(s). Some remixers, including

myself, would resort to using the bit torrent file sharing protocol to download DVDs ripped by others rather than decrypting the DVDs from our own home collections.

Appendix N

Statement of Tisha Turk
Associate Professor of English
University of Minnesota, Morris

November 28, 2011

I teach writing and literature at the liberal arts campus of the University of Minnesota. I am both a scholar of vids and a vidder myself. I began vidding in 2002 and have made about 30 vids. My research on vids has centered on three claims: 1) vids are arguments: a vidder's choices about editing and music are intended to persuade viewers to see the text her way; 2) vids require interpretation: vidwatchers must work actively to construct meaning from what they see; and 3) vidding is an expression of multimedia literacy, comparable though not identical to traditional print literacy.

My academic publications and presentations on vidding include:

- “Toward an Ecology of Vidding.” *Transformative Works and Cultures*. Forthcoming March 2012.
- “Metalepsis in Fan Vids and Fan Fiction.” *Metalepsis in Popular Culture*. Eds. Karin Kukkonen and Sonja Klimek. Berlin: Walter de Gruyter, 2011. 83-103.
- “‘Your Own Imagination’: Vidding and Vidwatching as Collaborative Interpretation.” *Film & Film Culture* 5, 2010: 88-110.
- “Vidding as Multimedia Composing Process” (75-minute workshop). Computers & Writing Conference. University of Michigan, Ann Arbor, May 2011.
- “Vidding and Vidwatching as Multimedia Literacies.” Conference on College Composition and Communication (CCCC). Atlanta, GA, April 2011.
- “Talking Back to TV: The Rhetoric of Fan-made Videos.” Rhetoric Society of America. Minneapolis, MN, May 2010.
- “Fan-made Videos and New Media Literacies.” Computers & Writing Conference. Purdue University, West Lafayette, IN, May 2010.
- “Transforming TV: Story and Discourse in Fan Video Narratives.” Narrative International Conference. Cleveland, OH, April 2010.
- “Processing Power: Fans, Vids, and Resistant Readings.” Digital Media and Learning Conference. UC San Diego, La Jolla, CA, February 2010.

“Talking Back to TV: Fan-made Videos as Female Rhetoric.” Feminisms and Rhetorics Conference. Michigan State University, East Lansing, MI, October 2009.

“Decoding the Decoders: Vidwatching as Participatory Interpretation.” Reception Study Society Conference. Purdue University, West Lafayette, IN, September 2009.

“Metalepsis in Vidding and Fan Fiction.” International and Interdisciplinary Congress on Metalepsis in Popular Culture. University of Neuchâtel, Switzerland, June 2009.

“Transformative Narrations: Fan-made Videos and Fair Use.” Intellectual Property/Gender: Mapping the Connections. American University Washington College of Law, Washington DC, April 2009.

I’m not a professional artist. I have no formal training in art, design, or media production; my professional training is in writing and literary analysis. That training is part of why I like making and consuming vids: vidders are cultural critics, and vids offer critical commentary on media texts. But vidding combines that critical commentary with artistic expression. By working in the same medium as the original texts, by commenting through the juxtaposition of images and sounds, vidders can *show* rather than tell, just as a novelist might choose to address a social or political issue through fiction rather than through an op-ed column. If I want to write an essay about a visual narrative and publish it on my blog, or for that matter in an academic journal, I can do that. But vidding allows me to make arguments in a different way—often a more effective and persuasive way—just as Tom Stoppard’s *Rosencrantz and Guildenstern are Dead* is both a commentary on *Hamlet* and a play in its own right. And, like *Rosencrantz and Guildenstern are Dead*, the commentary is not a substitute for the original.

In order for vids to be effective art and effective commentary, they need to be made from good-quality source. What an audience perceives as “good source” changes over time; right now, given the ubiquity of DVD and Blu-Ray source and improvements in TV and monitor resolution, audience standards are quite high. Because the process of editing, exporting, and compressing digital video inevitably involves some quality loss, it’s important that vidders start from the highest possible quality of digital images. In most cases, that means ripping professionally-produced DVDs. One of the first rules of video editing is *garbage in, garbage out*: it’s easy to degrade source quality but nearly impossible to improve it. If I start from images that are blurred or pixellated or otherwise compromised, then the best I’m going to end up with is a mess, and if my video is a mess then I can’t make the points I want to make, either because people won’t watch the video or because they literally won’t be able to see what I’m trying to say.

In some cases, a vid’s effectiveness and relevance also depend on its timeliness. Our cultural conversations about media texts now increasingly happen on Twitter and Tumblr as well as comparatively old-school asynchronous blog posts; in order to participate in those conversations, vidders may need to move fast. In these cases, vidders may not be able to wait for DVDs to be released; digital downloads, such as those from iTunes or Amazon Unbox, may be the only way to get high-quality source without network bugs and logos. Not all vidders prioritize timeliness, but *forcing* vidders to choose between timeliness and aesthetic standards places unreasonable limits on our critical and creative practices.

Not all digital copies are created equal. I need a level of quality as an artist that I don't necessarily need as a consumer. As a consumer, I'm happy to stream TV shows on Netflix or Hulu and to check out movie trailers on YouTube; the quality's not ideal, but when I'm just watching for the story or trying to figure out whether to go see something, that's fine. As a creator, though, I need raw materials that work, and digital video files don't work correctly unless the quality's good. Even digital files require a considerable amount of pre-processing in order to be editable (pre-processing that doesn't need to be done if one is simply, say, ripping a movie scene to show in class): the file must be ripped, deinterlaced, and either clipped and re-exported into a file format that editing software can recognize or indexed to mimic such a format. Unless I begin with high-quality files, this pre-processing is going to be fraught with problems (and, in the case of deinterlacing, may not work at all).

Clean source is especially important because making a vid often requires transforming and manipulating individual video clips. For example, I might need to:

- Change the speed of clips. Slowing a clip in order to stretch its duration allows me to match a short clip to a longer musical phrase or ensure that a particular action lines up with a particular beat or other event in the music; it can also create tension or drama—think of the ways slow motion is used in film. Significantly slowing the speed of a clip is possible when working with 29.976 frames per second (the standard frame rate of Region 1 DVDs), though any speed below 50% is likely to look a little weird. However, a clip captured at, say, 15 frames per second (as is standard on most screen capture software) will look distractingly jerky if it's slowed down.
- Alter the color and contrast of clips. I might want to create a mood by tinting images blue, or desaturating them, or removing all but one color from the shot; I might want to match visuals from one scene to the visuals from another episode or another show that has very different lighting. Most good video processing and editing tools have plenty of options for modifying color and contrast: hue, saturation, tint, brightness, levels, etc. But none of these tools can work properly on source files in which the color and contrast are distorted to begin with or on files with the visual noise (the video equivalent of tape hiss on an audio cassette) that results from converting digital to analog.
- Crop or zoom in on clips. If I'm trying to direct a viewer's attention to particular elements of an image and/or to cut out distracting elements elsewhere in the frame, I need to crop out part of the frame. Every frame is composed of a set number of pixels: 720x480 on a Region 1 DVD. If I cut that frame down to, say, 450x300, I've lost a lot of visual information; when I resize the image back to 720x480, I've made part of the image bigger, but I've lost quite a bit of detail. If the original file is DVD-quality, this trade-off can be worthwhile. If the original file is poor quality, the loss of detail can render the image anything from slightly blurry to completely unrecognizable.

Vidders don't copy DVDs to redistribute them; we copy them in order to have the raw materials for our creative endeavors. Like most vidders, I have the technology to circumvent DVD encryption and know how to use it, and yet I own a lot of DVDs. (In fact, I purchased many of those DVDs because vidders made the show or movie look interesting.) If I want to make a vid about particular source material, I buy that source material; if it comes out in multiple editions, I

may end up buying it multiple times. And when I make and release a vid, I am implicitly (and often explicitly) encouraging other people to buy the source material.

At the 2009 DMCA hearings, I watched with great interest the MPAA's demonstration of their proposed method of capturing digital source and was frustrated by its utter impracticability. The problem with camcording a giant TV in a completely dark room is not simply that it's inconvenient or that the resulting files would necessarily be of inferior quality (though both those things are true); the problem is that it's physically impossible because of the size of my living room and the location of my windows and the streetlights on my block. In other words, camcording has adverse effects in that *I can't do it*. I spend a lot of money on vidding, but I'm not buying a new house for it. Restricting my ability to circumvent encryption effectively criminalizes my creative process and limits my ability to comment on cultural texts.

Appendix O

Statement of Jane Tolmie

Associate Professor of Gender and Cultural Studies,
Cross-Appointed to English

November 28, 2011

I write in support of a circumvention mechanism for access to copyrighted material in the specific case of remixes and related forms of popular critique, including fan-vidding. Juxtaposition and close-reading are exceptional tools for political critique, and in my professional view as a professor of gender and cultural studies at a major research university, practices such as vidding are forms of creative expression with high educational value. They do not represent financial threats nor do they restrict the freedoms of other creative artists. Quite the contrary, they are forms of productive dialogue both around and within popular culture.

Perhaps some specific examples from my own teaching may be of assistance here. The current generation of undergraduate, and even graduate, students has been continuously exposed to visual media from birth. The ability to form and express critical opinions via visual media is thus an essential skill. Exposure to vids has been of immense value in teaching this skill, in particular in my 250-student lecture on gender, race and popular culture. Exposure to a particular fanvid based on Joss Whedon's *Firefly* series taught the class about the unreflexive white privilege involved in producing a show in which the main characters all speak Chinese but there are no Asian actors. Exposure to a fanvid on the rebooted *Star Trek* franchise taught the students that the action movie, no matter how 'futuristic,' is still considered primarily a theatre for men. These lessons were all the more effective for being delivered as miniature and coherent visual spectacles, with the scenes and actions of *the shows themselves* being deployed to convey the key lessons. The fanvidding community, in my experience, is unusually sensitive to issues of gender-based prejudice, ableism, racism and other forms of disenfranchisement broadly evident in popular media.

Timely, legal and high-quality access to copyrighted materials is necessary to the production of this sort of work, and I urge that it be considered what it is, a valid and legitimate mode of critical analysis. Academic criticism is becoming increasingly aware of this mode of critical analysis, with recent academic papers on this subject appearing in journals such as *Studies in Culture and Communication*.