

## **Who Posts DeCSS and Why? : A Content Analysis of Political Speech on Websites Posting DeCSS**

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Why do website authors continue to post the DVD ripping software known as DeCSS given its prohibited status in the United States and many other nations? This article describes a content analysis of DeCSS posting websites in 2000 and 2003. In the analysis we sought to determine what arguments website authors used to justify or explain their posting of DeCSS, and to what degree the website authors referenced the Free/Open source software community, which was closely linked to the creation of DeCSS. Our results were surprising. First we found that most web authors didn't explain why they posted DeCSS. Many authors simply posted the DeCSS code with no accompanying introductory or explanatory text. Second, we found that the most used arguments drew on values from the Free/Open Source software community, or anti-corporate and anti-globalization themes. Third, we found that most web authors posting DeCSS referenced the Free/Open Source software movement. This data suggest that protest speech on popular DeCSS posting websites is largely dominated by values and ideas from the Free/Open Source software community.

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## Posting DeCSS

Abstract:

Why do website authors continue to post the DVD ripping software known as DeCSS given its prohibited status in the United States and many other nations? This article describes a content analysis of DeCSS posting websites in 2000 and 2003. In the analysis we sought to determine what arguments website authors used to justify or explain their posting of DeCSS, and to what degree the website authors referenced the Free/Open source software community, which was closely linked to the creation of DeCSS. Our results were surprising. First we found that most web authors didn't explain why they posted DeCSS. Many authors simply posted the DeCSS code with no accompanying introductory or explanatory text. Second, we found that the most used arguments drew on values from the Free/Open Source software community, or anti-corporate and anti-globalization themes. Third, we found that most web authors posting DeCSS referenced the Free/Open Source software movement. This data suggest that protest speech on popular DeCSS posting websites is largely dominated by values and ideas from the Free/Open Source software community.

## Introduction

The last decade has seen an increase in the use of the digital media for intellectual works. At the same time, consumers have increasingly used computer technology that can make exact copies of digital works. Indeed, as a technical matter, the mere use of a digital work typically requires that a computer make a temporary copy of it (Litman, 2001). Along with this increased copying of works, the growth of broadband networks such as the Internet has facilitated transmission of digital materials from computer to computer.

Concerned about the increased possibilities for unauthorized copying and trading of digital works, representatives of large copyright owners such as the Motion Picture Association of America (MPAA) and the Recording Industry Association of America (RIAA) lobbied Congress to change U.S. copyright law to increase the power of copyright holders to control how users make use of purchased digital materials (Litman, 2001; Maxwell, 2004).

Due to the prevalence of digital media in everyday life, changes in copyright law and copyright protection technologies for digital media have the potential to impact many consumers (Subcommittee on Courts, 2002). Many claim these changes favor copyright owners at the expense of consumers (Lipinski, 2003), and that these changes will generate negative societal effects -- stunting creativity and the production of new intellectual works (Lessig, 2002; Vaidhyathan, 2001; Boynton, 2004).

Some have suggested that in order to avoid these problems, there needs to be a social movement to roll back changes to copyright law (Boynton, 2004; Tennant, 2001; Vaidhyanathan, 2004). Indeed, numerous copyright related public interest groups have formed in recent years (e.g., [www.digitalconsumer.org](http://www.digitalconsumer.org), [www.publicknowledge.org](http://www.publicknowledge.org), [www.ipjustice.org](http://www.ipjustice.org), [www.downhillbattle.org](http://www.downhillbattle.org)), and existing groups or individuals have created a number of on-line publications devoted largely to copyright issues (e.g., [www.copyright.org](http://www.copyright.org), [www.info-commons.org](http://www.info-commons.org)). Further, recent months have seen numerous clashes between consumers and copyright owners (e.g., the Grey Tuesday Danger Mouse Grey Album protest (Dean, 2004; Werde, 2004), and grassroots mirroring of Diebold Election Systems memos (Zetter, 2003). While the literature contains extensive analysis and critiques of copyright law and copyright protection tools, little empirical research has investigated public reaction to changes in copyright law or imposition of copyright protection tools.<sup>i</sup> We have little empirical data about what actions, if any, consumers or advocacy groups are taking to resist changes proposed or instituted by copyright interests.

In this paper we begin to fill this research gap by examining grassroots Internet posting of prohibited software known as “DeCSS.” DeCSS was created in 1999 by a group of European hackers, purportedly to allow Free/Open Source computer users to play DVDs without resorting to use of a Windows-based computer (Bing, 2003; Williams, 2000). As part of this functionality, DeCSS breaks the protective encryption on DVDs, permitting DVD owners to copy the DVD, and allowing them to make freer use of the DVD (e.g., skipping commercials or making screen shots).

DeCSS is part of a larger class of tools known as “circumvention devices” that allow users to bypass copyright protection tools known as “digital rights management systems” built into digital works to control access to, and copying of, the work. Currently, distribution (including Internet posting) of circumvention devices such as DeCSS is subject to civil prosecution and penalties within the United States and many other nations. Yet, past research has shown that web authors continue to post DeCSS, and that in the time since a U.S. court found DeCSS posting to be in violation of the law, DeCSS posting has only somewhat declined (ED 2004). Web authors continue to post DeCSS, in spite of the risk of civil penalties, and despite the availability of more advanced DVD players for F/OS computer operating systems (Phillips, 2003).

In order to understand why authors continue to post DeCSS, we conducted a content analysis of speech contained on two samples of DeCSS posting websites over a two-year period. In our analysis we

sought to identify the arguments used to explain or justify posting of the illegal software, and we tried to determine information about the Web authors posting DeCSS – particularly the extent to which the authors referenced the F/OS software community or F/OS software<sup>ii</sup>.

## **Research Questions**

The study had two main research questions:

RQ1: What arguments do DeCSS posters use to justify or explain their posting of DeCSS?

RQ2: To what extent do the DeCSS posters refer to the F/OS community or F/OS software?

We began our analysis for this paper with certain expectations. In an earlier publication we argued that posting DeCSS might be a form of e-civil disobedience (ED, 2004). Given this, we expected that web authors would include arguments justifying or explaining why they posted DeCSS in order to persuade or engage others. Second, because DVD court cases have received extensive coverage in the popular, professional, and academic presses, we expected that the arguments used on DeCSS posting websites would reflect the arguments used in the press. Further, because DeCSS was created to facilitate playing DVDs on computers running F/OS operating systems, we expected that many DeCSS posters would reference F/OS software or the F/OS community; and, we expected that the arguments used by the DeCSS posters would reflect the values of the F/OS software community.

In order to test these expectations, we examined the text on a sample of DeCSS posting websites. Surprisingly we found that most websites did not contain any arguments; in fact, many contained no text at all related to DeCSS beyond a link to download DeCSS. Of the websites contained arguments, we found that most websites employed arguments that drew on values or ideas expressed by F/OS community. Other popular arguments included anti-corporate and anti-legal system themes. Arguments making explicit reference to fair use or first sale rights appeared on fewer websites. Further, we found that a large percentage of website authors identified themselves as F/OS users. An even larger percentage referenced F/OS software or the F/OS community. Few authors made no reference to F/OS.

This article continues with a brief background about circumvention devices in general and DeCSS in particular. It then describes prominent arguments against prohibition of circumvention devices (like DeCSS) from the scholarly and professional literatures, and it provides a brief introduction to the significance of DeCSS to the F/OS community. The third section describes the methodology. The fourth section summarizes the results, describing the amount of text contained on the websites, what

arguments authors used to explain or justify DeCSS posting, and to what degree web authors made reference to F/OS software or the F/OS community. The fifth section discusses the implications of the findings including the lack of arguments on many of the DeCSS posting websites and the seemingly close association between DeCSS posting and the F/OS community.

## **DeCSS and Digital Rights Management**

To discourage unauthorized access to and copying of digital copyrighted works such as DVDs, copyright owners began to use technological “locks” known as “digital rights management” (DRM) technologies. The law distinguishes between two different types of locks: those that control access and use of the underlying work and those that control copying of the work. These locks, however, can be “picked” by software-based “keys.” The law refers to these keys as “circumvention devices.”

Viewing the protection of DRM locks as necessary to induce copyright owners to make their works available in a digital format, Congress passed the Digital Millennium Copyright Act (DMCA). In what are known as the anti-trafficking provisions, the DMCA prohibits the distribution of circumvention devices.<sup>iii</sup> It is expected that more countries will enact laws similar to the DMCA’s anti-trafficking provisions to comply with both the World Intellectual Property Organization (WIPO) Internet treaties and bilateral trade agreements with the U.S.

The DRM protecting DVDs produced by the major motion picture studios is a proprietary encryption scheme known as “CSS.” In late 1999 a group of European hackers released a program on the Internet that cracked CSS. Known as DeCSS, the program literally “de-CSSed” DVDs. Many websites made mirror copies of the program or linked to other websites posting the program. One web author to do so was Eric Corley, the primary operator of a well-known hacker magazine website located at <http://www.2600.com>. In early 2000, a number of movie studios brought suit against Corley and other website operators for posting and linking to DeCSS under the DMCA’s anti-trafficking provisions. In August of that year, the court issued its final judgment in the case (*Corley*), holding that distributing DeCSS was a violation of the anti-trafficking provisions of the DMCA and prohibited the defendants from both posting DeCSS and linking to other websites where DeCSS could be downloaded (111 F. Supp. 2d 294 [2000]).

## **Critiques of DRM**

The *Corley* case sparked controversy about the prohibition of DeCSS. This controversy drew on broader critiques of DRM and the DMCA present in the scholarly and popular literature. In this section, we review the most prominent criticisms. These arguments formed one basis for our content analysis codebook.

### *Fair Use*

The original American conception of copyright is based on the idea that copyright should promote the generation of more intellectual works. In this view, some unauthorized or “fair use” copying is desirable for promoting creativity and innovation (Vaidhyathan, 2001); and, the law should balance protection and fair use in order to promote the arts and sciences. But critics charge that DRM block fair use of protected material (Litman, 2001; Lipinski, 2003; Neal, 2002; Felten, 2003).<sup>iv</sup> Critics argue that such restrictions will have negative cultural effects, stunting creativity and cultural innovation (Lessig, 2002; Boynton, 2004)

### *First Sale*

DRM facilitate stronger control over access and use of works than previously possible with analog materials (Lipinski, 2003). The physical properties of paper limit the usage restrictions that copyright owners can place on distributed copies of their works (Neal, 2002). Thus the law recognizes what is known as the “first sale” or “exhaustion” principle, which permits the owner of a copy of a work to display, lend or resell that particular copy. Critics charge that DRM technologies, in combination with restrictive licensing practices, prevent traditional first sale uses. Some further charge that copyright interests seek to change consumers’ expectations about what types of rights come with purchase of a copyrighted work – moving consumers to a pay-per-use distribution model where purchase of a work no longer includes unlimited use (Samuelson, 2003).

### *Free Speech and Innovation*

Many computer scientists argue that computer code, including circumvention devices, are a form of speech protected by the First Amendment and, as such, should not be regulated by the government (Touretzky, 2001). Opponents charge that the circumvention device prohibition will stifle professional and scientific communications about DRM related software such as encryption and watermarking

(Grove, 2003; Stallman, 2002; Lessig, 2002). Other further charge that the chilling of this speech could harm innovation within the software industry and software research (Felten, 2003).

#### *Price Discrimination and Unfair Licensing*

Critics also charge that prohibition of circumvention devices supports price discrimination. DVDs contain region codes which restrict access to the work to DVD players sold in particular regions of the world by requiring a match between the region code on the DVD and the region code embedded in a DVD player. These region codes allow copyright holders to control what works are released where in the world and how they are priced (Meurer, 2001).

Critics also argue that prohibition of circumvention devices enforces copyright holders' monopoly on DVD player licenses. Manufacturers of DVD players who desire their machines to legally play encrypted DVDs must pay a license fee to movie copyright holders (Samuelson, 2003; Simons, 1999). These critics see DRM and region codes as part of a larger business strategy to control global flows of information and establish a regime of compulsory licensing of media players to benefit the copyright interests.

#### **DeCSS and the Free/Open Source Software Community**

DeCSS has been associated with the F/OS community from its birth. Jon Johansen and others have argued that DeCSS was created so that users could view legally purchased DVDs on a computer using the Linux operating system (Bing, 2003).<sup>v</sup> At the time, no licensed DVD players for Linux or other F/OS operating systems existed. As a Linux Magazine author explained, “the primary motivation behind the...DeCSS hack was to give...open source software users the ability to play their lawfully purchased DVDs without resorting to a Windows-powered machine” (Williams, 2000).

But the DeCSS controversy can be seen as a clash between certain values of the F/OS community and regimes of increasing copyright protection enforced by a proprietary software tool, CSS. Further, the broader anti-circumvention debates surrounding DeCSS threatened aspects of the F/OS community. These values and threats formed another basis for the codes we created for content analysis.

### *Value 1: Right to Tinker*

F/OS software differs from traditional software in that it places fewer restrictions on the actions of users than closed commercial software. F/OS users can view, change, and redistribute code without penalty (Raymond, 2000); and the F/OS community places value on the freedom to access and manipulate legally obtained code in order to improve on the works of others and reverse engineer programs to interoperate with F/OS platforms (Pavlicek, 2000). But DRM block users' access to code and ability to legally tinker (Felten, 2003).

### *Value 2: Public Vetting of Code*

Traditionally F/OS software is developed in an open environment where any developer can comment on the work of others (Pavlicek, 2000). This is seen as an important process to ensure the quality of the software (Moody, 2001; Pavlicek, 2000; Raymond, 2000). But CSS was developed in secret by a group of commercial programmers, and users were not invited to test it or make suggestions to improve its effectiveness. Consequently, many criticize CSS as ill-designed software (Simons, 1999; Touretzky, 2001).

### *Threat 1: Portraying DeCSS as a Piracy Tool*

Since its inception, copyright interests have charged that DeCSS is a piracy tool (Motion Picture Association of America, 2000). This charge conflicts with the F/OS view of hacking as legitimate activity, and of DeCSS as a legitimate tool to play legally purchased DVDs on computers with F/OS operating systems.

F/OS enthusiasts draw a clear distinction between themselves and “crackers” or “pirates” (Raymond, 2000). For example, a Slashdot user noted, “those of us wanting to watch DVD under Linux do not, for the most part, have any interest in pirating DVDs... By alienating [F/OS] users you people in the film industry have alienated some of the most technically savvy folks in the world -- the very demographic group most likely to embrace an emerging technology such as DVD, and a by and large well paid group with lots of disposable income to spend on your product. Nice shooting, Tex.” (FreeUser, 1999).

From a broader view the portrayal of DeCSS as a piracy tool can be seen as an attempt by copyright owners to frame the debates about circumvention devices -- labeling them as “piracy tools,” and drawing attention away from their potential legitimate uses (Samuelson, 2003).

### *Threat 2: Blocking Reverse Engineering for Interoperability*

Some are concerned that DRM, and their effective prohibition of reverse engineering, could stymie further development of F/OS software (Samuelson, 2002; Simons, 1999; Subcommittee on Courts, 2002). Under certain conditions, examination of software code to develop compatible programs is protected under fair use (Behrens & Levary, 1998; Samuelson, 2002). But the legal restrictions on access to code enforced by DRM can block legal reverse engineering intended to achieve interoperability with F/OS platforms (Samuelson, 2003).

### *Threat 3: Excluding F/OS From Proprietary Innovations*

Further, some see DeCSS, and the broader circumvention debate, as part of a move by copyright interests to exclude F/OS systems from future software and entertainment media innovations. As Linux Magazine noted, “the current DVD impasse must be resolved in a way that prevents future industry groups from boxing out the Linux platform” (Williams, 2000). This fear of exclusion has been reinforced by Microsoft plans to create trusted computing systems that may refuse to interact with F/OS software (McMillan, 2003).

## **Methods**

### *Study Design and Sampling*

The study employed a content analysis methodology which examined three elements of DeCSS posting websites: the characteristics of the text on the websites (including the message size and meaning), the relationship between the text and the website author (in terms of country of origin and relation to the F/OS community), and the degree to which the websites changed over time either in terms of meaning, size, or sender characteristics (Neuendorf, 2002).

Our sampling frame of DeCSS websites was drawn from a query on the Alta Vista search engine. Because it stems from a search engine, the sample represents popular websites, or websites that web users are likely to locate and use (Weare & Lin, 2000). We created the samples by running queries using the terms “DeCSS” and “DECSS” during consecutive two day periods in January 2001 and then again in March 2003.

The two sample dates were chosen to capture potential variation in protest activity. The January 2001 time period represents a potential high point in DeCSS protesting – the judge in the *Corley* case had issued an injunction prohibiting linking to or posting DeCSS, but the decision was under appeal. The March 2003 time represents a post-trial measure, where presumably protest would have subsided. By this point, the case was over, and *Corley* had become established legal precedent within the U.S.<sup>vi</sup>

We used a specialized type of query known as a URL search so as to better understand how our query strategy affected our results. A URL query searches the Alta Vista index for pages that contain the term “DeCSS” somewhere in the html file name. We specified English-only pages in order to ensure we could read and analyze the text on the website.

Our first search result generated 132 web pages and our second search result generated 200 web pages. In order to ensure that each of the websites in our sample posted DeCSS, we manually reviewed each page. We discarded pages with the following characteristics: duplicates, news stories about DeCSS that did not post DeCSS, any listserv postings, index pages or search engines that provided access to a broad range of topics, DeCSS court documents, password restricted pages, pages that provided a link to the code on a different host website, and pages in which the file download function no longer worked.

Most of the web pages in our results were parts of larger websites. In order to ensure that we captured all parts of the website that discussed DeCSS, we explored up and down the file structure of the websites.

We captured 28 unique websites from January 2001 and 23 unique websites from March 2003. Seven websites were repeated in both samples, but the content on some of these changed between the two sampling dates. The study team made paper copies of all websites and all analysis drew on the printed versions.

Our sampling unit was websites, but our unit of analysis was text contained on websites related to DeCSS (Krippendorf, 1980; Weber, 1990). We defined the website as all web pages that appeared to be written by the primary website author, and that appeared under the domain name generated by the search result (Weare & Lin, 2000).<sup>vii</sup>

We defined DeCSS related text as text and images related to DeCSS, the *Corley* case, copyright, DRM, F/OS, and circumvention. We analyzed all DeCSS text on all websites in the sample.

To measure the size of speech, we used the Atlas-TI qualitative data analysis program to generate a word count for the DeCSS text on each website. To identify the meaning of speech we compared the text on the websites with arguments from a pre-defined codebook (described below) to identify arguments used. To generate information about the website author, we used a traceroute program, in addition to content analysis of the website, to determine the country in which the author or author's website was located. To determine to what extent the author referenced the F/OS community, we compared the website text to a set of criteria defining types of F/OS references (see Table 2 next section).

*Codebook Development, Coder Training and Data Collection*

We developed our codebook of arguments in three stages. The first author undertook a review of the scholarly literature related to DeCSS and DRM to identify arguments. Second, the first and second author reviewed a sub-set of the websites and identified additional arguments. The third author, who has expertise in copyright law, then reviewed the draft codebook to suggest clarifications to the codes. Codebook development involved several rounds of commentary, revision, and pretesting.

The first and second author pilot coded a further sub-set of the data with the final codebook to assess the reliability of the codes. The percent agreement measure (number of agreements divided by total number of measures) was used to assess intercoder reliability (ICR). The pilot coding produced an ICR score of 100%, suggesting that we had engaged in sufficient code definition and training to code the full data. Table 1 summarizes the codebook.<sup>viii</sup>

Table 1. Summary of Codebook Definitions Used in the Study

<b>Code or Argument</b>	<b>Summary Definition</b>
1. Viewer of Choice	Consumers lawfully purchasing DVDs have the right to -- or that corporations/copyright interests are attempting to restrict consumers rights to -- play the DVD on a machine running the operating system of their choice (e.g., a F/OS operating system such as Linux, FreeBSD, etc.).
2. Skip Commercials	Consumers lawfully purchasing DVDs have the right to -- or that corporations/copyright interests are attempting to restrict consumers' rights to -- skip the commercials in a DVD.
3. Play Foreign DVDs	Consumers lawfully purchasing DVDs have the right to -- or that corporations/copyright interests are attempting to restrict consumers rights to -- buy

DVDs	DVDs from a foreign country and play them on their home viewer (thus bypassing region codes).
4. Make Back Up Copy	DeCSS allows DVD owners to rightfully make a copy of their lawfully purchased DVD.
5. Price/Release Date Discrimination	CSS encryption or region controls on a DVD lead to inflated prices for DVDs and long wait times for movie releases, or corporations purposefully use CSS encryption and region controls to enforce high prices for DVDs and control what movies are released in different areas of the world.
6. Corporations are Bad (Other)	Corporations/copyright interests are bad for some reason other than those outlined in other codes, OR the website argues that corporations/copyright interests are bad, but does not give a reason why they are bad. This includes appeals to undefined rights.
7. Fair Use	CSS or the protection on DVDs erodes traditional fair use rights. Prohibition of DeCSS erodes fair use rights. Existence of DeCSS helps retain fair use rights. May or may not use the term “fair use.”
9. First Sale	CSS or the protection on DVDs erodes traditional first sale rights. Prohibition of DeCSS erodes first sale rights. Existence of DeCSS helps retain first sale rights. May or may not use the term “first sale,” OR argues that corporations/copyright interests want to move consumers to a pay per view distribution model.
10. Free Speech	Prohibition of circumvention devices challenges rights to free speech. May or may not use the term “free speech.”
11. Reverse Engineering/ Tinkering	Reverse engineering is legal and therefore the hacking of CSS or region codes should not be prohibited.
12. Innovation	Prohibition of circumvention devices will stifle innovation and research in software development.
13. Current Copyright Law is Bad	The ideals of copyright law have been warped to fit corporate goals. Current copyright law is bad, or unjust, or will have negative effects.
14. Piracy Occurs Without DeCSS	DeCSS does not promote or cause piracy. Most piracy occurs without DeCSS.
15. Scare Tactics – Abuse of Legal System	Corporations/copyright interests are trying to intimidate people by using or misusing the law including cease and desist orders and bringing lawsuits.

The first and second author performed content analysis on each of the paper copies of the websites generated during data collection (McMillan, 2000). We measured whether or not each website contained each of the arguments in our codebook by scoring the page a “1” to indicate the presence of the argument and “0” to indicate absence of the argument (Neuendorf, 2002). The analysis produced an overall ICR of 95.6% for the first sample and an ICR of 96% for the second sample. In both samples,

all individual arguments had ICR scores above 85%, indicating acceptable levels of reliability (Neuendorf, 2002).

In order to determine to what extent the author referenced the F/OS community, we examined the websites to see to what extent they contained indicators signaling references to, or affiliation with, the F/OS community (see Table 2). We developed these indicators through informal interviews with F/OS users.

Table 2: Web Author’s Reference to F/OS

F/OS Reference	Indicators
Level 0	Website contains a Windows form of DeCSS (.zip, .exe) <sup>ix</sup> OR requires use of Unix CAT command to display embedded file, OR displays code written in C, OR displays source code with no platform indications.
Level 1	Website includes files using a F/OS compression utility (gzip, .gz, .tgz, .bz, .bzip, .bz2), OR links to groups associated with development of a F/OS DVD player (e.g., LiViD, OpenDVD.org).
Level 2	Website author indicates usage of Linux, Free BSD or other Free/Open Source software, OR includes graphical icons of the Linux penguin, OR includes files for Linux distributions (e.g., .deb and .rpm).

As indicated in Table 2 Level 0 websites made no explicit reference to F/OS – though the website authors may have been F/OS users. Level 1 websites made reference to F/OS software or projects in the F/OS community; however it is not clear whether or not the authors were F/OS users. Level 2 websites contained references to F/OS and fairly clear indicators that the author was a F/OS user.

## Results

We analyzed the data in terms of amount of speech, arguments used in the speech, sender characteristics, and changes in the data over time. To track changes over time, we compared the results of the January 2001 sample of 28 websites with the results of an equivalent March 2003 sample of 23 websites.

*Finding 1: A Lack of Speech and Lack of Arguments*

One surprising result was the lack of DeCSS related text and small number of arguments on most websites. Data from both samples show that many web authors did not include any DeCSS text, and when they did, it typically did not include arguments about why they posted DeCSS. In the first sample, 8 sites did not contain any DeCSS text and in the second sample 9 sites contained no text. Of the sites that contained text, most contained very little. Thirteen sites in the first sample and 8 in the second sample contained less than 200 words of DeCSS related text. The mode number of words of DeCSS speech was between 1 and 200 words (see Table 3) for the first sample and 0 words for the second sample.

Most of these low speech sites contained only short introductory text about DeCSS – which, in many cases, did not include any arguments as defined in the codebook (e.g., “Here you can download the famous DeCSS”). For example, 15 of the sites in our first sample and 13 of the sites in the second sample contained no arguments.

Much of the DeCSS text in both samples was contained on a small number of websites with high word counts. As depicted in Table 3, in the January 2001 sample, one site had between 1,600 and 1,800 words and two had over 2000 words of DeCSS speech. In March 2003, three sites had over 2,000 words. The largest websites appeared in both samples. The two largest sites included Dr. David Touretzky’s “Gallery of DeCSS Descramblers,” and “www.lemuria.org,” which is hosted in Germany. The other sites with high word counts typically contained long lists of mirror sites, or links to articles about the court case. The two largest sites also contained more arguments than the smaller sites. For example, we found that in the first sample, Touretzky’s site contained 9 of our arguments and Lemuria contained 11 of our arguments. Most other websites contained between 0 and 4 arguments per site.

Table 3: Number of Words of DeCSS speech per Website

<b>Number of Words of DeCSS speech</b>	<b>January 2001: Number of Websites (N= 28)</b>	<b>March 2003: Number of Websites (N= 23)</b>
0	8	9
<200	13	8
<400	3	2
<600	1	1
<800	-	-
<1,000	-	-

<1,200	-	-
<1,400	-	-
<1,600	-	-
<1,800	1	-
<2,000	-	-
> 2,000	2	3

*Finding 2: Popular Arguments Over Time*

Table 4 shows the most popular arguments for each sample date. “Viewer of Choice,” “Scare Tactics – Abuse of Legal System,” and “Piracy Occurs Without DeCSS” were used most often in both samples. Use of “Current Copyright Law is Bad” and “Corporations are Bad” dropped slightly from 2001 to 2003. Beyond this, we did not observe many changes in argument use between the two sampling dates. Usage of other arguments, such as “Free Speech” and “Reverse Engineering” remained steady over the study period, but the arguments were not used as frequently as the previously mentioned arguments. Legal arguments such as “Fair Use” and “First Sale” were not used as often.

Table 4: Arguments and the Number of Different Websites They Appeared In

<b>Argument Code</b>	<b>Number of Websites Code Appears In From January 2001 Sample</b>	<b>Number of Websites Code Appears In From March 2003 Sample</b>
Viewer of Choice	6	6
Current Copyright Law is Bad	6	4
Scare Tactics – Abuse of Legal System	6	5
Corporations are Bad (Other)	5	3
Piracy Occurs Without DeCSS	5	5
Reverse Engineering/Tinkering	4	4
Free Speech	4	4
Fair Use	3	2
Play Foreign DVDs	3	3
Price/Release Date Discrimination	2	3
Innovation	1	1
First Sale	1	0
Make Back Up Copy	1	2

Skip Commercials	1	3
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*Finding 3: Sender Characteristics: Do Only Linux Users Care?*

For each website in both samples, we analyzed the text to see if the author had provided information about their geographical location (many did). If they did not, we ran a traceroute to determine the location of the host server. Table 5 indicates that in both samples, a substantial number of the English language websites were hosted outside of the United States; further, many were hosted in non-English speaking nations.

Table 5: Geographical Location of DeCSS Posters

<b>Nations</b>	<b>January 2001: Number of Websites (N=28)</b>	<b>March 2001: Number of Websites (N=23)</b>
USA	16	12
Netherlands	3	2
Germany	2	2
United Kingdom	2	1
Czech Republic	2	0
Canada	1	1
Australia	1	1
Russia	1	1
Mexico	0	1
Sweden	0	1
Israel	0	1

We also analyzed each site to see if it contained references to the F/OS community or F/OS software. Table 6 shows that for both samples, most sites had a level 1 association with F/OS. The percent of sites with a Level 2 references with F/OS grew between the first and second samples, for both U.S. and non-U.S. authors. The percentage of level 1 sites dropped from the first to the second sample, for both U.S. and non-U.S. authors. But the percent of level 0 references in U.S. sites grew between the first and second sample, but the raw number of level 0 sites remained the same.

Table 6: Number of Websites Containing F/OS Indicators

<i>Reference to Free/Open Source (F/OS) Software</i>	<i>January 2001 (N=28)</i>			<i>March 2003 (N=23)</i>		
	<b>Total (N=28)</b>	<b>US</b>	<b>Non-US</b>	<b>Total (N=23)</b>	<b>US</b>	<b>Non-US</b>
<b>Level 0: No explicit reference to F/OS</b>	4 (14%)	4 (14%)	0 (0%)	4 (17%)	4 (17%)	0 (0%)
<b>Level 1 (F/OS compression used or link to F/OS DVD advocacy group)</b>	18 (64%)	9 (32%)	9 (32%)	10 (43%)	5 (22%)	5 (22%)
<b>Level 2 (Textual reference to use of F/OS software or use of Linux penguin icon)</b>	6 (21%)	3 (11%)	3 (11%)	9 (39%)	4 (17%)	5 (22%)

## Discussion

### 1. Popular Arguments

The popularity of the “Viewer of Choice” argument is not surprising given the importance of this issue to the F/OS community and the number of DeCSS posters referencing F/OS. The popularity of the arguments “Current Copyright Law is Bad,” and “Corporations are Bad” is also not surprising given the strong negative portrayal of copyright interests in critiques of the *Corley* case and circumvention device prohibitions more generally. Further, as noted in the Introduction, the “Piracy...” argument appears prominently in the F/OS professional press.

One surprising result was the popularity of the “Scare Tactics –Abuse of Legal System” code. We developed this code during pilot testing, and it did not appear prominently in the academic/professional literature on DeCSS, or in documentation of the F/OS community reviewed for the study. Using this argument, DeCSS posters justified posting DeCSS as an act of resistance against the legal pressure put on DeCSS posters to remove their software from websites.

In some sense, it is not that surprising that this argument does not appear in the academic literature: any argument that copyright holders are abusing the legal system is, at least implicitly, premised on the view that the copyright holders either do not or should not have the underlying legal

right to force DeCSS posters to remove their posting of the software. The “Abuse of Legal System” argument is thus a secondary argument dependent on some other argument about the law. For some DeCSS posters, this tie was explicit. With the non-U.S. posters, the “Abuse of Legal System” argument was tied to assumptions about limits on the extraterritorial reach of U.S. law. Non-U.S. posters accused the (U.S. based) IP interests of overstepping jurisdictional boundaries by trying to issue legal complaints in nations in which (at the time) no anti-circumvention laws existed. As one of the European DeCSS posters expressed, “One interesting fact is that [the U.S. lawyers] even sent these threats to people whose servers were outside the USA, and thus don’t fall under US legislation! When I read about that... I decided to make this page.”

The extent to which a nation’s laws can apply to Internet postings that are hosted on foreign servers but available domestically remains one of the thorniest questions raised by the communications revolution caused by the Internet. (Post, 2002; Goldsmith, 1998) The U.S. case most directly relevant to this claim is *United States v. Elcom, Ltd.* (203 F.Supp.2d 1111, 2002), in which a U.S. court asserted jurisdiction over a Russian software company and one of its programmers based on their online sale of a software program in the United States, notwithstanding the fact that the development of the program and the servers from which it was uploaded were in Russia. Other countries, including France, Germany, and Australia, have asserted jurisdiction over extraterritorial Internet activity that has a domestic impact, (e.g., French court rulings applying French law to the sale of Nazi paraphernalia on Yahoo! (Reidenberg 2002), and an Australian court’s decisions to allow a libel suit by an Australian citizen against Barron’s website (Addis, 2004)) and such assertions of jurisdiction are generally permitted under international law. (American Law Institute, 1986) The “abuse of legal system” argument from non-U.S. posters is thus dependent on the assumption that U.S. law does not apply to the DeCSS poster because he is outside the U.S.<sup>x</sup> The non-U.S. posters may be unaware of the contours of the law in this area, but it is likely that they are implicitly protesting the application of these jurisdictional principles to their own Internet activity.

U.S. posters who use the “Scare Tactics” argument typically do not claim that U.S. law does not apply to them. Some do not even make reference to the DMCA itself. Rather, in their use of this argument, the authors focus attention on the manner of enforcement (i.e., cease and desist orders and threatened lawsuits against individual posters) by law firms representing copyright interests.

The results show that legal arguments, such as “Fair Use” and “First Sale” are employed less – even though they form the conceptual basis for many more popular arguments (e.g., “Viewer of Choice” and “Reverse Engineering”) The lower usage rates may result from the complex nature of these arguments. It may also be the case that these arguments did not help explain the website authors’ activities since they may not have intended to use DeCSS to take advantage of fair use or first sale rights.

## 2. *Is DeCSS Just a F/OS Thing?*

In general the data from this study support our expectation that many DeCSS posters would identify with or reference the F/OS community or F/OS software. Our data cannot say to what extent most DeCSS posters are F/OS users. Informal interview and focus groups with F/OS users suggest that level 2 authors were most likely F/OS users, and that many level 1 authors are likely F/OS users. Follow up interviews with a sub-sample of level 1 authors suggests that many are F/OS users.

The prominence of F/OS users in the data raises the question of how important DeCSS is to non-F/OS users as a political issue. If, as the data suggest, many DeCSS posters are F/OS users, how important is DeCSS to the non-F/OS community? While data show that a sizable (and possibly growing) portion of U.S. based sites in each sample did not show evidence of F/OS usage (level 0), it is difficult to draw any conclusions about the beliefs of the Website authors with no F/OS identification, because in most cases these authors did not include any arguments on their websites. Direct contact with the web authors is needed to determine their motivations for DeCSS posting and to what degree they identify with or use F/OS software.

A related limitation of our findings is that we only analyzed sites that *posted* DeCSS. One needs a certain amount of technical expertise to make software available for downloading over the Internet; thus, our study excluded more Internet users whose skills may be more limited. Yet these users may be equally concerned about the issues surrounding DeCSS and lacking the technical know-how, these individuals might protest by linking to DeCSS on a secondary site. More data collection is needed to determine if people who protest by linking to DeCSS resources on secondary sites represent a broader spectrum of the population (i.e., do not identify with F/OS). But analysis of the few link-only sites captured in our data collection suggests that DeCSS linkers also identify with or refer to F/OS. Our data collection captured 5 link-only sites, all of which included F/OS references.

Not all of the arguments used however drew on F/OS values or ideas. Many of the arguments used by posters were oriented to general DVD consumers (e.g., arguments such as “Corporations are Bad,” “Current Copyright Law is Bad,” “Play Foreign DVDs,” and “Price/Release Date Discrimination”). Similarly, legal arguments such as “fair use,” “free speech,” and “first sale” are not exclusive to F/OS (although some – like free speech -- may be largely exclusive to people concerned with computer programming).

In sum, data from this study suggest that a significant portion of DeCSS posters refer to the F/OS community or F/OS software. While our data cannot say whether or not the web authors are F/OS users, data suggest that many identify with and reference F/OS. Further, many of the most used arguments draw on ideas or values from the F/OS community.

### *3. DeCSS Posting as Political Speech?*

In an earlier publication, we suggested that DeCSS posting is a form of political speech or civil disobedience (ED, 2004). If that is the case, then one might expect that web authors would post DeCSS in ways that would engage audiences in the larger debates surrounding DeCSS – for example by including arguments justifying or explaining why DeCSS should not be prohibited.

But web authors may post DeCSS for non-political speech reasons; for example, they may post DeCSS because breaking the law provides a thrill; or, they may post DeCSS because they want to promote DVD piracy. Arguably, these authors would have less motivation to include text justifying or explaining their posting of DeCSS.

But data show that the vast majority of DeCSS posters included only very small amounts of text related to DeCSS and even fewer formal arguments justifying or explaining their actions. Many websites provide not explanation for why the author posted DeCSS.

#### *Posting as Rhetorical Fragments*

Does the lack of text and arguments mean that most of our DeCSS posters were thrill seekers or piracy promoters? We argue that the fact that they did not post text or arguments about DeCSS does not mean that they did not post DeCSS for political reasons. One explanation for the lack of arguments is that we defined the concept of “arguments” too narrowly. We observed four types of websites in our sample:

- 1) **File names only.** These websites offered file name links to download the DeCSS code with no additional speech. The label used in the link was the name of some form of DeCSS (e.g., “[decss.exe](#)” or “[css-auth.tar.gz](#)”)
- 2) **Links with annotations.** These websites similarly offered links to download DeCSS, but included with some short explanatory comments. (e.g., “[decss.exe](#) – download the famous DeCSS code”)
- 3) **Sentences of text.** These websites included additional DeCSS speech – but not necessarily in the form of formal arguments. In many cases, substantial inference was necessary to interpret what arguments existed. For example, to understand the phrase “Help 2600 in their struggles against ‘the powers that be’ – get the word out” we had to infer that the ‘powers that be’ referred to the parties suing 2600.
- 4) **Formal Syllogisms.** These websites included substantial DeCSS speech in well-formulated arguments in which one could trace a formal syllogism.

In this study, we took as a starting assumption that only types 3 and 4 constituted arguments. Yet theorizing from the communications and rhetoric fields suggest that types 1 and 2 should also qualify as arguments. That is, even a file name -- posted alone – could qualify as an argument or “discourse.”

Rhetorical analysis argues that contemporary discourse proceeds primarily in “fragments” or pieces of discourse that rely on a shared contextual understanding of one or more broader discourses for their meaning (McGee, 1990). For example, interpretation of a short phrase on a political bumper sticker may require extensive background understanding of the policy under dispute and previous bumper stickers protesting or supporting that policy (Bloch, 2000).

Theorists argue that the appearance of a fragment both refers to and derives its meaning from a shared understanding of a “public sphere” of discourse (Habermas, 1974; Zulick, 1997). From this perspective, even the act of placing an unannotated link to DeCSS on a website can refer to and evoke arguments for DeCSS by referring to the overall discursive field or sphere of public deliberation about the software. This argument however, assumes that the web site audience is familiar with the discourse and recognizes the posting as political speech. This raises the possibility that a type 1 or 2 web site (from the typology above) might be political speech in some circumstances but not political speech in other circumstances. For instance, what if someone unfamiliar with the discourse visits the website? Is

the link still political speech? These data raise interesting questions about the nature of links, website author intent, and political speech that deserve further attention, but are beyond the scope of this paper.

#### *Not all Speech is Protected*

From a legal perspective, characterizing websites types 1 and 2 as political speech is unlikely to make a difference. While recognition of a downloadable file label as “political speech” might grant DeCSS posters some moral support, it does not necessarily mean that DeCSS posters would enjoy any legal protection. The courts already recognize that software is “speech” in the abstract, and yet they remain divided on the legal implications of such a characterization. (Tien, 2000; Post, 2002) In fact, the *Corley* case found that software code such as DeCSS was “speech” for First Amendment purposes, but nonetheless found no constitutional problem with applying the anti-circumvention provisions to the posting of DeCSS because of DeCSS’s functional attributes.<sup>xi</sup>

Therefore, even if all parties agreed that DeCSS posting without substantial text or arguments (e.g., website types 1 and 2 above) could qualify as “political speech” at an abstract level, that qualification would not guarantee First Amendment protection, because protesters whose actions would clearly be characterized as political speech are not immune from legal penalties. For example, an opponent of the anti-circumvention provisions who spray-painted a city bus with the words “Down with the DMCA!” could still be prosecuted under a criminal law prohibiting defacement of public property. Such a case would not even raise a First Amendment question (Post, 1995). This would be true notwithstanding the fact that the words are clearly part of a larger discourse of protest. In short, characterizing a file name hyperlink as “speech” does not automatically mean it is protected speech for the First Amendment purposes.

#### *4. Other Limitations and Next Steps*

The findings from this study are limited by the methodology used to develop the sampling frame. The Alta Vista search engine includes sites in its index based on their popularity (measured in terms of incoming links and other criteria).<sup>xiii</sup> Our sample is therefore most representative of popular web pages, or those pages most likely to be returned in search engine query results and thus be visited by Internet users. Further, Internet search engine samples are not considered complete, as their indexes do not contain all existing websites. In addition, the results are subject to unknown biases built into the proprietary indexing strategies and code that controls search engine spiders (Weare & Lin, 2000).

Further, our sampling frame was limited to English language websites. Selecting only websites whose authors speak English may have biased our sample if other arguments may be more popular among non-English speakers. Perhaps English language web authors pick up some arguments from the English language press that other web authors (e.g. Chinese speaking) may not be exposed to. Or perhaps some arguments are only relevant in certain cultural or legal contexts. We are currently collecting data on non-English language websites posting DeCSS to examine to what degree they use similar or different arguments.

Our results are also limited by our reliance on a traceroute program to determine the nationality of the web author. While the traceroute program can determine the nation in which the host server is located from domain name server registration information, this nationality may be different from the nationality of the web author. Internet tools such as FTP allow users to access and publish web pages on servers located anywhere. We verified the home nation of the web author by examining personal information published on the websites whenever possible; however, it is possible that web authors are not providing accurate information about themselves. Moreover, not all web authors published clues as to their geographical location. It is possible that some of our web authors is located in a nation different than their host server indicates.

## **Conclusion**

This article described a website content analysis based study of English language websites posting the DeCSS software. The study investigated the arguments used by DeCSS posters to justify or explain why they posted DeCSS. The study also investigated the extent to which DeCSS posters referred to free/open source software on their websites.

Data show that many websites did not contain any text or arguments explaining why the author posted DeCSS. Of the websites containing arguments, most included arguments that drew on themes or values from the F/OS community, and anti-corporate or anti-globalization arguments. Arguments referring to legal concepts such as fair use and first sale were not as prominent.

Data also show that most of the websites included references to F/OS software or the F/OS community. A sizeable percentage of websites included characteristics that suggest the authors were F/OS users. These data suggest that DeCSS posting, as a protest activity, is strongly linked to the F/OS

community; and, DeCSS protest speech on popular DeCSS posting websites is largely dominated by F/OS values and ideas.

## ACKNOWLEDGMENTS

<to be added>

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<sup>i</sup> Note that the Pew Research Center Internet and the American Life Project has conducted numerous public opinion polls about copyright law and studies of self-reported file sharing behaviors. See for example Rainie, Madden, Hess and Mudd (2004), Madden and Lenhart (2003).

<sup>ii</sup> Debates relevant to the distinction between “Free” and “Open Source” software are beyond the scope of this paper. We refer to both sets of software with the term Free/Open Source as some users clearly employed GPL licensed software (e.g., Linux), while others used software licensed under different models (e.g., FreeBSD). Interested readers should refer to (Moody, 2001; Pavlicek, 2000) for an overview of the debates.

<sup>iii</sup> Circumvention itself is treated differently from the distribution of circumvention devices. While circumvention of an “access lock” violates the statute, circumvention of a “copy lock” does not. The portion of the law that prohibits the circumvention of an access lock is known as the anti-circumvention provision.

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<sup>iv</sup> For example, the CSS on DVDs prevent educators from incorporating clips from DVD movies in PowerPoint presentations for classroom use (Touretzky, 2001).

<sup>v</sup> Norwegian courts however, were unable to firmly establish that Johansen's primary motivation for creating and releasing DeCSS was to facilitate viewing of DVDs on Linux machines (Bing, 2003).

<sup>vi</sup> The Electronic Frontier Foundation, which was defending the case, had decided not to pursue further appeals.

<sup>vii</sup> This definition excluded external sites linked to by the websites in our sample and content obviously not written by the primary website author but included on the website (e.g., a cease and desist order written by a law firm and posted by the web author).

<sup>viii</sup> A complete copy of the codebook is available from the first author upon request.

<sup>ix</sup> Arguably, a .zip file could be converted and used on a F/OS platform.

<sup>x</sup> Moreover, even if U.S. law could not reach the non-U.S. posters, international efforts to harmonize copyright laws will likely lead to laws similar to the DMCA in many nations. At the time of the study the E.U. had already passed the E.U. Copyright Directive that called on all member nations to create laws similar to the DMCA to distribution of circumvention devices.

<sup>xi</sup> Interested readers may wish to refer to Dr. Touretzky's essay "Source vs. Object Code: A False Dichotomy" at (Touretzky, 2001).

<sup>xii</sup> The literature advises use of meta search engines for web page samples (Weare & Lin, 2000). We chose not to use a meta search engine because we wished to make our sampling strategy more transparent. While a meta search engine would increase the comprehensiveness of the results, it would also increase the opacity of the sample because the sample would be drawn from multiple engines – each with its own indexing strategy and query tools. By using one search engine, and a particular query tool within that engine (i.e. URL search), we were better able to assess how search engine indexing strategies affected our sample and why our query generated the websites in our sample. In future research we aim to increase the comprehensiveness of our results without sacrificing the transparency of the sampling technique.