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The Regulated Become the Regulators - Problems and Pitfalls in the New World of Digital Copyright Legislation

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COMMENT

THE REGULATED BECOME THE REGULATORS— PROBLEMS AND PITFALLS IN THE NEW WORLD OF DIGITAL COPYRIGHT LEGISLATION

I. INTRODUCTION

On July 16, 2001, FBI agents arrested a Russian national named Dmitry Sklyarov as he was leaving a hotel in San Jose, California. A presentation Sklyarov made at a “computer hacker” conference the previous evening had directly endangered his liberty.¹ Considering the broad range of potentially dangerous or offensive topics Sklyarov could have presented without the threat of legal repercussion, such an arrest is unusual in America. Indeed, had Sklyarov spoken on presumably less “harmful” topics such as home construction of nuclear weapons,² or where to most effectively shoot an ATF agent during a raid,³ he would most likely still be a free man. Given these “acceptable” topics, of what horror could Sklyarov have spoken to warrant arrest? He had addressed the

1. For an account of the arrest of Dmitry Sklyarov, see Bruce Schneier, *Arrest of Computer Researcher Is Arrest of First Amendment Rights* <<http://www.internetweek.com/columns01/secure080601.htm>> (accessed Aug. 10, 2001).

2. Quoting author Diane Leenheer Zimmerman:

In *United States v. The Progressive, Inc.*, 467 F. Supp. 990 (W.D. Wis. 1979), a freelance writer, Howard Morland, using only publicly available sources, challenged the government’s nuclear secrets doctrine. Morland did so by writing an article explaining how to build a hydrogen bomb; the article was presumably accurate and caused the government to attempt to enjoin its publication under the authority of the Atomic Energy Act. The *Progressive* case ended in legal limbo, however . . . someone else published the same information Morland had intended to reveal, the preliminary injunction was dissolved, and no appellate review was ever obtained.

Diane Leenheer Zimmerman, *Scientific Speech in the 1990s*, 2 N.Y.U. Envtl. L.J. 254, 258-259 (1993) (footnotes omitted).

3. Comments on this point by talk show host G. Gordon Liddy have been widely reported. One hearsay version:

G. Gordon Liddy’s instructions to militia groups—offered last August on his nationally syndicated radio talk show—about how to kill agents of the federal Bureau of Alcohol, Tobacco and Firearms: “They’ve got a big target on there, ATF. Don’t shoot at that because they’ve got a vest on underneath. Head shots. Head shots.”

Jeff Cohen & Norman Solomon, *Knee-Jerk Coverage of Bombing Should Not Be Forgotten* <<http://www.fair.org/media-beat/950426.html>> (accessed Nov. 12, 2001). No legal action was taken against Liddy.

weakness of a new copy-protection scheme for electronic books⁴ and was duly arrested under a provision of the newest addition to United States copyright law, the Digital Millennium Copyright Act (“DMCA”).⁵

Recent developments in copyright law that focus on domestic piracy⁶ offer neither effective protection to copyright holders nor fair use for consumers. New equity-based strategies, both technical and legislative, must evolve from the present situation to ensure copyright law remains effective and just. The purpose of this comment is to examine how our copyright law has reached the point where a Russian (with all the history of repression which that identity evokes) can find himself arrested in modern America for the content of his speech.⁷ Further, it will suggest paths that copyright law must take in the future to remain both effective and just. The comment will move through four critical areas of analysis: initially, an analysis of the social and technical developments which allowed copying of commercial entertainment to move into the sphere of personal behavior, focusing on how the evolution of technology has driven domestic copying; second, an analysis of the response by industry, the courts, and Congress to this shift, focusing on the misguided reliance on prohibition as a means of copyright control; third, analysis of the demonstrated failure of prohibition to halt other widespread private behaviors, focusing on the ineffectiveness of marijuana prohibition; and finally, an examination of present controls and suggestions for a practical basis for equitable copyright legislation.

II. HOW THE CURRENT CONVERGENCE OF TECHNOLOGICAL AND CULTURAL DEVELOPMENTS HAS EXPANDED COPYING FROM AN INDUSTRIAL TO A DOMESTIC SETTING

In the past century, technology has become a major driving force in the production and distribution of entertainment, initially in the industrial realm, then increasingly in the domestic setting.⁸ Under Maslow’s theory of the “hierarchy of needs,” when basic needs of safety, food, and shelter are met, the individual moves on to seek affection, esteem, and finally to self-realization, the domain of arts and entertainment.⁹ Over a period of centuries, fueled by a combination of cheaper

4. Sklyarov had spoken on weaknesses in the system devised by the Adobe company to ensure that a downloaded book that used the company’s “e-book” system could not be copied onto another PC. See Jon Katz, *Earth to Media—This Kid Is Still in Jail* <<http://slashdot.org/article.pl?sid=01/07/30/1731253>> (accessed Nov. 13, 2001).

5. *Digital Millennium Copyright Act*, Pub. L. No. 105-304, 112 Stat. 2860 (1998).

6. This reference primarily includes the DMCA and the proposed Security Systems Standards and Certification Act (“SSSCA”), Sen. Res. 523, 107th Cong. (2001) (available at <<http://cryptome.org/ssca.htm>>).

7. Technically, Sklyarov was arrested for conduct in the form of speech, but the basic fact that Sklyarov had committed no “act” beyond speaking remains telling.

8. This observation is based on a common sense evaluation. Look around and decide which means of commercially distributed entertainment (other than books) can function without electricity, or be produced without modern manufacturing technology.

9. For a brief description of Maslow’s theory, see Honolulu Community College, *Maslow’s Hierarchy of Needs* <<http://www.hcc.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/maslow.htm>> (accessed Oct. 23, 2001).

books and growing individual wealth, the initial explosion in publishing and reading for self-education and religious devotion moved toward a culture of entertainment.¹⁰ After the mid-nineteenth century, much of the rapid growth in commercial entertainment within our culture was spurred by new technological developments.¹¹

By the early 1900s, technology was a key component in a growing entertainment culture. The player piano brought a virtual pianist into businesses and wealthy homes. Early movie house patrons fled as the first motion picture images of an approaching train flickered before them and the voices of famous singers creaked and crackled from the early gramophones, eerily suspended in space and time on spinning shellac cylinders. Copyright laws, initially developed as a system of censorship and monopoly protection for publishers,¹² evolved to include all of these new forms.¹³ While these early laws protected the legitimate commercial exploiter of a work against commercial competition, consumer use was not regulated within their scheme.¹⁴ While books could be copied by a laborious longhand process, phonograph records, films, piano rolls, photographs, and lithographs could be copied only by costly commercial equipment utilizing industrial scale processes. Personal, non-commercial copying of such products was too improbable to warrant legal prohibition.¹⁵ This pattern continued into the latter half of the twentieth century, when a combination of social and technical changes placed the consumer firmly in the center of the copyright debate.

A. *The “Four Factors” That Influence a Consumer to Copy Rather Than Buy a Work*

Practical factors have the greatest influence on domestic copying of copyrighted product. The decisive factors in a consumer decision to copy are:

1. The cost differential between a home copy and a commercial original.
2. The availability of a commercial original from which to copy.
3. The technical difficulty and inconvenience of producing a copy.
4. The functionality and durability of the copy versus the original.

10. A comment on the early effects of the printing press in self-education and religious devotion can be found in Asa Briggs, *A Social History of England* 111, 165-198 (2d ed., Orion Publ. Group 1994).

11. Notable technological contributions to entertainment in this period include the gas mantle lamp, which allowed lighting of stage performances at night, the invention of photography, the lantern projector, the motion picture camera, the player piano, and the phonograph.

12. Copyright began in England as a private function of the stationers' guild, both protecting members' rights to exclusive publication, and censoring (for self-protection) any material offensive to the crown. A comprehensive explanation of this system can be found in L. Ray Patterson, *Free Speech, Copyright, and Fair Use*, 40 Vand. L. Rev. 1, 21 (1987).

13. For a detailed discussion of the accommodations of the Copyright Act of 1909, see *infra* notes 60-64 and accompanying text.

14. “[T]he doctrine applied to competitors, not consumers.” Patterson, *supra* n. 12, at 37.

15. A brief impression of the large-scale industrial process required to make a 78-rpm shellac record can be found in Beatles producer George Martin's autobiography. See George Martin & Jeremy Hornsby, *All You Need Is Ears* 107 (St. Martin's Press 1979). Such processes were plainly outside of the resources of any home copier.

Collectively, these factors provide an indication of when the availability of domestic copying technology will produce a critical mass that triggers significant levels of home copying.

In the late 1940s, home tape recording machines became available.¹⁶ An analysis under the above “four factors” demonstrates why these machines did little to encourage home copying. The reel-to-reel tape recorder produced good quality copies and was relatively easy to operate.¹⁷ However, source material was limited to recording from an original disc or a broadcast signal. The prevailing amplitude modulated (“AM”) broadcast system of the day provided a noisy, low-quality signal that was markedly inferior to the new vinyl records then coming into production, and so was not an attractive copying source.¹⁸ Even given the availability of a reasonable number of original discs to copy, the economics of home recording in the 1950s rendered copying unattractive. A good quality domestic recorder cost in the range of \$300-400 in the late 1950s.¹⁹ Amortizing the equipment cost over each copy, until the owner had copied over 200 records it would be economically more sensible simply to buy the originals.²⁰ Even if a consumer had both sufficient time and access to original material to copy so many recordings, the \$400 equipment investment was often prohibitive, being equivalent to around \$2600 in 2001 dollars.²¹ The same basic equation rendered the photocopier, introduced commercially in 1959,²² economically unattractive for home copying of printed material. Public photocopying machines charge approximately ten cents per page, leading to a copying cost of twenty dollars for a 200 page book. This alone may be enough to render copying unattractive, and

16. Developed at BASF in Germany and first shown publicly in 1935, magnetic tape recording was largely ignored in the United States for the next decade. That changed, however, when Bing Crosby and Ampex Corporation took an interest in Magnetophon recorders brought home to the United States by serviceman John Mullin after the war.

17. The author could operate such a machine at age seven. However, the RIAA states, “While reel-to-reel tape formats were the standard for professional use, prerecorded reel-to-reel tapes proved difficult and inconvenient for consumers, and never amounted to more than a niche market.” RIAA, *Tape Recording* <<http://www.riaa.org/Audio-History-2.cfm>> (accessed Sept. 19, 2001).

18. The AM broadcast system was limited to an audio bandwidth of about five kilohertz, less than half that of a tape recorder or phonorecord. More importantly, the AM receiver was incapable of distinguishing between the broadcast signal and other electromagnetic atmospheric disturbances, giving rise to crackling “static” on all but the strongest radio signals. See Josh Feit, *Armstrong's Revenge, Rock Music and the Birth of FM Radio* <<http://www.thestranger.com/2001-06-07/quart.html/>> (accessed Nov. 28, 2001).

19. Examples of retail costs for good quality domestic tape machines in the 1950s can be found at *Get Reel* <<http://www.bassboy.com.au/getreel/gallus.htm>> (accessed Nov. 28, 2001).

20. This figure is calculated by the break-even formula $N = EC / (Oc - Tc)$ when N = number of copies, EC = equipment cost, Oc = cost of original, Tc = cost of tape. In this case, tape cost was estimated at one dollar per forty-five minutes, and the cost of a twelve-inch vinyl record at three dollars.

21. This figure is calculated using consumer price index data from the Bureau of Labor Statistics as follows: Index for January 1955 = 26.7; Index for January 2001 = 175.1. Therefore, price difference factor = $175.1/26.7 = 6.6$. Applying this factor, \$400 in 1955 = $200 \times 6.5 = \$2600$ in 2001 dollars. CPI data is available from the Bureau of Labor statistics Internet site at: <<ftp://ftp.bls.gov/pub/special.requests/cpi/cpiat.txt>> (accessed Sept. 19, 2001).

22. The first practical office copier, the Haloid Xerox 914, was introduced in 1959. See Neal McChristy, *The Photocopier* <<http://www.yesterdaysoffice.com/index.cfm?fuseaction=showarticle&articleid=26>> (accessed Oct. 22, 2001).

when the labor involved and the poor quality and aesthetics of the copied version are considered, copying entire books by photocopier is, to this day, an unattractive proposition.

The machine that tilted the scales in favor of the home copier began as a modest, convenience-oriented system. The compact cassette was initially conceived in the early 1960s as a low-fidelity portable tape system in which convenience ranked well ahead of audio quality.²³ However, in the years following its initial release, the cassette format underwent a process of development that stretched its initial limitations considerably.²⁴ Within ten years of its introduction, the cassette had eclipsed all other forms of recording equipment in the domestic market²⁵ and for the first time domestic users began to copy significant amounts of commercially available material.²⁶

The four factors influencing home copying indicate why the cassette format became more popular than the reel-to-reel recorder for copying. The quality of the copy was comparable to that of a fair reel-to-reel tape, and the enclosed, pre-threaded tape system was both more convenient and better protected.²⁷ During the late 1960s and the 1970s, a further source of material to copy became available. The high-quality frequency modulated (“FM”) broadcast system increased in popularity and coverage during the 1970s, evolving from a minority system programming for a minority of tastes to a major commercial force, aggressively programming popular material.²⁸

This expansion of popular FM broadcasting provided a practically limitless source of high-quality material for any consumer with both mainstream tastes and the patience to sit with a radio and tape player connected, waiting for the right

23. Cassettes were originally marketed as a medium for dictation. RIAA, *supra* n. 17.

24. Developments in three separate countries combined to lift the quality of the cassette format to the quality of a good domestic reel-to-reel deck. In the opinion of the author, these developments were (a) the development of stand-alone stereo cassette decks by Japanese manufacturers; (b) the introduction of the Dolby [B] noise-reduction system by Dolby Labs of America; and (c) the development of new tape coatings, particularly chrome-based oxides pioneered by the BASF Company of West Germany.

25. Sales figures published by the British statistical company BPI indicate that *pre-recorded* cassettes were outselling other forms such as eight-track tapes in the U.K. by 1973. (9.8 million units, as opposed to 5.7). See British Phonographic Industry, *U.K. Trade Deliveries* <<http://www.bpi.co.uk/stats.htm>> (accessed Aug. 29, 2001).

26. By 1978, twenty-one percent of music listeners had begun home taping some music. U.S. Cong., Off. of Tech. Assessment, *Copyright and Home Copying: Technology Challenges the Law* 422, 261 (GPO 1989).

27. This pre-threaded and enclosed tape format made the cassette popular both for home and portable use. RIAA, *supra* n. 17.

28. According to Len Christian, former senior vice-president for radio at the National Association of Broadcasters, “[Early] FM was obscure, playing a lot of classical music and string music, esoteric-type programming. There was a mixture of jazz and classics.” Feit, *supra* n. 18. Early FM-only rock stations include: WMMS Cleveland (1968), see Marx Lennon’s *Gratuitous Image Page* <<http://members.tripod.com/~marxlennon/radio.html>> (accessed Aug. 14, 2002); WOR-FM New York (1967), see *The Music Scene* <<http://www.riverreporter.com/issues/01-04-26/cienci.htm>> (accessed Aug. 14, 2002); and KRFE San Francisco (1967), see Jim Ladd, “Radio Waves”—*Life and Revolution on the FM Dial* <<http://www.station2000.com/chapter1.htm>> (accessed Aug. 14, 2002). By the mid 1970s, FM had surpassed AM in terms of listening audience. See H. Edgar Cole, *A Brief History of FM* <<http://www.brcreadio.com/nonprofit/rtn/fm.html>> (accessed Nov. 27, 2001).

song to be played.²⁹ The author remembers passing many Saturday afternoons in the mid-1970s in this way.

The economic equation had also tilted. The 200 LPs that the 1955 consumer needed to record in order to break even on machine and tape costs had fallen to about twenty-seven by 1975.³⁰ With radio providing greater opportunity for taping, this level of activity was relatively easy for the consumer to achieve. And so, for the first time in history, home copying of recorded musical works became practically and economically feasible.

B. *Digital Recording Begins and a New Copying Paradigm Emerges*

By the early 1980s, a seismic shift in recording technology was occurring as high density analog and digital recording systems exemplified by the VHS video tape and digital audio tape reached the consumer market. The reader should note at this point how the *rate* of technological change increased with each new development. The journey from the gramophone to the tape recorder encompassed sixty years. The cassette surpassed the reel-to-reel tape recorder in thirty years, and the digital audio compact disc surpassed the cassette fifteen years later.³¹ The ensuing fifteen years would see three major technological advances following on each other's heels.³² The rate of change of technology, as has often been noted, is exponential.

Modern digital audio devices evolved from the combination of two existing areas of technology. Already in use for twenty years in telephone transmission, the basic pulse-code-modulation system enabled the conversion of an audio signal into digital data for transmission, then back into audio for its end use. Concurrently, the computer and commercial video industries gradually developed methods of storing the large amounts of data required by a digital audio or video signal.³³

These sampling and storage developments began to interact in ways beyond the original vision of their creators. The spinning head system of the home video recorder was found to be equally suited for recording digital sound.³⁴ The digital

29. The Office of Technology Assessment reported in 1998 that over seventy percent of cassette recorder owners who made tapes from other music sources had used radio as a source at some time during the preceding year. See Off. of Tech. Assessment, *supra* n. 26, at 262.

30. This was calculated by the same formula as in *supra* note 21. The retail price of a good-quality cassette deck in 1975 was half that of a good reel-to-reel in 1955, and adjusted for inflation was about one quarter of the actual cost. In 1975, the author purchased a good-quality cassette deck for around one hundred dollars, and a tape cost approximately \$1.50.

31. Gramophone in 1880, reel-to-reel tape recorder in 1940, cassette tape recorder in 1970, and compact disc in 1985. RIAA, *Tape Recording* <<http://www.riaa.org/Audio-History-2.cfm>> (accessed Oct. 17, 2001).

32. In order, these would be the rise of the Internet, the development of the recordable CD, and the development of the MPEG compression standards, particularly the Mp3 audio compression code.

33. Storage of both data and video was initially developed on large, fast-moving reels of magnetic tape that recorded linear data. See Lynn Avery, *A Brief History of Tape 2* (Exabyte Corp. 2000) (available at <<http://www.exabyte.com/support/online/documentation/whitepapers/history.pdf>>) (accessed Nov. 30, 2001).

34. The Ampex Corporation introduced a new helical scan videotape recorder in 1956. Unlike linear technology, helical scan technology used a rotating recording head which recorded "stripes" of

audio compact disc was adaptable to all forms of digital data, and became a mainstay of computer storage technology. By the late 1990s a combination of these technologies that few could have foreseen just two decades before was dramatically changing the nature of entertainment and copyright. Almost all existing forms of commercial entertainment, sound, photography, film, and printed word met in a single nexus. Significantly, that nexus was not in any controlled public forum, but on an increasing number of desktops in the form of the personal computer.

C. The Factory Comes Home: The Personal Computer

An observer in the 1980s could be excused for not realizing how (and how rapidly) the personal computer (“PC”) would render conventional controls on publishing and copyright ineffective. In 1985, the prevailing desktop computer was the \$5470 IBM model AT.³⁵ The AT, with its twenty mega-byte hard drive, could store two to three minutes of good-quality audio or perhaps one high resolution color photograph before running out of storage space.³⁶ Adding an additional twenty mega-byte drive to the AT cost over \$300.³⁷ External storage of files was even less practical. The floppy disc drive of the AT stored only six to eight seconds of audio on a disc.³⁸

Yet, within a scant fifteen years, a hard disc 5000 times larger cost less than half as much, and a compact disc (“CD”) burner could store the contents of forty AT hard drives in a few minutes of processing time. A user could now burn a home audio CD *faster* than a commercial plant could produce a pre-recorded cassette tape.

D. The Serial Copying Problem

The advent of digital audio generated other areas of concern for commercial copyright holders beyond the speed and convenience with which copies could be made. Digital copies of digital source materials are essentially clones, not copies. Each “clone” functions as a perfect original and may itself be “cloned” to produce

data across the tape rather than along its length. “Exabyte introduced the first high performance, 8mm helical scan tape drive into the UNIX market in 1987. Although this new tape drive was based on consumer video technology, Exabyte incorporated many technological improvements to provide the high data integrity required for data storage.” Avery, *supra* n. 33, at 5.

35. MB Solutions, *Computing History* <<http://www.bozdoc.f2s.com/1981-84.htm>> (accessed Nov. 20, 2001). The 1985 \$5470 cost of the PCAT is equivalent to \$9400 in 2001 dollars (CPI = 102 for 1975, 175 for 2001, giving a factor of 1.71). For sources of CPI data, see <<ftp://ftp.bls.gov/pub/special.requests/cpi/cpiat.txt>> (accessed Sept. 19, 2001).

36. These figures assume a standard CD quality audio signal requiring 172 Kilobytes of data per second of audio.

37. The Jameco Electronics Catalog for 1989 lists a Segate 20Mb AT drive for \$224. In 1985, the drive would have been considerably more expensive. The author recalls the “official” IBM hard drive cost around \$600 in the mid-1980s.

38. These figures assume a standard CD quality audio signal requiring 172 Kilobytes of data per second of audio.

more perfect “originals.”³⁹ In all previous analog methods of copying, some loss or alteration of detail was inescapable between the copy and the original. If the copy was itself copied, the loss became more pronounced in the “second generation” copy. A few generations later, the resulting copies were degraded beyond use.⁴⁰ The perfect digital clones, however, allow unlimited “serial copying” without degradation.

This phenomenon influenced the second of the four factors, the availability of an original from which to copy. Assume for instance that a large group of enthusiasts wish to make personal copies of a highly prized work, of which only one original exists. If it takes one day to copy the original and transport it to the next would-be copier, in one month, thirty copies will be produced. However, if the original is in digital form, each copy can also function as an original itself. By day two, there are two originals from which to copy; by day three, there are four. By the end of the same month, a digital original, copied at the same rate of one generation per day, could produce over 536 million copies, each identical to the original.⁴¹

The music industry foresaw this problem in the 1980s when digital audio began to proliferate in the consumer market, and Congress mandated hardware-based serial copy protections in domestic digital machines.⁴² Such protections were rapidly swept away by the advent of the PC, with its flexible hardware and software architecture subject to minimal control by the original manufacturer,⁴³ and outside of the scope of then existing copyright law.⁴⁴

E. The Mp3 Standard

The final crack in the dike of copy protection came in the form of the Mp3 audio compression standard.⁴⁵ Prior to Mp3, for an owner to allow a specific work to be copied by a friend or acquaintance, the owner had to give the copier physical

39. A chief engineer from London’s Abbey Road Studio states, “[An] advantage of the digital system is the fact that however many times you copy a recording, the numbers always remain the same, and consequently the quality of the musical content never deteriorates.” Brian Southall, Peter Vince & Allan Rouse, *Abbey Road* 152-53 (2d ed., Omnibus Press 1997).

40. Beatles’ producer George Martin refers to this “generational loss” in his autobiography, *All You Need Is Ears*. Martin & Hornsby, *supra* n. 15, at 48. Martin’s comments refer to the best quality professional equipment available. The loss is greater with typical domestic equipment.

41. Assuming a thirty-day month, and that one copy is produced on the first day, the total possible copies by day thirty is 536,870,912 copies.

42. See 17 U.S.C. § 1002(a) (1996) (mandating these controls on “digital audio recording devices”).

43. Unlike almost all other appliances, the PC has a program that may be accessed and modified by the user, allowing operations not foreseen by the original manufacturer.

44. “Under the plain meaning of the Act’s definition of digital audio recording devices, computers (and their hard drives) are not digital audio recording devices because their ‘primary purpose’ is not to make digital audio copied recordings.” *A&M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004, 1024 (9th Cir. 2001) (quoting *Recording Indus. Assn. of Am. v. Diamond Multimedia Sys., Inc.*, 180 F.3d 1072, 1078 (9th Cir. 1999)).

45. MPEG layer-3 (“Mp3”) is a proprietary audio compression scheme developed by German company Fraunhofer IIS. Its original intent was to aid in the reduction in the size of video files to manageable proportions by reducing the amount of audio data required for the soundtrack. However, it rapidly found a market beyond its original purpose.

access to the original, limiting copying to a circle of acquaintances within reasonable physical proximity. Mp3 compression reduced the amount of data in a digital audio file by as much as ten times, with only a slight corresponding reduction in audio quality.⁴⁶ This compression system dovetailed perfectly with the expanding Internet. For an average dial-up Internet user to download a standard four-minute CD audio file, it would take approximately three hours. The same file compressed to the Mp3 standard can be transferred in approximately twenty-five minutes,⁴⁷ a tolerable time for the average teenager to spend obtaining a free song, especially as the transfer requires no supervision once begun.⁴⁸ For those with more sophisticated Internet access (including an increasing number of students networked to their college Internet systems), the time to transfer an Mp3 file can drop as low as one minute, less time than it takes to listen to the downloaded song!⁴⁹

Analyzing the final modern copying scenario under the four factors that influence consumer copying, the Internet has made availability of digital audio “originals” practically unlimited. Convenience is such that it takes less time to copy a song than to listen to it, and the quality of the copies is excellent. Because the family PC is a product that is in many cases purchased by parents but primarily used by more computer-savvy children, costs to those children are very low indeed. It would not be surprising if, during 1999-2000, many parents had squinted at a new squat black icon on their computer desktop and inquired of their teenage children: “Hey . . . What’s Napster?”⁵⁰

III. TO PROMOTE THE PROGRESS OF SCIENCE AND USEFUL ARTS? HISTORICAL TRENDS IN COPYRIGHT LAW

The entire complex fabric of the modern system of copyright is based on a simple, but vague constitutional provision: “[Congress shall have the power to] promote the progress of science and useful arts, by securing for limited times to authors and inventors, the exclusive right to their respective writings and discoveries.”⁵¹

46. The quality of an Mp3 signal is dependent on the bit-rate at which it is encoded. Most listeners seem to agree that a file encoded at 128 Kilobytes per seconds (“Kb/s”) or higher is close to the quality of a CD.

47. These numbers assume a typical data density of 172 Kb/s for CD audio files, and twenty-three Kb/s for Mp3 files, determined experimentally by matching file sizes against the length of their audio content on the author’s PC. Figures also assume a typical 56 Kb/s modem dial-up link download rate of 3.5 Kb/s.

48. Popular “music sharing” programs such as Napster allowed users to “queue” a list of songs for automatic download, requiring no further attention from the user.

49. These figures are based on data densities assumed in *supra* note 47, but assume a download rate of 150 Kb/s.

50. Napster was the most popular of a series of “music sharing” programs that allowed users to search out and transfer music files from another user’s PC.

51. U.S. Const. art. I, § 8(8).

A. *The Historical Development of Copyright Law*

Ignoring the tempting possibility that the United States Constitution implies the existence of “useless arts,” it is clear that the plain construction of the copyright clause exists at an impossible distance from the situation under which Dmitry Sklyarov was arrested. Yet, Sklyarov’s arrest was directly predicated on United States copyright law, the statutory development of these thirty-three constitutional words.⁵² Even a brief overview of the convoluted path between these two landmarks is beyond the scope of this comment, but before approaching post-1970 legislative developments, a few key concepts must be discussed. The most important of these is the doctrine of “fair use.” An unavoidable tension exists inside the wording of the copyright clause, between “exclusive right[s]” and “promot[ing] the progress of science and useful arts.”⁵³ This tension is exposed in the 1841 case of *Folsom v. Marsh*,⁵⁴ in which Justice Story of the Massachusetts Circuit Court struggled dutifully with the dividing line between quotation of another’s work for purposes of inquiry, review, or expansion (clearly promoting the progress of science and useful arts), and the latter appropriation of portions of that work inside a new publication (discouraging incentives to promotion by allowing a second author and publisher, who undertook none of the labor involved in the creation of the work, to divert potential profits from the original creator).⁵⁵ Justice Story expressed a commonly felt frustration with the already difficult area of copyright:

[C]opyrights approach, nearer than any other class of cases belonging to forensic discussions, to what may be called the metaphysics of the law, where the distinctions are, or at least may be, very subtle [sic] and refined, and, sometimes, almost evanescent.⁵⁶

Justice Story was unable to draw any bright line between what constituted a “fair” (non-infringing) use of copyrighted material, and an “unfair” (infringing) use, but articulated something very close to the present legal test: that the amount of usage, the purpose of the usage, and the potential for harm to the original copyright holder are determinative.⁵⁷

52. Sklyarov was charged under 17 U.S.C. § 1202(b) (Supp. 2002), which traces a direct line of descent from the U.S. Const. art. I, § 8(8).

53. U.S. Const. art. I, § 8(8).

54. 9 F. Cas. 342 (C.C.D Mass. 1841).

55. *Folsom* involved a dispute between two publishers of competing biographies of George Washington. The first has been written by one Jared Sparks, using private letters of George Washington obtained from Washington’s devisees in return for an interest in any publication profits. The second, by the Reverend Charles Upham, while quoting none of Sparks’ original work, reproduced substantial portions of the letters. Justice Story concluded that such extensive “quotation” did comprise copyright infringement. *Id.* at 349.

56. *Id.* at 344.

57. Justice Story stated:

In short, we must often, in deciding questions of this sort, look to the nature and objects of the selections made, the quantity and value of the materials used, and the degree in which the use may prejudice the sale, or diminish the profits, or supersede the objects, of the original work.

A crucial factor for the fair use doctrine in this context, identified by L. Ray Patterson in his excellent paper *Free Speech, Copyright, and Fair Use*⁵⁸ is that in Story's day it was a doctrine regulating commercial publication. The consumer had no place in the original fair use doctrine. Any use by a consumer outside the commercial sphere was neither "fair" nor "unfair," but simply "ordinary" and unaffected by copyright law.⁵⁹ Subsequent developments in the doctrine completely blur this distinction.

Another important copyright doctrine created the concept of "work for hire." The copyright clause of the Constitution clearly assigns whatever rights may be statutorily created under its authority to the author of a work. However, the Copyright Act of 1909 established a "work for hire" doctrine, stating that an author's employer may have the standing of an author for copyright purposes.⁶⁰ This doctrine came to have an increasing effect as the primary modes of entertainment evolved. Written works can be produced with pen and paper and are essentially complete when the ink dries. Films and music recordings are not artistically viable without large infusions of capital and technology, and are often beyond the capability of the individual to produce. Hence most work in those fields is necessarily "work for hire."

A third important shift in copyright concepts also occurred with the Copyright Act of 1909. All previous statutory copyright provisions had centered around the right to *print* a work.⁶¹ The technological changes of the fifty years preceding the 1909 Act had created problems with "print" as the description of copying of a work for sale. Photographs, motion pictures, phonorecords, and piano rolls had methods of production that may or may not fall under the definition of printing.⁶² The terminology adopted was the right to "print, re-print, publish, *copy*, and vend."⁶³ While barely significant at the time,⁶⁴ this addition of the exclusive right to copy to the rights of the copyright holder would have enormous significance later.

Id. at 348.

58. Patterson, *supra* n. 12, at 21.

59. *Id.* at 37.

60. The 1909 Act allowed assignment of copyright to persons other than the author. Pub. L. 60-349 § 1, 35 Stat. 1075, 1084-85 (1909). The current wording of this doctrine is as follows: "In the case of a work made for hire, the employer or other person for whom the work was prepared is considered the author for purposes of this title." 17 U.S.C. § 201(b) (1996).

61. The Copyright Act of 1870 added "copying" to the list of the rights of copyright holders, but also contained an "infringement" section that made it clear that the right to copy books was not exclusive to copyright holders, stating the "copying" of graphical materials (maps, photographs) was an infringement, but only the "printing" coupled with "exposure to sale" was infringement when books were involved. 16 Stat. 198, 212, 214 (1870). This distinction was lost in the Copyright Act of 1909, which firmly placed the exclusive right to copy with those of copyright holders. 35 Stat. at 1075; *see* Patterson, *supra* n. 12, at 41 for discussion of these changes.

62. For example, phonorecords are "pressed," the resulting product becoming a "pressing" of the work; the piano roll is "cut" or "punched"; the modern CD-R is "burned," and when transferred to a hard drive is "ripped"; the digital tape is "number transferred." Obviously a catchall term to encompass all conceivable processes is needed.

63. 35 Stat. 1075 (1909) (emphasis added).

64. At the time of the Act, methods of copying commercial media were outside of domestic consumer capabilities. *See supra* n. 15.

The effects of these incremental statutory changes on individual rights regarding domestic use of copyrighted products would not be evident for some sixty years,⁶⁵ as practical technology providing the consumer with a rational reason to copy such works did not become widely available until the 1970s. When it arrived, the entertainment industry, particularly the segment that produced audio and video entertainment, was more than ready to examine the reach of its new rights.

B. The Modern Period of Copyright Law: 1971 to the DMCA

Prior to 1971, the copyright in a phonorecord lay only in the composer's copyright of the underlying musical work reproduced.⁶⁶ In that year, an amendment to the Copyright Act made the actual recording, after its "fixation," a copyrighted work in its own right, separate from the copyright of the underlying material.⁶⁷ In 1976, copyright law underwent another major revision, addressing many new technologies including cable television rebroadcast. The 1976 enactment also contained the first codification of the judicial doctrine of fair use,⁶⁸ establishing a defense, dependent on the nature and effects of the use of copyrighted material, against certain claims for copyright infringement.

This defense proved not to be a shield for the consumer, but a sword in the hand of copyright holders. With recording companies holding copyright protection *in the recordings themselves*, separate from that of the composition owners, a new pattern of logic developed. Consumers could now be held to the same standards as commercial users. The exclusive right to copy belonged to the recording company, and copying an entire work almost always fell outside the protection of the fair use doctrine. When a consumer copied a record onto cassette tape for use in the consumer's car or taped a television broadcast for later viewing, the consumer had almost certainly violated the recording company's exclusive rights, and was subject to the full penalty of the copyright law. The

65. As noted in *supra* note 15, the means to copy were not available to the domestic consumer for most of the century.

66. Hence a consumer who taped a version of "White Christmas" sung by J. Doe and sold by XYZ records was liable under copyright law to the *copyright owner* of "White Christmas" itself, (presumably composer Irving Berlin or his assignee) but not to J. Doe or XYZ records, despite Doe's and XYZ's potential lost revenue. Indeed, if the copier paid the required statutory license fee to Berlin, no copyright infringement would occur, although Doe and XYZ may still have made a common-law claim against the copier.

67. The McClellan Anti-Piracy Amendment amended the Copyright Act to recognize sound recordings as copyrightable material in themselves. Pub. L. No. 92-140, 85 Stat. 391 (1971).

68. The factors to be considered in determining fair use include:

- (1) The purpose and character of the use, including whether such use is of a commercial nature or for non profit educational purposes.
- (2) The nature of the copyrighted work.
- (3) The amount and substantiality of the portion used in relation to the copyrighted work as a whole.
- (4) The effect of these upon the potential market for or value of the copyrighted work.

17 U.S.C. § 107(1)-(4) (1976).

“protection” afforded by the fair use doctrine was considerably less than the consumer had enjoyed previously, when only commercial use was covered by copyright law.

There was no sudden rash of individual prosecutions for these new violations. As will be examined in depth in section three, bringing legal force to bear on a large number of individual minor offenders is logistically impractical, even when the force of criminal law is present. When the industry did attempt a major copyright action related to home taping, it badly overplayed its hand.⁶⁹

It may be difficult for a reader under the age of twenty-five, who has likely grown up in a world where the video cassette recorder (“VCR”) is regarded as a staple domestic appliance⁷⁰ alongside the microwave oven and cable TV box, to imagine that the Supreme Court once debated the merits of a ban on VCR sales at the request of an entertainment company. In the *Sony v. Universal* case, Universal City Studios asked the Court for an injunction against the manufacture of Sony VCRs, claiming Sony’s sale of equipment that could record copyrighted television programs constituted contributory infringement of Universal’s copyrights.⁷¹ In return, the *Sony* majority expressed concern that the apparent rights of copyright holders had grown beyond those intended by Congress when applied to domestic copying.⁷²

Two important doctrines emerged from *Sony*. First, the case laid down strong guidelines regarding technologies with the potential to facilitate copyright violations. The Court held that the production and sale of machines which had the potential to violate copyrights was not contributory infringement if the machine also had “substantial non-infringing uses”⁷³ and that the VCR had such potential. Second, the Court retreated slightly from Section 107(1) of the 1976 Copyright Act,⁷⁴ which placed use in a dichotomy of “commercial” or “non-profit educational.” The court gave short shrift to the word “educational” and emphasized instead the “non-profit” element of the “purpose and character of use” that Section 107(a) makes a consideration in determining fair use.⁷⁵ Emphasizing the purpose of use, rather than the category into which it fell allowed the Court to determine that “time shifting,”⁷⁶ a major function of the VCR, was a non-infringing use.

69. See generally *Sony Co. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984). The basis of the *Sony* case was a charge of contributory infringement by Universal against Sony, based on Sony’s sale of video recorders capable of recording television programs owned by Universal. Universal lost on all claims presented.

70. By 1994, over eighty percent of United States households owned a VCR. See U. of Wis., *Student’s Information Technology* <<http://www.sit.wisc.edu/~ajduerson/history1.html>> (accessed Nov. 1, 2001), for a graph depicting the market penetration of VCRs from 1980-1994.

71. *Sony*, 464 U.S. at 419-20.

72. *Id.* at 421.

73. *Id.* at 444, 456.

74. 17 U.S.C. § 107.

75. *Sony*, 464 U.S. at 420-22.

76. *Id.* at 443.

The *Sony* case left the home copier inhabiting an uncertain legal limbo. Fair use was no longer rigidly applied to non-commercial use of copyrighted material, even if that use was simply copying the whole work for private purposes. Yet *Sony* left few workable guidelines for determining when private purpose becomes significantly commercial, or how to determine the nebulous “effect of the use upon the potential market for, or value of the copyrighted work” of Section 107(4) of the then-current Copyright Act.⁷⁷ The recording industry was in little doubt as to what this effect was. From the time the issue first arose, the recording industry position has consistently equated domestic copying with commercial piracy, carrying the same one-to-one revenue displacement and the same illegality.⁷⁸ Section four of this article will examine this theory in more detail, but in the 1970s a concerted lobbying and public opinion campaign⁷⁹ based on often exaggerated estimates of lost revenue⁸⁰ was mounted by a variety of recording companies with the aid of the Recording Industry Association of America.⁸¹ Such campaigns were fueled by the attractive goal of providing the recording companies with an additional revenue stream without any increased outlay of capital. Typical demands were for a levy on the sale of blank tapes and cassette recording equipment, with the proceeds being paid to copyright holders.⁸² While such demands resounded through the halls of Congress and came close to enactment at several points,⁸³ it was ultimately technical and not political developments that drove a legislative response.⁸⁴

77. 17 U.S.C. § 107(4).

78. See U.S. Cong., Off. of Tech. Assessment, *supra* n. 26, at 6.

79. One example of an industry campaign can be found in the author’s collection on the inner dust jackets of a 1982 boxed set of recordings by the band Spandau Ballet. Each jacket bears a graphic of a cassette tape with crossed leg-bones beneath it, in a parody of the pirate skull-and-crossbones. Beneath the graphic is the bold type declaration, “home taping is killing music.” Spandau Ballet, *Diamond* (Chrysalis Records 1982) (LP recording).

80. A logical conclusion is that the one-to-one substitution model for industry losses caused by home taping has no reasonable basis. Even a commercial pirate copy, offered in the same market as the original for the same cost, must be actually purchased by a consumer under the impression it is the genuine article before a complete substitution occurs. By comparison to such a model, the link to a casual taping of a single song from the radio and lost revenue is impossibly tenuous, and yet industry estimates were often based on the sale of blank tapes, ignoring the multiplicity of factors between the purchase of the tape and any actual revenue loss. The OTA estimates the true loss as being one-fifth of that postulated by a one-to-one substitution model. U.S. Cong., Off. of Tech. Assessment, *supra* n. 26, at 158.

81. *Id.* at 140 (detailing eight studies of home taping between 1978 and 1983). Six of the eight were made on behalf of copyright holders or the RIAA.

82. Such levies were passed on domestic digital tape recorders and tapes as part of the Audio Home Recording Act of 1992, but were never applied to cassette tapes or machines. See 17 U.S.C. § 1003-1007 (1996).

83. There were congressional hearings on home taping in the 97th, 98th, and 99th sessions of Congress. In each hearing, RIAA sponsored studies, presented by future Federal Reserve chairman Alan Greenspan, indicated imminent collapse of the recording industry. U.S. Cong., Off. of Tech. Assessment, *supra* n. 26, at 170-72.

84. See *supra* nn. 31-34 and accompanying text.

In its 1989 report, *Copyright and Home Copying: Technology Challenges the Law*,⁸⁵ the Office of Technology Assessment the OTA⁸⁶ examined home copying and the state of the related law, noting prophetically:

U.S. copyright law, including the Copyright Act of 1976, proceeds on the assumption that effective and efficient copying is a large-scale, publicly visible, commercial activity, and therefore, that legal prohibitions against unauthorized copying are enforceable.

This assumption, which was valid twenty years ago, is being seriously challenged today because technology provides consumers with the capabilities to be printer/publisher, on a smaller, less-visible scale.⁸⁷

The opinions expressed in the OTA report were largely reflected in the next major piece of copyright legislation, the Home Recording Act of 1992.⁸⁸ The Home Recording Act of 1992 demonstrated, for a brief instant before technological developments made its protections obsolete, that legislation was capable of equitably protecting the “rights” of both copyright holder and consumer. In Section 1002, the Act mandated a clever and effective system of technical controls, backed by the force of law. The Serial Copy Management System (“SCMS”), a means of breaking the endless chain of perfect digital copies threatened by the introduction of low-cost domestic digital recorders, had been adopted by a consortium of manufacturers and was mandated in all production models by Section 1002.⁸⁹ The remarkable achievement of the SCMS system was that it prevented serial copying, while at the same time allowing fair use for the domestic consumer.⁹⁰ In a balancing act between commercial and private interests, the Act mandated a moderate two to three percent royalty on digital machines and tapes which was distributed to copyright holders, and by way of return, bestowed legal status on home taping in both digital and analog formats, forbidding infringement action against the domestic user for non-commercial copying.⁹¹ The 1992 Act reflected a masterful compromise that subsequent Congresses would do well to emulate.⁹²

85. See U.S. Cong., Off. of Tech. Assessment, *supra* n. 26.

86. The OTA was a congressional office that existed to “provide Congressional members and committees with objective and authoritative analysis of the complex scientific and technical issues of the late 20th century.” It was closed on September 29, 1995. Princeton U., *The OTA Legacy* <<http://www.wws.princeton.edu/~ota/>> (accessed Sept. 23, 2001).

87. Off. of Tech. Assessment, *supra* n. 26, at 7.

88. *Audio Home Recording Act*, Pub. L. No. 102-563, § 1008, 106 Stat. 4237 (1992).

89. The Serial Copy Management System (“SCMS”) was a hardware-based copy protection that imbedded a “code” in the digital data of a recording. This code controlled whether another digital device could copy from that recording. The codes were 0 = unlimited copies, 2 = no copy allowed, 3 = one copy allowed. Oade Brothers Audio, *What Is SCMS?* <<http://www.oade.com/tapers/scms2.html>> (accessed Nov. 21, 2001).

90. The transmitted SCMS coding of commercial material was ID=3. This allowed the consumer to make digital copies from the original, but each copy had a status of ID=2. Any attempt to make a copy from these copies was blocked by the machine. *Id.*

91. Section 1008 of the 1992 Act stated unequivocally:

No action may be brought under this title alleging infringement of copyright based on the manufacture, importation, or distribution of a digital audio recording device, a digital audio

The Home Recording Act of 1992 was viable in the short period between its enactment and the development of more powerful PCs and the CD burner, which together provided a new means for consumers to copy digital audio outside of the hardware-based copying controls that were the Act's central feature. The definition of a digital recording device as a machine with the "primary purpose of making a digital audio copied recording" allowed the home computer when used a digital recorder to escape the reach of the Act.⁹³ The multi-purpose PC was never intended primarily as a digital audio recorder and was barely viable as such in 1992, and thus escaped the reach of Section 1002.⁹⁴

By 1998, the landscape of domestic copying had evolved almost beyond recognition from that mapped in the 1992 Act. The CD burner had appeared in the early 90s as a costly business tool, then had fallen in cost by a factor of over ten times in half that number of years.⁹⁵ The Internet, once an obscure academic system that required a programmer's skill to navigate, had become a new playground for all.⁹⁶ The home computer had continued a seemingly unstoppable march toward ever greater power, capacity, and speed. Copying became possible in a form and degree of convenience that was unthinkable in 1992.⁹⁷ Stemming this tide of domestic copying would also prove a more difficult task than it had in 1992.

Hardware based controls, such as SCMS, are difficult to defeat because copy protection is administered by electronic hardware or control code resident inside a consumer's machine. To "hack" these protections requires considerable technical skill and hardware, and more importantly, skill and hardware that cannot travel over the Internet.⁹⁸ The PC, by comparison, has an essentially open architecture, understood at various levels of sophistication by millions of programmers. Any

recording medium, an analog recording device, or an analog recording medium, or based on the *noncommercial use by a consumer* of such a device or medium for making digital musical recordings or analog musical recordings.

Pub. L. No. 102-563, § 1008, 106 Stat. 4237 (1992) (emphasis added).

92. Copy protection schemes presently coming into use with the full legal protection of the DMCA do not allow the sensible compromise that a user may make a digital copy from an original for fair use, an equity problem that SCMS avoided. Instead of the SCMS default that an original was tagged ID=2 (copying allowed from this original), but a copy from that original was tagged ID=0 (no copies from this copy), later systems assign all originals a status of SCMS ID=0. Oade Brothers Audio, *supra* n. 89.

93. 17 U.S.C. § 1001 (1996).

94. See *Recording Indus. Assn. of Am.*, 180 F.3d at 1078.

95. The first "domestic" CD recording drive, the Hewlett-Packard 4020i, retailed for \$995 in 1995. Faster drives may now be purchased for under \$99. Bob Starret, *The History of CD-R* <<http://www.roxio.com/en/support/cdr/historycdr.html>> (accessed Nov. 21, 2001).

96. In 1994, the number of web hosts was around 10,000. By 1998, it had grown to 40,000,000. See MB Solutions, *PC History 1994* <<http://www.bozdoc.f2s.com/1998.htm>> (accessed Nov. 21, 2001); MB Solutions, *PC History 1998* <<http://www.bozdoc.f2s.com/1994.htm>> (accessed Nov. 21, 2001).

97. For example, all digital systems available at the domestic level in 1992 were tape-based and copied at a time ratio of 1:1, a sixty-minute original taking sixty minutes to copy. Modern CD drives can copy at a 16:1 or greater time ratio, reducing the time to copy the sixty-minute original to four minutes.

98. Unlike a software-based "crack," which can travel over the Internet with its own installation program attached and run automatically when the end user presses a key, cracking hardware protection requires either sophisticated hardware itself, or alteration of the machine's internally imbedded code, both of which are complex technical procedures.

copy protection residing in this open system is vulnerable to software-based defeat, and such software can be rapidly disseminated over the Internet.

Once a software “crack” is discovered, its code may travel to a virtually unlimited number of users in a package requiring only minimal skill to implement. Hence a single programmer may defeat copy protection not only for his or her personal use, but also for every other potential user who can access the code from an Internet site.⁹⁹ It was in this atmosphere of the failure of effective copy controls that the Digital Millennium Copyright Act¹⁰⁰ was born.

C. *The Digital Millennium Copyright Act*

The practical premise of the DMCA was that if the easy dissemination of “cracks” rendered copyright protection ineffective, then stopping dissemination was the most effective means to stop illegal copying. The theory makes impeccable sense. If every programmer capable of “cracking” a copy protection scheme did so, and gave physical copies of the “crack” to all interested friends, the number of potential pirates would still be small relative to the total market. It is the dissemination of the code to thousands or millions of strangers via the Internet that creates a true commercial threat to the copyright holder.

The key provisions of the DMCA are those found in 17 U.S.C. section 1021:

(2) No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that—

(A) is primarily designed or produced for the purpose of circumventing a technological measure that effectively controls access to a work protected under this title;

(B) has only limited commercially significant purpose or use other than to circumvent a technological measure that effectively controls access to a work protected under this title; or

(C) is marketed by that person or another acting in concert with that person with that person’s knowledge for use in circumventing a technological measure that effectively controls access to a work protected under this title.¹⁰¹

While the provisions of Section 1201(2) appear to affect directly only the distribution of technology for copy protection circumvention, their effect on the developed fair use and domestic exemption doctrines is profound. In the period between the Copyright Act of 1976 and the DMCA, fair use was a codified judicial doctrine under which use would be judged fair or unfair on the basis of statutory guidelines,¹⁰² while domestic use was sanctioned under the Audio Home

99. By example, the “DeCass” code that allows the copying of commercial DVD movies was developed by a fifteen-year-old Norwegian who posted the result on his personal website. Within a few months, the code was available on numerous sites. See *Universal City Studios v. Reimerdes*, 111 F. Supp. 2d 294, 311 (S.D.N.Y. 2000).

100. 112 Stat. 2860.

101. 17 U.S.C. § 1201(a)(2) (Supp. 2002).

102. *Sony*, 464 U.S. at 444, 456.

Recording Act of 1992.¹⁰³ The DMCA effectively swept away the greater part of both of these doctrines while stating an express intent not to do so.¹⁰⁴ By placing *access* to a work under a strict set of protections in Section 1201, the DMCA firmly interposed the copyright owner between the user and any potential “fair use.” Fair use becomes a defense only after “authorized access,” and the copyright holder is free, by any technological means at its disposal, to limit that access as it sees fit.

The inconsistencies of this approach can be readily illustrated by real-life examples.

Example 1

Assume an area of study that falls squarely under the copyright clause as a “science or useful art,” for example, the study of an obscure form of medieval French morality plays. A scholar who has devoted a lifetime of study to this form is delighted to learn of a digital versatile disc (“DVD”) depicting a work he had not previously seen. For demand reasons, the disc is not marketed in the United States, but the scholar easily orders a copy from the French retail distributor. The disc is purchased legitimately, and all copyright holders are paid their due amounts as a result of the purchase. When the scholar tries to view the disc, it will not play. After exhaustive investigation and angry phone calls to the distributor, the scholar learns that the disc and player support an access protection system known as *region coding*.¹⁰⁵ The disc is coded for use in western Europe only, and will not operate on a player sold in the United States.¹⁰⁶ No technical difference in the video standards renders the disc unplayable; rather, the purpose of the coding is purely to support company marketing strategies and protect the commercial distribution agreements of agents in various markets.¹⁰⁷ Frustrated, the scholar asks advice from a technology-savvy friend. The friend e-mails instructions on how to access a not-for-consumer-use section in the software of the DVD player that disables the region-coding system. The scholar may now pursue “the useful sciences and arts.” The artists, the recording company, and the retailers have all

103. 106 Stat. at 4244.

104. “Nothing in this section shall effect rights, remedies, limitations or defenses to copyright infringement, *including fair use* under this title.” 17 U.S.C. § 1201(2)(c) (emphasis added).

105. Region coding assigns a “marketing region” to a DVD. There are six regions at present, region one being the USA, region two is Europe and Japan, and region three is Southeast Asia. Daewoo, *Owner’s Manual to Daewoo DVG-300N DVD Player* (Daewoo Elec. of Am. 2001).

106. Players sold within any DVD marketing region are set up to play *only* discs for that region. *Id.*

107. Two justifications are generally given for region coding. Region coding can assure that subtitles in the languages of the region in which the disc is being sold are available on that disc. However, its main purpose is commercial (*i.e.*, to protect foreign markets during the “staggered rollout” of commercial films). The potential revenue problem occurs because films are typically not released simultaneously in all markets. Hence a film that is available on DVD in the United States may still be in theatrical release in Europe. With many international retailers able to ship between nations, imported United States DVDs can undercut theatrical profits in other markets. Even after a title is available in all markets, discriminatory pricing strategies can still render a release substantially cheaper in one market compared to another. See *Submission of the British Video Association to the Parliamentary Select Committee on Trade and Industry* (available at <<http://www.melonfarmers.co.uk/nfact.htm>>) (accessed Dec. 2001).

been paid their due share of the proceeds. No copy has been made, no violation has occurred under any traditional or moral underpinning of copyright law. However the scholar has disabled an access control system, and the friend has “trafficked.” Both are now potentially liable for civil penalties of up to \$2500 under the DMCA.¹⁰⁸

Example 2

A busy lawyer enjoys listening to music, but finds little opportunity to do so. To alleviate this “time crunch,” the lawyer purchases a portable Mp3 player for listening while jogging early in the morning. Commercial releases are not generally available in the Mp3 format, so the lawyer continues to purchase CDs (paying all applicable royalties to the copyright holders in the process). She transfers the music from CD to Mp3 format via a personal computer and loads it into the player. This process is a completely legal non-commercial use under the Ninth Circuit’s *Diamond Multimedia* decision.¹⁰⁹ However, when the lawyer attempts to transfer a batch of recently purchased CDs to the Mp3 player she finds that the transfer process no longer works. The computer will not recognize the audio CDs at all, or will not allow the files to be transferred to the MP3 format necessary for the player to function.¹¹⁰ The disks have been “crippled” with one of the new copy protection systems designed to prevent such (legal) use. The lawyer purchased the computer, the Mp3 player and the CD, with assurances they would perform the transfer of CDs to an Mp3 player. Now they will not perform the primary function for which they were purchased. The lawyer has no recourse. Any attempt to facilitate transfer of the music CD to the Mp3 player makes the lawyer guilty of unauthorized access that triggers liability under the DMCA.¹¹¹ The lawyer has not only given up money to the recording company for her use of the recording, but also the right to decide what equipment she may play it on.

The ease with which the DMCA prevents the consumer from utilizing both of these traditional fair uses (and potentially a host of others)¹¹² lends a hollow ring to the DMCA’s promise that “[n]othing in this section shall effect rights, remedies, limitations or defenses to copyright infringement, *including fair use* under this title.”¹¹³ Such an apparent contradiction can exist because fair use is not

108. The DMCA authorizes statutory damages of up to \$2500 *per violation* of access control. 112 Stat. at 2870.

109. In *Recording Industry Association of America*, the court held that “the Rio [Mp3 player] merely makes copies in order to render portable, or ‘space-shift,’ those files that already reside on a user’s hard drive Such copying is paradigmatic noncommercial personal use entirely consistent with the purposes of the Act.” *Recording Indus. Assoc. of Am.*, 180 F.3d at 1079.

110. See John Borland, *New Cds Designed to End Ripping* <<http://www.Zdnet.com/zdfeeds/msnco-brand/news/0,13622,2815388,-hud0025nshm3,00.html>> (accessed Dec. 2001), for a description of the harmful effects of current “anti-ripping” systems on otherwise legitimate use.

111. 17 U.S.C. § 1201.

112. If a seller chooses to restrict them, any of the domestic copying situations encompassed in the fair use doctrine and the 1992 Home Recording Act can be made difficult or impossible to perform without triggering the potential penalties of the DMCA.

113. 112 Stat. at 2865 (emphasis added).

a “right or remedy” but merely a “limitation or defense” against *one form* of copyright action.¹¹⁴ The fair use doctrine restrains legal action by copyright holders against consumers. The DMCA purports to retain this restraint, yet renders it meaningless by allowing copyright holders simply to declare fair use off-limits by use of an access control system.¹¹⁵ The consumer commits a strict liability offense by breaking the access system, irrespective of whether their subsequent use is fair. An analogy would be to declare that a park is open for public use, after permission, while permission is in the hands of a group dedicated to keeping the public out. A right that exists only at the sufferance of its antagonists is a ridiculous and illusory thing, and yet it is in precisely this position that the DMCA has left the fair use doctrine

D. Proposed Legislation

Had the current tide of legislative activity crested at the enactment of the DMCA, the landscape of domestic copyright would be littered with inconsistencies in its wake. However, examination of pending developments reveals that the tide of restriction may be set to continue its advance. Perhaps the most significant legislative proposition in circulation at the time of this writing is the Security Systems Standards and Certification Act (“SSSCA”), introduced by Senator Fritz Hollings.¹¹⁶ The SSSCA proposes a return to hardware-based controls far more restrictive than those of the 1992 Home Recording Act, while offering none of its consumer protections. One section of the draft would make it illegal to create, sell, or distribute “any interactive digital device that does not include and utilize certified security technologies.”¹¹⁷ The “certified security technology” is to be developed by negotiation within industry, or imposed by government decree if such negotiation fails.¹¹⁸ There is no indication that such technology will function in the manner of the SCMS, allowing a single digital copy from a master. Indeed, the only copying exception in the draft bill is for limited time shifting of a small number of television broadcasts;¹¹⁹ otherwise it appears that a complete ban on any “unauthorized” copying is the bill’s aim. The far-reaching language of the SSSCA portends numerous disturbing possibilities should it become law in its present form. Some of these possibilities are examined below.

114. 17 U.S.C. § 107 characterizes fair use as a specific defense against infringement actions under Section 106 rather than any general right.

115. *Id.*

116. Sen. Res. 523, 107th Cong. For an initial description of the SSSCA, see Declan McCullagh, *Hollywood Loves Hollins’ Bill* <<http://www.wired.com/news/politics/0,1283,46671,00.html>> (accessed Sept. 11, 2001).

117. Sen. Res. 523, 107th Cong. at § 101(a) (available at <<http://cryptome.org/sssc.a.htm>>).

118. *Id.*

119. *Id.* § 103(b). The exemption is only for broadcast TV transmissions and “basic” cable channels, and gives no definition of “basic” or “premium” cables services.

1. The SSSCA May Circumvent the “First Sale” Doctrine

The combination of the DMCA and the SSSCA would give copyright holders a legal means of flouting the “first sale” doctrine that royalties may be collected only on the initial sale of a copyrighted work. Presently, a buyer may resell a work (such as a used book or CD) to a third party without payment of a royalty on the second sale.¹²⁰ However, many of the “copy protection” schemes currently being introduced prevent copying by “tying” use of a recording or e-book to a specific user or a specific computer.¹²¹ The purchaser cannot sell the recording to another when he is finished with it, as the recording or book functions only on the specific computer or hard drive to which it is “tied.” Any attempt to provide a “key” with the recording to enable a second user to purchase and use it runs afoul of the DMCA.¹²² Any machine that will play the recording without the “key” runs afoul of the SSSCA.¹²³ The company that originally provided the recording would be under no legal obligation to enable its use by anyone other than original purchaser. Hence, the entire system of purchasing entertainment products (with attached property rights created by the purchase) would be replaced by a licensing system in which “purchase” affords no property rights, and “second sale” can occur only with the permission of the copyright holder.

2. The SSCA Allows New Restrictions on “Traditional” Copying Activities

Earlier, this paper commented on how archaic the attitude and posture of Universal Studios in the *Sony* case could appear to the modern consumer in a world where the VCR is a staple domestic appliance.¹²⁴ However, a situation much like that proposed by Universal may arise under the SSSCA. That proposed legislation, under the guise of providing an *exemption* for “traditional” television recording, in fact allows providers to limit such recording severely. Section 103(b) of the SSSCA reads in part: “No person may apply a security measure To prevent a lawful recipient from making a personal copy for time-shifting purposes

120. Any attempt by the copyright holder to control second sale of a lawfully obtained product is banned. 17 U.S.C. § 109 (1996).

121. One example of this technology is the system developed by the “4C” consortium of IBM, Intel, Toshiba, and Matsushita which creates encryption keys based on a serial number assigned to the user’s hard drive or other storage device. The copy-protected product will then play only from that hard drive. See Dawn C. Chmielewski, *New Attack on Digital Piracy*, San Jose Mercury, online edition <<http://www0.mercurycenter.com/svtech/news/indepth/docs/copy122900.htm>> (accessed Nov. 2001).

122. See 112 Stat. at 2865, which states, “No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that is primarily designed or produced for the purpose of circumventing a technological measure that effectively controls access to a work protected under this title.”

123. Section 101 of the SSSCA would render it illegal to create, sell, or distribute “any interactive digital device that does not include and utilize certified security technologies.” Sen. Res. 523, 107th Cong.

124. See U. of Wis., *supra* n. 70.

of programming at the time it is lawfully performed, on an over-the-air broadcast, non-premium cable [or satellite] channel.”¹²⁵

The exact definition of “non-premium” channels is unclear from the draft bill, but one logical assumption is that it covers only channels not requiring a premium payment for reception. Examining the author’s own local cable system,¹²⁶ the “basic” cable package consists of only sixteen channels of which ten are local broadcast stations.¹²⁷ The remaining 185 channels¹²⁸ are all obtainable only by extra payment and so may be “premium” for the purposes of the SSSCA. Hence, at the will of the copyright holder, even the time-shifting allowed by the *Sony* decision may be blocked by encryption on ninety-two percent of available channels. The VCR, an appliance in most American homes,¹²⁹ may soon be unusable in its “traditional” way without the permission of copyright holders, and Congress will have overturned the *Sony* decision while claiming intent to preserve traditional fair use. It seems unlikely that the majority of consumers have any inkling of what changes may be wrought in their viewing habits from what must appear a rather obscure technical bill.

3. The SSSCA May Damage the “Open Source” Software Community

Open source software is a concept that involves the development of software by dispersed groups of programmers, each working under a personal commitment to developing one area or application of a larger software package.¹³⁰ In this way, open source development is similar to the software development process in large commercial organizations such as Microsoft, with two important differences. First, the programmers are not employees, are not paid for their work, and generally choose their own assignments, either personally or by an informal group system. Secondly, they usually turn their work in without reservation of any rights to become part of the larger system, which itself has no controlling owner. The most popular open source program is the Linux operating system.¹³¹ While such a freewheeling world as open source would appear to have little significance in a world dominated by commercial operating systems, the truth is initially somewhat surprising. The website for IBM, a blue-chip bastion of traditional information

125. Sen. Res. 523, 107th Cong.

126. The author’s local cable system is Cox Cable of Tulsa, Oklahoma, a subsidiary of AT&T.

127. The basic channel listing for Cox Cable in Tulsa can be found at Cox Cable, *Channel Listing* <<http://www.coxcable/tulsa/cabletv/channel%20listings%20rebuild.asp>> (accessed Sept. 19, 2001). The six non-broadcast channels consist of four school or public access channels and two independent stations. Hardly a rich array of programming!

128. *Id.* The complete listing for Cox Cable Tulsa shows 201 available channels.

129. *See supra* n. 124.

130. An excellent description of the history and methods of open-source development is found in Bill McCarty, *Learning Debian GNU/Linux* secs. 1.2-2.3 (O’Reilly & Assoc. 1999) (available at <http://www.oreilly.com/catalog/debain/chapter/ch01_02.html>).

131. Exact figures on Linux placement are difficult to compile because of the open-source distribution model. Software may be copied and distributed without passing through any accounting or tracking system. However, Linux holds a market share of approximately seventeen percent. Stephen Shankland, *Linux Market Share Leaps by 212%* <<http://www.business-linux.at/idc/linux.marketshare.html>> (accessed Nov. 20, 2002).

technology, prominently notes the Linux compatibility of the company's latest mainframe servers.¹³² This information is less shocking when one considers that twenty-five percent of the server operating systems shipped worldwide last year were Linux-based.¹³³ Linux has become part of the software fabric of American computing, and yet it also may run afoul of the SSSCA.

The tension between Linux and the SSSCA arises because the control structure of the SSSCA assumes a proprietary, regulated, and licensed system of software development, an opposite pole from the decentralized open source model. The key provisions of the SSSCA, Sections 101 to 105, envisage a system in which the manufacturers of hardware must implement security technologies based on either a privately developed¹³⁴ or government imposed standard,¹³⁵ and the government certifies that products containing these security technologies as legal for sale.¹³⁶ Linux, not having a specific "manufacturer," has no place at the table in the development of copyright management standards by industry. If prior industry developed standards, such as the Cms standard for encryption of DVDs are any guide, any resulting technology will be proprietary and distributed by license.¹³⁷ It would be difficult or impossible for Linux to comply with such a system and retain its open-source character. Even if the licensing of any copyright

132. The latest IBM publicity page for its Z-series servers noting the Z-series Linux compatibility can be found at the IBM web site: <<http://www-1.ibm.com/servers/eserver/zseries/>> (accessed Dec. 12, 2001).

133. See McCarty, *supra* n. 130.

134. The relevant section of the SSSCA, outlining the system by which "interactive" digital devices are to be manufactured with an agreed set of copy-protection provisions, and certified as such reads in part:

(a) CRITERIA . . . the following criteria shall be applied to the development of security system standards and certified security technologies (1) Reliability (2) Renewability (3) Resistance to attack (4) Ease of implementation (5) Modularity (6) Applicability to multiple technology platforms.

(b) PRIVATE SECTOR EFFORTS. (1) IN GENERAL—The Secretary shall make a determination, not more than 12 months after the date of enactment of the Act, as to whether (A) representatives of interactive digital device manufacturers and representatives of copyright owners have reached agreement on security system standards for use in interactive digital devices; and (B) the standards meet the criteria in subsection (a).

Sen. Res. 523 107th Cong. § 104.

135. SSSCA § 104(d) provides:

If the Secretary makes a determination under subsection (b)(1) that an agreement on security system standards that meet the criteria in subsection (a) has not been reached by those representatives, then the Secretary may;

(1) in consultation with representatives described in subsection (b)(1)(A), the National Institute of Standards and Technology and the Register of Copyrights, shall initiate a rulemaking within 30 days after the date on which the determination is made to adopt security system standards that meet those criteria to provide effective security for copyrighted material and other protected content; and

(2) publish a final rule pursuant to that rulemaking not later than 1 year after initiating the rulemaking that will take effect 1 year after its publication.

Id. § 104(d).

136. *Id.* § 105 ("The Secretary shall certify technologies that adhere to the security system standards adopted under section 104.").

137. *Reimerdes*, 111 F. Supp. 2d at 310 (describing the licensing and development of the Cms encryption standard).

management system is at a minimal cost, Linux is still left dependant for its legality on the industry whose principals of operation it has flouted. Authority to provide or withdraw a license would give the manufacturers' standards consortium the power of extending or denying legal status to Linux. To paraphrase Chief Justice John Marshall, "the power to license is the power to destroy."¹³⁸ Even if a guaranteed free licensing system is initiated, the entire certification system assumes a fixed product that changes only with direction from a single corporate entity. The open source, parallel development model of Linux makes such control almost impossible. And so, a system that a few years ago would have been protected by the "substantial non-infringing uses" doctrine of *Sony*¹³⁹ may now find itself in a legal quagmire of uncertainty, and one of the most original and productive models of software development could be destroyed.

The SSSCA may represent the latest step in a process by which the original purpose of the Copyright Clause has become remotely separated from its legislative offspring, or it may be the final burst of gas that kills the mine canary, alerting fellow workers that the limited monopolies of copyright law are no longer quite so limited.¹⁴⁰

IV. ELEVEN MILLION MARIJUANA SMOKERS—

A PARADIGM WITH DISTURBING PORTENTS FOR MODERN COPYRIGHT LAW

Both the present and future legislative scheme of copyright protection has chosen to address the shift in piracy from a small number of large-scale commercial operations to a vast number of small-scale domestic actors via a prohibition strategy.¹⁴¹ Prohibition strategies aimed at similar small-scale offenses have been remarkably unsuccessful in the past. Prohibition of alcoholic beverages in the 1920s and early 1930s is widely regarded as having been both ineffective and counterproductive. Perhaps the most spectacular failure of prohibition has been in the area of marijuana use. The lessons of marijuana prohibition bode ill for current legislative copyright strategy.

It is not the intent of the author to comment on the appropriate direction of current policies designed to reduce the use of illegal drugs. However, if one accepts the aim of anti-marijuana programs and legislation to be reduction of its use to negligible levels, the policies of the past half-century have been an expensive and dismal failure.¹⁴² And yet, copyright law now seems poised to travel exactly the same pathway.

138. *McCulloch v. Md.*, 17 U.S. 316, 431 (1819).

139. *Sony*, 464 U.S. at 440 (explaining the theory that a substantial non-infringing use exempts a product manufacturer from liability for contributory infringement). Compare *Reimerdes*, 111 F. Supp. 2d at 232-234 (noting that substantial non-infringing use has no bearing on liability under the DMCA).

140. At the time of this writing, Senate discussion of the bill has been postponed due to anthrax contamination of portions of the Senate office complex, and the future direction of copyright law remains uncertain.

141. See generally 112 Stat. at 2865; Sen. Res. 523, 107th Cong.

142. In terms of cost, the fiscal 2000 federal budget allocated approximately \$18.5 billion to the drug war, an increase of over 1000 percent from the spending level of 1981. Alaska Justice Forum, *National Drug Control and the Budget* <http://www.uaa.alaska.edu/just/forum/f171sp00/c_natlbudget.html> (last

The marijuana debate is charged with irreconcilable opinions and strong emotions on both sides. Illicit usage, by its secretive nature, is difficult to measure accurately. However, data from the Substance Abuse and Mental Health Services Administration (“SAMHSA”) indicate that in 1999 some eighty million Americans, approximately forty percent of the population, had used marijuana at some time in their lives, and over eleven million had used it in a sample thirty day period.¹⁴³ As a prohibition effort, legislative and police action against marijuana use can reasonably be judged ineffective in light of these numbers. More importantly for the purposes of this paper, the similarities between the phenomena of marijuana smoking and domestic piracy are manifold, and the failure of marijuana prohibition provides critical lessons for those who would follow the same path in copyright law.

A. *Similarities and Relationships between Marijuana and Home Piracy Offenses*

1. Setting

The petty thief, the public drunk, and the solicitor of prostitution, all run a substantial risk of detection because of the public and often interactive nature of their crimes. However, both marijuana use and domestic piracy generally occur in a less observable venue, typically a private home. Detection of crime in such settings is difficult, in part because of Fourth Amendment search and seizure protections,¹⁴⁴ and in part because of a lack of unfriendly witnesses to the act. Indeed, while marijuana smoke can be a clue to illegal activity, even eyewitnesses of domestic piracy may not realize a crime is being committed. Drug use is often associated with other forms of social deviancy that may independently attract the attention of law enforcement,¹⁴⁵ while domestic piracy is often the domain of the technologically savvy and relatively prosperous,¹⁴⁶ a group often quite conformist in other areas of life who send few signals that aid detection. If detecting the domestic marijuana smoker is difficult, detecting the domestic pirate may be nearly impossible.

updated Dec. 6, 2001). As to effectiveness, the Substance Abuse and Mental Health Services Administration (“SAMHSA”) reported in 2001 that approximately eleven million Americans (five percent of the population) had used marijuana in a one-month period. Substance Abuse and Mental Health Services Administration, *SAMHSA Summary of Findings from the 2000 National Household Survey on Drug Abuse* <<http://www.samhsa.gov/oas/NHSDA/2kNHSDA/chapter2.htm>> (accessed Nov. 22, 2001).

143. *Id.*

144. U.S. Const. amend. IV.

145. The National Institute of Justice’s (“NIJ”) Arrestee and Drug Abuse Monitoring (“ADAM”) drug-testing program found that between fifty-three and eighty-three percent of adult male arrestees sampled in thirty-four major cities tested positive for drug use in 1998. Off. of Drug Control Policy, *Drug Use Trends* <<http://www.whitehousedrugpolicy.gov/publications/factsht/druguse/index.html>> (accessed Nov. 23, 2001).

146. This assumption is reasonable given the requirement that a would-be pirate have access to a modern Pentium class PC, a reliable Internet connection, a CD burner, and the web navigation, finding, downloading, unpacking, and utilization skills needed to run non-commercial “crack” software, which is often not documented for the casual user.

2. Lack of Moral Disapprobation

In both offenses under consideration, offenders generally do not consider their conduct immoral or socially wrong.¹⁴⁷ The shoplifter or bad-check writer, while often finding some justification for their actions, generally still retains a sense that their behavior is inappropriate. The public largely shares this distaste and frequently cooperates in the detection and apprehension of such offenders. By comparison, the marijuana smoker and domestic pirate generally consider their conduct acceptable, and may even feel themselves victimized by state policies that they find unjust.¹⁴⁸ There is a strong element of such libertarian sentiment in both communities, evidenced by recurring political campaigns for the decriminalization of marijuana, and the call for “cyber-disobedience” by the defendants in the *Reimerdes* case.¹⁴⁹

The public support for such prohibition policies is often lukewarm. As to marijuana, this is not surprising considering that there is a forty percent chance that any adult was at one time also a user.¹⁵⁰ If public reaction to marijuana prohibition is lukewarm, it can only be described as stone cold in the area of domestic piracy. Assuming detection, which in itself is unlikely, the chances of a pirate being turned in to authorities by acquaintances is almost zero. While occasional cases of parents or acquaintances informing on children or friends for drug possession do occur, it is difficult to imagine the parent who would notify movie studio copyright holders after discovering a (illegal) DVD-ripping program on the family computer.

3. Similar Offenders

The demographics of marijuana users and domestic pirates are strikingly similar. Both are overwhelmingly male.¹⁵¹ Both are predominantly under the age of twenty-five.¹⁵² This group is the most prone to the “invulnerability syndrome,”

147. The OTA report indicated that sixty-three percent of consumers felt that taping a CD to give to a friend was acceptable. See U.S. Cong., Off. of Tech. Assessment, *supra* n. 26, at 163. For a primer on the self-view of marijuana users, see NORML, *Personal Use* <http://www.norml.org/index.cfm?Group_ID=3375> (accessed Nov. 1, 2001).

148. See e.g. *supra* n. 26, at 163; NORML, *supra* n. 147.

149. *Reimerdes*, 111 F. Supp. 2d at 305. Speaking of the *Reimerdes* defendants' request that other sites host the DeCSS program to ensure its distribution, the court characterized this act thus: “[d]efendants responded with what they termed ‘electronic civil disobedience’—increasing their efforts to link their web site to a large number of others that continue to make DeCSS available.” *Id.*

150. See Substance Abuse & Mental Health Services Administration, *supra* n. 142.

151. Male use of illegal drugs is 154 percent of female use. See Substance Abuse & Mental Health Services Administration, *supra* n. 142, at ch. 2. The highly male demographic of computer hackers is an accepted generalization. Even the less technologically challenging Napster service had a sixty-six percent male demographic. Netvalue Worldwide, *Press Releases, Napster Inundated with Users Following Court Injunction* <<http://www.netvalue.com/corp/presse/cp0011.htm>> (accessed Sept. 29, 2001) (comparing Napster Usage in the United States and Europe).

152. The incidence of substance abuse in persons between fourteen and twenty-five years of age averages seventeen percent, while for users over twenty-five the average rate is 4.9 percent. See Office of Applied Studies, *2001 National Household Survey on Drug Abuse (NHSDA)* <<http://www.samhsa.gov/oas/nhsda/2k1nhsda/vol1/chapter2.htm#2.age>>. Assuming roughly equal populations in those age groups, a person under twenty-five is more than three times as likely to use illicit drugs as one over

unwilling to equate undesirable consequences with their actions and hence less susceptible to discouragement by potential penalties.¹⁵³

B. Similarities of Factors that Drive Enforcement Strategies

In the enforcement strategies of marijuana and piracy prohibition there is a similarity of methodology and a similarity of problems therein.

1. A Massive Number of Offenders

The basic problem facing law enforcement in marijuana prohibition is the massive number of offenders. Assume that one month, as the result of some mass hypnotic process, all eleven million monthly marijuana users¹⁵⁴ walked to the nearest police station and turned themselves in. The resulting chaos cannot be described. The police do conduct arrests, around 500,000 a year for marijuana possession,¹⁵⁵ and even this action against four percent of the probable offenders is sufficient to clog the courts and penal institutions.¹⁵⁶ The same problem applies to action against the domestic pirate. At its peak, Napster had some ten million members, all of whom, it is safe to assume, were involved at some level in the very domestic piracy that is rapidly becoming a criminal offense.¹⁵⁷ The membership lists of Napster are no doubt accessible, and yet with ten million identified offenders, no individual action was taken, probably because of the impossibilities of scale.

2. Supply Interdiction

The practicalities of dealing with such a large offender base mandate alternative means of achieving policy aims besides prosecution of each individual offender. One well-tried method is to drive a reduction in the number of users by reduction of supply.¹⁵⁸ While this has proved practically ineffective in terms of

twenty-five. The principal demographic of Napster users is of college age. *Id.*; Netvalue Worldwide, *supra* n. 151.

153. For a description of this phenomenon, in which the young tend to discount possible undesirable consequences of their actions, see Missy Maxwell, *Optimistic Bias in Adolescents and Adults* <<http://www.users.muohio.edu/shermarc/p324opt1.shtml>> (accessed Nov. 26, 2001).

154. See Substance Abuse & Mental Health Services Administration, *supra* n. 142.

155. See Eric Blumenson & Eva Nilsen, *Policing for Profit: The Drug War's Hidden Economic Agenda*, 65 Chi. L. Rev. 35, 36 n. 7 (1998).

156. The federal government does not appear to break down drug incarceration statistics by the type of drug that was the subject of criminal charges, however 60.8 percent of federal inmates are serving drug related sentences, as are 22.5 percent of state inmates, a huge proportion of the prison population, in relation to a relatively low arrest rate of total potential offenders. *Id.*

157. Under present rules, the Napster user is probably inside of the "fair use" harbor of 17 U.S.C. § 1008 as a "noncommercial user." As copyright protection becomes more common on commercial releases, the DMCA renders any user of a future Napster-like system subject to both civil and criminal penalties because of the inherent tampering with copy protection required to make such a system viable.

158. The 1997 budget for drug enforcement and interdiction efforts was approximately ten billion dollars, while treatment and prevention were budgeted at less than five billion dollars. Congressional Research Service 95025: *Drug Supply Control: 104th Congress* <<http://www.fas.org/irp/crs/95-025.htm#back>> (accessed Nov. 17, 2001).

reducing end users, this strategy has some basis in logic. The grower and distributor of marijuana is close to the classic model of the “economic criminal,” balancing calculated risks of arrest and incarceration against financial gain. Indeed, were the gain side of the risk/benefit equation not so large, such a strategy might have proven effective.¹⁵⁹ A similar interdiction strategy is evolving to combat piracy. Unable to attack the individual copier because of sheer numbers, the strategy turns to supply with a two-pronged attack. First, manufacturers apply some form of copy protection to the source material. Most practical copy-protection systems can be fairly easily overcome by technical measures, so second, legislative prohibition takes over, making illegal the *distribution* of any measure that allows circumvention of copy-protection.¹⁶⁰ Supply is limited by prohibiting the “cracking” technology that allows copying. It is significant that the DMCA describes such distribution as “trafficking,” a term generally reserved for contraband of the most morally odious nature.¹⁶¹ Whether such pressure will prove more effective on the distributors of contraband software code than on distributors of the marijuana leaf is open to question, but there is little encouragement to be found from previous experiments in prohibition.

The model of the economic criminal also fails when the financial benefit component of the risk/benefit equation approaches zero, as is the case with prohibited copy-enabling software. Unlike almost every other illegal product for which there is a demand, software “cracks” are mostly distributed for free within an anonymous Internet community.¹⁶² Will this decrease the willingness of distributors to risk legal penalties? Or does this distribution mode indicate that the “hacker” acts as an ideological, not economic criminal? Any answer at this point is speculation, but the mere absence of financial incentives on one side does not guarantee the equation will tilt in favor of enforcement.

The risk component of software “cracking” is also substantially lower. The marijuana trafficker must grow a crop in the outdoors or with easily detectable indoor lighting,¹⁶³ and must harvest, dry, cut, and bale the crop. Then a trafficker must transport it by land, sea, or air to a distributor who then must repeat the process with smaller sellers and eventually the end user. By comparison, the software “crack” is practically ephemeral, existing as only a few thousandths of an inch of magnetized hard drive, or a fleeting burst of tone across a phone modem.¹⁶⁴

159. According to the United States Government, drug profits total fifty-seven billion dollars annually in the United States alone. The Criminal Justice Policy Found., *A Message to the Hemisphere's Drug Policy Makers* <<http://www.cjpf.org/pubs/englishletter.html>> (accessed Nov. 13, 2001).

160. This is the key provision of the DMCA. See 17 U.S.C. § 1201(2).

161. *Id.* at § 1201(a)(2).

162. For example, the DeCSS program for cracking the encryption of DVDs was distributed as a free download. See *infra* n. 177.

163. The indoor marijuana grower is often detected by an unusually high series of electricity bills generated by the high-powered lighting used to grow the plants. The Supreme Court recently ruled that the use of thermal imaging to detect these lights was a “search” of property. See *U.S. v. Kyllo*, 533 U.S. 27 (2001).

164. The entire code for cracking the copy protection of DVDs is short enough to be printed on a t-shirt! At any reasonable modem speed, it can be transmitted in a few seconds. T-shirts bearing the

It can reside offshore on a foreign server, immune from federal prosecution until it is requested, then in a few seconds it is again secure on the hard drive of a consumer, untouchable without a search warrant. A million dollars worth of wholesale marijuana is a large, one-ton odoriferous lump,¹⁶⁵ vulnerable to detection at every moment of its existence. A software “crack” that can result in a million-dollar loss through software piracy is too small to see with the naked eye.

It may be unwise to rely at all on a conventional risk/benefit analysis to determine if prohibition and distribution penalties will be effective, as most “hackers” gain little or no financial benefit from their work. With the financial side of the equation at zero, other factors must drive the desire to “crack” copy protection and distribute the results to others. Without extrinsic gain, these factors must be internal to the psyche of the programmer. Individual ego and an anti-corporate, anti-establishment attitude are two possible motivations. How these factor into a conventional risk/benefit equation is difficult to see.

C. Remember the Eighteenth Amendment

In 1919, at a time when marijuana use was largely legal,¹⁶⁶ the United States government threw its full constitutional weight behind prohibition of an activity that was commonplace and not regarded as *malum in se* by its perpetrators.¹⁶⁷ Alcohol prohibition failed completely in its aim,¹⁶⁸ and caused much collateral chaos in American society.¹⁶⁹ In the second half of the century, government attempted the same prohibition strategy against marijuana use, and having incurred costs into the trillions of dollars, has made little headway.¹⁷⁰ Now the legislative behemoth seems poised to throw itself into another war of prohibition, without any greater prospect of success.

code were actually printed in an attempt to ignite First Amendment debate over the DCMA trafficking provisions. The t-shirt may be viewed at <http://www.copyleft.net/item.phtml?dynamic=1&referer=%2F&page=product_276_back.pht> (accessed Nov. 22, 2002).

165. An acquaintance with some past knowledge of such matters provided me with this cost/weight information. He asked that the quote not be attributed.

166. Federal efforts to regulate the use of the marijuana developed during the 1920s and 1930s, culminating in the passage of the Marijuana Tax Act of 1937. Pub. L No 75-238, 50 Stat. 551 (1937). The amended provisions of this act can be found in the Internal Revenue Code of 1954, 26 U.S.C. §§ 4741-76 (1954).

167. “[Prohibition] heightened the attractiveness of alcohol to the young by making it a glamour product associated with excitement and intrigue [while] many old-stock Americans and recent immigrants were unwilling to be told they could not drink.” Mark Thornton, *Alcohol Prohibition Was a Failure*, Policy Analysis 157 (Cato Institute 1991) (available at <<http://www.cato.org/pubs/pas/pa-157.html>>) (accessed Nov 23, 2001).

168. In 1921 (after prohibition began), consumption of alcohol increased above the 1919 level. See Clark Warburton, *The Economic Results of Prohibition* 23-26, 72 (Columbia U. Press 1932).

169. “[There was] an undeniable relationship between prohibition and the increase in the homicide rate. . . . Prohibition itself became a major source of corruption . . . the courts [were] cluttered with prohibition cases to an extent which seriously [affected] the entire administration of justice.” Thornton, *supra* n. 167.

170. For a discussion of the inability of present prohibition polices to curb marijuana use, see *supra* notes 140-50. In terms of cost, the fiscal 1997 federal budget allocated \$15.3 billion to the drug war, two billion dollars more than the 1995 budget. Christopher S. Wren, *Drugs Surge as a Campaign Issue, but All the Talk Clarifies Little*, NY Times A1 (Sept. 17, 1996).

V. WHERE DO WE GO FROM HERE?—
A REASSESSMENT OF THE DIRECTION OF COPYRIGHT POLICY

In order to reassess current policy, as well as to examine possible future paths, several steps backwards to survey the problem from a broader perspective are necessary.

A. *Are Prohibitions on Copying Effective?*

The current answer to this question is no, at least from the technologically savvy consumer. A small amount of research using the author's own home equipment reveals the ease with which many access control systems may be bypassed or deactivated.¹⁷¹

1. The DVD Player

It took the author approximately twenty-five minutes to disable the region coding on a Daewoo DVG-3000N player, of which fifteen minutes were used for an Internet search for instructions, and ten minutes to carry out those instructions.¹⁷² The Macrovision¹⁷³ copy protection on the output of the player was more problematic, as the manufacturer had recently changed a chip in the unit to prevent easy deactivation. However, a few more minutes of searching on the Internet produced both a circuit diagram for disabling Macrovision and numerous machines for sale with Macrovision already disabled.¹⁷⁴ It appears that any determined user can overcome these systems with limited difficulty.

2. The DVD Computer Drive

The centerpiece of the *Reimerdes* case was an attempt by Universal Studios to block dissemination of a free program known as DeCcs,¹⁷⁵ which defeats the copy protection of commercial video content distributed on DVDs. The *Reimerdes* decision declaring the distribution of DeCcs illegal was handed down in August of 2000. In November 2001, the author, inputting the search string

171. Please note: Any citations to software sites contained in this section are provided for the purpose of legitimate intellectual and academic inquiry, and are not intended to further any illegal activity. This disclaimer may be necessary in light of the *Reimerdes* reading of the DMCA, which made linking to websites containing prohibited software possible "trafficking." *Reimerdes*, 111 F. Supp. 2d at 325.

172. The instruction for the particular player cited were found at after a search using the "Google" Internet search engine with the query "instructions for Dvg-3000N player." The specific website visited is located at <[http://www.e-daewoo.com/service_new/manual/owners_manual/DVG-3000N\(GB\)-deca.pdf](http://www.e-daewoo.com/service_new/manual/owners_manual/DVG-3000N(GB)-deca.pdf)> (accessed Sept. 27, 2002).

173. Macrovision is the name of a company that specializes in various copy-protection systems. However, the phrase "Macrovision" is normally used to refer to the company's video copy protection system. See Macrovision, *Welcome to Macrovision: Leader in Copy Protection and Digital Rights Management* <<http://www.macrovision.com>> (accessed Sept. 18, 2002).

174. Circuitry for a Macrovision defeat system, as well as sale advertisements for Macrovision-disabled machines, were found online. See Totse, *Defeat Macrovision VCR Protection* <http://www.totse.com/en/media/television_film_vidiots/macrovis.html> (accessed Sept. 27, 2002).

175. *Reimerdes*, 111 F. Supp. 2d at 303.

“download decss” into the popular “Google” search engine¹⁷⁶ succeeded in locating and downloading two copies of the program within five minutes.¹⁷⁷

3. Audio CD protection

Testing the various audio CD “anti-ripping” systems currently entering the market was somewhat more difficult. For evaluation purposes, the industry uses the public as a test subject for many of these systems, issuing discs in various markets with differing levels and systems of protection. In order for the industry to accurately assess the performance of these systems, the public must not “know” that the discs are protected or “psychosomatic” reports of problems may result. Obtaining accurate information about which discs are protected with which system is difficult.¹⁷⁸ However, Internet reports indicate that already existing software “cracks” can outwit some of the new copy-protection systems before they have even come into common use.¹⁷⁹

Even the “anti-ripping” strategy of copyright protection itself, irrespective of the effectiveness of the system at use, has a severe flaw. At present, the vast majority of CD copying is done by “ripping” programs, which offer convenience and speed and produce perfect digital copies. However, assuming a system were capable of preventing “ripping” one-hundred percent of the time, *analog* copying processes have made such technical strides that they produce sound quality practically indistinguishable from the digital original.¹⁸⁰ After a source has been through a single analog generation and returned to digital format, all copy protection is gone, and all the problems that “anti-ripping” systems are intended to halt return.¹⁸¹ There are also reports that a certain transitional generation of CD-ROM drives, those with both digital audio outputs and front panel play controls, can function as a traditional CD player with digital output, even on copy-

176. Google <<http://www.google.com>>.

177. The site from which the author downloaded a free copy of DeCcs was: <http://www.geocities.com/technical_sport/decss.html> (accessed Nov. 2001).

178. A list based on user reports on copy-protected releases can be found at the unappetizingly named “Fat Chucks Corrupt CDs” page. See Fat Chuck, *Almost Real-time Music News: Key Articles on Music* <<http://www.fatchucks.com/corruptcds/index.html>> (accessed Sept. 21, 2002) (indicating that many copy-protected CD titles are on sale in the United States market at the time of this writing).

179. U.K. website, “The Register,” reported in August 2001 that the Macrovision “SafeAudio” system had been defeated by a European “hacker” group. See The Register, *Anti-Rip CD System Bypassed* <<http://www.theregister.co.uk/content/54/20766.html>> (last updated Sept. 13, 2002). Probably the same “crack” can defeat any copy-protection system that uses the same data corruption method as Macrovision.

180. An exact technical description of this phenomenon is beyond the scope of this paper, but mid-price modern PC soundcards have audio specifications equal to those of the professional digital tape machines of ten years ago. To quote Barry Fox on the matter, “[A]ll CD copy protection systems can be defeated, with only a slight quality loss, by connecting the analogue output of a CD player to [a] PC soundcard.” CD Media World, *Nsync CD Is Copy Protection “Experiment”* <http://www.cdmedia.world.com/hardware/cdrom/news/0110/nsync_protected_cd.shtml> (accessed Sept. 20, 2002).

181. All present CD copy-protection systems are encoded at the digital level. Once the sound has been returned to analog and re-recorded, the new digital copy has none of the original protections. See VH1, *Making Copies of CDs for Your Friends or Your Car: Those Days Could Be Over* <http://www.vh1.com/artists/news/1451252/11302001/imbruglia_natalie.jhtml> (accessed Sept. 27, 2002).

protected disks. These obsolete drives could soon become premium items because of their potential to allow digital copying of copy-protected material.

The future of technology-based anti-copying systems does not appear bright. Manufacturers could find themselves locked in an ever-escalating “arms race” between copying technology and anti-copying technology. In such a race, the commercial sector is at a fundamental disadvantage because its product must work on a great variety of platforms, must be rigorously tested, and must not inconvenience the public to a degree that will cause a backlash. The hacker community has fewer constraints. If a free “crack” is difficult to use, or runs unreliably, it merely invites further development by others. If copy protection not only frustrates illegal “ripping” but also frustrates legitimate users, consumers are less likely to purchase copy-protected CDs,¹⁸² and the recording industry will lose a sale. However, the converse is not true. If a consumer is unable to copy a CD, it is uncertain whether the consumer will then purchase the same CD through legitimate channels.

This final question of the relationship between copying and purchase must be assessed in some detail before a strategy may be formulated.

B. *Who Is Losing What, How, and Where?*

A vantage point from a distance outside of technical and legislative strategies is helpful to view the final question: Is the entertainment industry suffering significant commercial harm from domestic piracy, and, if so, is that harm balanced by other benefits?

To resort to anecdote for a moment, the author grew up in the rural county of Norfolk on the English east coast. When asked how the previous year’s business had been, the local farmers, a taciturn close-handed breed with a reputation for thrift, would invariably reply that the year had been terrible, relating how much they had lost on each field, each crop, and each piece of machinery. Any observer of local lore and custom soon realized how such figures were calculated, and how such apparently punishing losses could be sustained year in and year out.

The formula was simple; take the maximum possible yield from a crop, achieved by the perfect combination of sun, water, soil, and timing, and assume that it would have sold for the maximum price offered during that year. The difference between this ideal return and the inferior reality was the “loss” sustained. An accounting system in which possible but unrealized income is considered a loss appears an unrealistic basis for policy formulation, yet it is a primary accounting theory on the industry side of the piracy question.¹⁸³ The

182. Or more likely, a consumer will purchase the CD unknowingly, return it when it fails to play, be given a second copy under the assumption the first is defective, return the second copy, and obtain a refund after considerable argument concerning whether the CD is truly “defective” as required by most store return policies. Hardly a process in which any of the players wish to engage. *Id.*

183. The RIAA view is stated as “RIAA maintains that policymakers should *only* take into account the effect on record industry revenues, reflected in sales displacement.” U.S. Cong., Off. of Tech. Assessment, *supra* n. 26, at 173-74.

industry position has consistently been that every home copy made displaces a legitimate sale. This one-to-one substitution model for losses from piracy was realistic when piracy was primarily a commercial criminal enterprise. The pirate product was produced for sale in the marketplace as a direct substitute for the genuine article, often represented not as a replica, but as the true article itself. A customer purchasing that product was often unaware of both its pirate origins, and the interdiction of revenue that should have gone to the legitimate copyright owners. In that case, assuming that the usually lower cost of a pirated edition did not influence the purchase decision, the loss sustained by the true owner was the full income from one legitimate item for each pirated edition purchased. In the world of domestic piracy however, the ratio of loss is much more difficult to define, and is almost certainly not one-to-one.

In the absence of a control group (*i.e.*, a society identical to ours in every facet except that domestic copying has somehow never developed), any measure of loss from domestic piracy must be speculative.¹⁸⁴ Moreover, the research that does exist is often conducted on behalf of advocacy groups seeking support for their already established positions and biases. One scholarly attempt to quantify the loss to industry from home taping was made in the exhaustive 1989 OTA report, *Copyright and Home Copying: Technology Challenges the Law*.¹⁸⁵ The report was issued before the advent of the CD burner and widespread use of the Internet¹⁸⁶ and focused on the then current industry fear of the cassette recorder. Even so, the report resonates well in the current milieu.

The OTA report examines a number of studies and theories of loss and concludes that the industry loss from a home copy translates not at a one-to-one ratio, but a ratio of approximately one-to-five.¹⁸⁷ The OTA found that the primary reason for home taping was not piracy, but “format shifting,” moving recordings from vinyl or CD to more convenient formats, primarily the cassette.¹⁸⁸ This model of copying already owned material to another format for convenience demonstrates why each domestic copy does not displace a legitimate commercial copy as the industry model suggests. The factor that determines if a sale is lost by copying is the consumer’s willingness to pay twice for the same material for the sake of convenience. While technology has changed, with the Mp3 format taking

184. The OTA report attempted to utilize a model in which consumers’ own subjective valuations of home tapes was used to model increased industry revenue in a tape-free world, but concluded:

[C]hoosing among assumptions about underlying factors is a subjective process. Some of the most crucial factors are very difficult to measure and several alternative assumptions may be equally plausible—for example, the extent to which consumers would increase purchases of recorded music, absent home taping. Thus, the same survey data can support disparate estimates, and this type of uncertainty is unlikely to be reduced by more data.

Id. at 170.

185. *Id.*

186. The OTA report was published in 1989. *Id.* at 179. Domestic CD burners began to enter the market in significant numbers in 1985. *Supra* n. 95. The Internet began its growth after 1994. *Supra* n. 96.

187. See U.S. Cong., Off. of Tech. Assessment, *supra* n. 26, at 179.

188. *Id.*

the place of the cassette as the format of convenience, format shifting is still a likely reason for copying CDs. Yet copyright holders now regard format shifting as a prohibited activity, and attempts to evade such prohibition are characterized as copyright violations.¹⁸⁹

The OTA report also indicated home taping may provide some benefits to industry.¹⁹⁰ The report speculated there might be direct stimulus to the sale of recordings themselves from copies of certain selections having been passed between acquaintances. More controversially (in the eyes of the RIAA), the report cited benefits to the industries producing hardware used for copying and playback, benefits to consumers from that hardware, and benefits to the recording industry from exploitation of these new formats.¹⁹¹ The issue of harm is therefore complex, interactive, and perhaps assessable only in terms of a utilitarian standard of overall equity between the many stakeholders. By examining the existing issues in these terms, a new approach to copyright law can be postulated.

C. *Toward a New Framework of Copyright in the Digital Realm*

The current and evolving state of copyright law represents neither the most efficient nor the most equitable balance between stakeholders in the digital copyright debate. In this final section, the author will attempt to identify problem areas in the present system, and suggest alternatives.

1. Excessive Deference to a Single Stakeholder—The Entertainment Industry

It is instructive, if the reader has the considerable time to invest, to digest the entire OTA report of 1989 and in particular to note how the report includes a broad range of interests and stakeholders in its assessments.¹⁹² The climate of copyright legislation has changed beyond recognition since that time. The OTA itself was closed in 1995¹⁹³ and contemporary legislative efforts rely on determinations by the Registrar of Copyrights to ensure equity in copyright law.¹⁹⁴ This approach limits the scope of review by placing it in hands concerned primarily with copyright enforcement rather than broader policy concerns, and practically guarantees an unbalanced assessment of new legislation. Also, since 1989, entertainment industry advocacy groups, particularly the RIAA, have become considerably more aggressive lobbyists and are currently succeeding in

189. The prohibition of a non-prohibited activity is achieved in two steps: first the manufacturer uses a copy-protection system that prevents transfer to another format, then the DMCA prohibits any means of evading that copy protection.

190. See U.S. Cong., Off. of Tech. Assessment, *supra* n. 26, at 159.

191. *Id.* at 180-82.

192. *Id.*

193. For a brief history of the OTA, see U.S. Cong., *The OTA Legacy: 1972-1995* <http://www.wws.princeton.edu/~ota/ns20/legacy_n.html> (accessed Nov. 11, 2001).

194. Under the DMCA, any adverse affects of legislation vis-à-vis fair use are to be reviewed by the Registrar of Copyrights in consultation with the Assistant Secretary for Communications and Information of the Department of Commerce. 17 U.S.C. § 1201(c).

returning the state of copyright legislation to that existing before the *Sony* decision and the Home Recording Act of 1992.¹⁹⁵ Consumer stakeholders have little political voice in the debate, and other affected industries have more often been concerned with the spoils of controlling any new copy-protection compliant format rather than with resisting the imposition of systems that harm the consumer.¹⁹⁶

Any remedy to this inflated institutional bias will be difficult to fashion given that the ever-increasing pace of technology inevitably outstrips Congressional knowledge, leaving legislators permanently dependent on outside assessments. To allow the profit maximization of entertainment interests to be the main factor in legislative decisions, while the interests of hardware manufacturers receive little attention and consumers almost none, is an unbalanced method of setting national policy objectives.¹⁹⁷ While in the present political climate the creation of any new government entity is unpopular, the issues raised by the interactions of technology and copyright merit at least a commission that can assess arguments by their weight and significance to the nation as a whole, rather than by the financial (political) strength of an associated lobby. On the macro level, the nexus between digital technology and copyright should at least be the subject of a cautious and broad-based national policy, rather than a policy formed by individual legislative efforts of dubious parentage exemplified by the SSSCA.

2. The Circumvention of Existing Consumer Protections Thereby Rendering the Legal Illegal

Perhaps the most disturbing facet of recent copyright legislation is the ease with which consumer “rights” have been swept aside. The problem stems from the fact that such protections never existed as “rights,” but only as safe harbors from civil action.¹⁹⁸ Hence *Sony* did not protect the “right” of consumers to tape television broadcasts, it merely protected the manufacturers of VCRs from copyright infringement action.¹⁹⁹ Even the broad statement in the Home Recording Act of 1992 that “[n]o action may be brought under this title alleging infringement of copyright . . . based on the noncommercial use by a consumer”²⁰⁰

195. 106 Stat. 4237.

196. Any agreement on a standardized system for transfer of digital entertainment product will bring enormous benefit to the originator/controller of that standard. One notable battle currently being fought is that between Microsoft and its Windows Media standard and Real Networks (backed by Time Warner, IBM, and Sony) for an “open standards” system. See C-Net News, *Digital Music Focuses on Fight over Keys* <<http://news.cnet.com/news>> (accessed June 25, 2001).

197. A prime example of this process is the parentage of the SSSCA. SSSCA “author” Fritz Hollings nominally represents a South Carolina constituency; one that common sense indicates would have more interest in tobacco legislation than “digital rights management.” However it appears that Hollings had little input in the bill, its authorship being “assisted” by the Walt Disney Company. Callers to Hollings’ office asking for technical clarifications of the bill that (supposedly) originated from that office are told that staffers are “not qualified to comment.” See Dan Berkes, *Senator Fritz Hollings (D-Disney) Avoids Talking about SSSCA* <<http://www.newsforw.com/article.pl?sid=01/09/20/2047211>> (accessed Sept. 29, 2001); McCullagh, *supra* n. 116.

198. 106 Stat. at 4244.

199. *Sony*, 464 U.S. at 456.

200. See 106 Stat. at 4244.

is worthless for protecting “noncommercial use by a consumer” after the enactment of the DMCA, which allows copyright holders to create legal obstacles and penalties for just such use.²⁰¹

Having been pulled in to the “protection” of the fair use doctrine, the consumer now finds such protection ineffectual against the will of the very copyright holders it was intended to restrain.²⁰² The regulated have become the regulators. This phenomenon arises because technical measures against patently “unfair” use also block “fair” use and the anti-circumvention provisions of the DMCA allow no exemptions based on the intent of the user.²⁰³ For example the various “anti-ripping” CD copy protection systems exist (purportedly) to stem the flow of copyrighted material into Internet distribution, a patently “unfair” use. However, the primary effect of these systems is to halt a host of previously “fair” and protected uses. The most blatant effect is the disabling of consumer devices legitimately purchased with the expectation that they will play CDs. Most DVD players are sold with the assurance that they can play audio CDs, and yet most copy-protected CDs cannot play in such equipment. Many audio CD players cannot play copy-protected CDs, nor can millions of computers that double as audio systems.²⁰⁴ All of these uses are obviously “fair.” None of them involve copying, and consumers have expended cash on equipment in the legitimate expectation of normal performance. Yet attempts to make these expensive products perform a legitimate function for which they were purchased may run afoul of the DMCA.

Any equitable system of copyright law must take into account the legitimate interests of these stakeholders as well as those of copyright owners. However, in a setting where the *means* by which a copier obtains an original becomes a crucial legal distinction, devising a protection scheme that is context-selective is very difficult indeed.

Assume for instance that an individual has logged on to a “Napster-type” website and downloaded a song, a transaction prohibited by copyright law. In the simplest terms of morality, equity has been disturbed. The downloader has obtained something for nothing. The moral sting lies not in the non-payment, for had the owner given the original product to the downloader *gratis*, there would be no disturbance of equity. Even if the owner has sold the original to a downloader, equity would be satisfied. The disturbance occurs because the original has been

201. Fair use is not a defense to a claim under Section 1201(a) of the DMCA. *Reimerdes*, 111 F. Supp. 2d at 322.

202. *Id.*

203. See 106 Stat. at 4244.

204. See *Delise v. Fahrenheit Ent., Inc.*, Pl’s Complaint, ¶¶ 1-2 (Sept. 6, 2001) (available at <<http://www.techfirm.com/mccomp.pdf>>). In part, the allegations state:

Defendant’s impaired compact discs are designed so that consumers cannot listen to music on their computers anonymously, cannot generate Mp3 recordings from the music files contained therein, cannot be played on standard audio CD players found in millions of PCs, and cannot be space-shifted and played on millions of portable Mp3 players.

Id. at ¶ 2.

copied, a process that does not diminish the rights of the original owner, but creates a new set of rights in a third party. Two consumers have the independent, *concurrent* use of the product, but the manufacturer has received payment only from the original purchaser. However, this simple moral analysis does not fit well with modern copyright concepts of consumer “fair use” derived from both the *Sony* case and the Home Recording Act of 1992. Precisely the same inequity results if the downloader tapes the song from radio, or if the owner mails the original to the downloader, who transfers it to tape, and yet both acts are legal under current law.²⁰⁵ The reason for the dissonance between the essentially identical results and their inconsistent legal status is found not in the result, but in the *method* by which it is achieved. The danger to the copyright holder lies in the potential commercial harm of the *means* by which the Napster user obtained the result, not the actual harm created by a single download. Yet the current schemes of protecting copyright are not tailored towards restricting harmful means of mass distribution, but preventing any and all copying. It is this failure to distinguish between the truly harmful phenomenon of Internet distribution and the relatively harmless phenomena of localized CD “ripping” for convenience that casts doubt on the intent of copyright holders and their legislative agenda.

3. The Refusal by Copyright Holders to Differentiate between “Fair” and “Harmful” Consumer Use

The copyright system can and perhaps should survive a certain amount of home copying as part of the price of the acknowledged benefits that fall to copyright holders from technology.²⁰⁶ But when the means of obtaining originals to copy widens dramatically, the balance fails. Therefore it is the *means* that must be restricted by any preventative system. Current attempts to restrict the means of transfer fail miserably by attempting to restrict usage *before* it reaches the harmful stage of Internet transfer, while such use is still legitimate and legal.²⁰⁷ The result of this policy is contrary to its aim. The technologically savvy may simply go through one stage of analog copying to defeat any “anti-ripping” system, while less technologically adept buyers find a legitimately acquired disc will not play on their equipment, and their Mp3 player is useless.²⁰⁸ Ironically, the policy is most effective against the less motivated and less technologically savvy customer, who is less likely to copy in the first instance.

One apparent solution is for the music industry to abandon attempts to revert to a pre-*Sony*, pre-Audio Home Recording Act scenario in which every

205. See 106 Stat. at 4244.

206. The OTA study estimated over *one billion* instances of taping from broadcast or pre-recorded sources per year in 1989. This level of activity appears to have been sustainable up to the present time. See U.S. Cong., Off. of Tech. Assessment, *supra* n. 26, at 6.

207. It is certainly the opinion of the author that such activity is legitimate under Section 1008 of the Home Taping Act of 1992. However, provisions of the DMCA may render it illegal. See *supra* n. 104-15 and accompanying text.

208. See U.S. Cong., Off. of Tech. Assessment, *supra* n. 26.

home copy, irrespective of motivation, is presumed illegal.²⁰⁹ Instead, the recording industry should focus its efforts on unauthorized Internet distribution of copyrighted works as the true threat to the commercial balance between users and producers. While in its present form the SSSCA is enormously overbroad and biased toward a single stakeholder, it does provide a conceptual basis for reasonable restriction on Internet transfer of copyright material. Instead of applying the proposed “certification technology”²¹⁰ to all attempts to copy, it could be applied only to the most harmful attempts, those that involve Internet transmission of copyrighted material. Such a solution could leave more traditional copying activities intact while removing much of the impetus and legitimacy from copy-protection “cracks.” While such a system would still be vulnerable to the process of passing the original through one analog generation (which would strip any digital copyright information) the same vulnerability exists in all present systems and proposals, and the current situation actually encourages consumers to turn to this method to regain previously legitimate copying “rights.”

If, as suggested above, it is Internet distribution that has upset the balance between home copying and industry rights, it is that area that should be addressed by legislation if indeed such legislation is necessary. In terms of the “standard” Internet copying model of the website that either stores the copyrighted material itself or directly facilitates connection between users, current law has proven to be adequate. It must be remembered that while Napster is often cited to illustrate the need for new legislation, Napster was both shut down and forced to pay damages under *existing law*. Instead of a Napster-like threat, it is the newest generation of point-to-point (“P to P”) transfer systems that most complicate any Internet-based regulatory scheme.

P to P transfers present increased management problems because they involve a direct, unsupervised connection between users. A simple analogy is that a P to P connection is similar to a telephone call. Although the service provider is facilitating the call, it has no knowledge of or control over its content. Many of the post-Napster “file swapping” networks use this system because of the difficulty of establishing a central commercial entity to attack for copyright violation.²¹¹

Such systems could conceivably be effectively regulated by server-based controls, as domestic P to P transfers likely pass through a regulatable portal at some point in their journey. However, any server-based control system involves the problem of the Linux operating system being outside of the normal commercial channels of software development, and possibly being dependant on commercial developers to license any agreed standard system of controls.²¹² In

209. The OTA report refers to the ambiguous pre-1992 legal status of all home copying. *See id.* at 149.

210. Sen. 253, 107th Cong. at § 104.

211. “The file-sharing systems utilized in services such as Scour and Gnutella further complicate the copyright enforcement issue. Rather than being server-based, they are point-to-point allowing users to connect directly with other users.” David Canton, *No Easy Answers to Online Piracy* <http://www.fan590.com/MoneyColumnsElaw/aug4_elaw.html> (Aug. 2, 2000).

212. *See supra* sec. II(3) for an explanation of the Linux/SSSCA problem.

this area government can take the lead by either creating or purchasing outright any agreed-upon standard for certification technology, and creating a statutory right to obtain a license at zero cost. Such a move would do much to discount the open-source community's fear that commercial developers will use a licensed standard to stifle open-source alternatives. If losses due to Internet piracy are as grave a problem as current legislative proposals suggest, this would seem a small price for the state to pay for an effective and equitable control mechanism. On the downside, even server based controls are vulnerable to analog transfer and "re-ripping" of CDs, which removes any encoded copyright information that a server could use to regulate the transfer of copyrighted material.

4. Governmental Neglect and an Activist-Driven Copyright Debate

While substantial federal involvement in copyright regulation may indeed be a small price for a well-considered and implemented system of controls, it appears to be a price that our political system is unwilling to pay. On the other hand, other stakeholders are more than willing to pay for their views to become law. If the OTA estimate of a one-to-five substitution ratio of lost purchases to home copies is accurate, it represents a considerable loss to the entertainment industry. It is natural for the industry to reduce that loss by whatever means possible, unencumbered by any commitment to equity or the interests of other stakeholders. The proposed SSSCA demonstrates the depth of industry penetration into the legislative process. The South Carolina constituency nominally represented by Senator Ernest "Fritz" Hollings seems an unlikely demographic group to be deeply concerned by digital rights management issues, and yet their "representative" is credited with authorship of the SSSCA. Reports indicate that the primary author of the SSSCA was in fact the Disney organization.²¹³ Callers to Hollings' office regarding details of the legislation are offered a terse "no comment." While such "participation" by commercial entities in policy decisions is by no means a new phenomenon, to allow a single stakeholder to dictate national policy in such a complex and multi-faceted debate is inexcusable.

The failure of government to assume center stage in the debate over the future of the copyright systems leads to a depressingly familiar scenario. Advocacy groups on the extreme edges of the debate drive the debate, while the center, devoid of either financial or ideological spur, is without motivation or influence. Decisions of critical import are left to the courts, which are obliged to consider only facts and legal theories placed before them rather than overall benefit to society.²¹⁴ It is widely accepted that the rate of technological change is ever-increasing yet the inertia of the policy process seems to increase

213. See *supra* n. 197.

214. At the time of this writing, the *Sony* case is about to be re-fought between Sonicblue, a manufacturer of digital video recorders, and the three major TV networks. Again, the content providers seek an injunction preventing the sale of the device. Reuters, *Sonicblue to Launch DVR, Despite Suit* <<http://news.cnet.com/news0-1006-200-8005769.html>> (accessed Nov. 30, 2001).

proportionally, leaving opportunistic legislative forays such as the SSSCA, along with court decisions based on limited factors, to shape the direction of future interactions of copyright and technology. Government has traditionally stood as a moderator and conciliator between divergent interest groups, and yet shows every sign of abandoning the copyright debate to those divergent groups, the devil to take the hindmost. Today, the hindmost is perhaps Dmitry Sklyarov who, at the time of writing, still awaits trial for choosing to speak on e-book security rather than nuclear weapon construction.

Martin F. Halstead