

CS155b: E-Commerce

Lecture 7: Feb. 4, 2003

Copyright Law, DMCA, and
Online Content Distribution

Acknowledgement: V. Ramachandran

Provision For Copyright Law

U.S. Constitution:

[Article I, Section 8]

"The Congress shall have Power...

[Clause 8] 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..."

- Question: What is the ultimate purpose of copyright law?
- Question: What does exclusive right mean?

Limitations on Exclusive Rights

("4 factors" test for "Fair Use": Sec. 107)

- The purpose and character of the use, including whether such use is of a commercial nature or is for non-profit educational purposes
- The nature of the copyright work
- The amount and substantiality of the portion used in relation to the copyright work as a whole
- The effect of the use upon the potential market for or value of the copyrighted work. The fact that a work is unpublished shall not itself bar a finding of fair use if such finding is made upon consideration of all the above factors.

First-Sale Rule (Sec. 109)

- When an owner sells a copy, he relinquishes control over that copy but not the content.
- The content cannot be reproduced illegally, but the copy can be loaned, sold, or given to someone else.
 - Libraries
 - Used-book stores
- This works because physical entities are exchanged. A person can't simultaneously give away and keep the "same copy" of a book.
- **Question:** Does this work for digital objects? (Consider the problem with software.)

Copyright in the Analog World

- Copyright law controls **copying**.
 - “**Copying**” is a sensible concept for physical objects (books, records).
 - **Copying** is relatively hard:
 - Copies are often not perfect;
 - Private copying is limited, and mass-market copying is obvious.
- Copy control is an effective means to an end.
- **Questions:** Does “**copying**” make sense in the digital world? Is its regulation natural?

Copying in the Digital World

- **Copying** is an integral and natural part of computer operations.
- Digital objects are **easy to copy**.
 - Relatively little cost and little time involved
 - Copies can be of perfect quality.
 - A copied version can be indistinguishable and untraceable.
- **Questions:**
 - Can we control **digital copying**?
 - If so, what rights does this control give authors and inventors? Are these the same **exclusive rights** that existing copyright law grants?

Other Relevant Issues

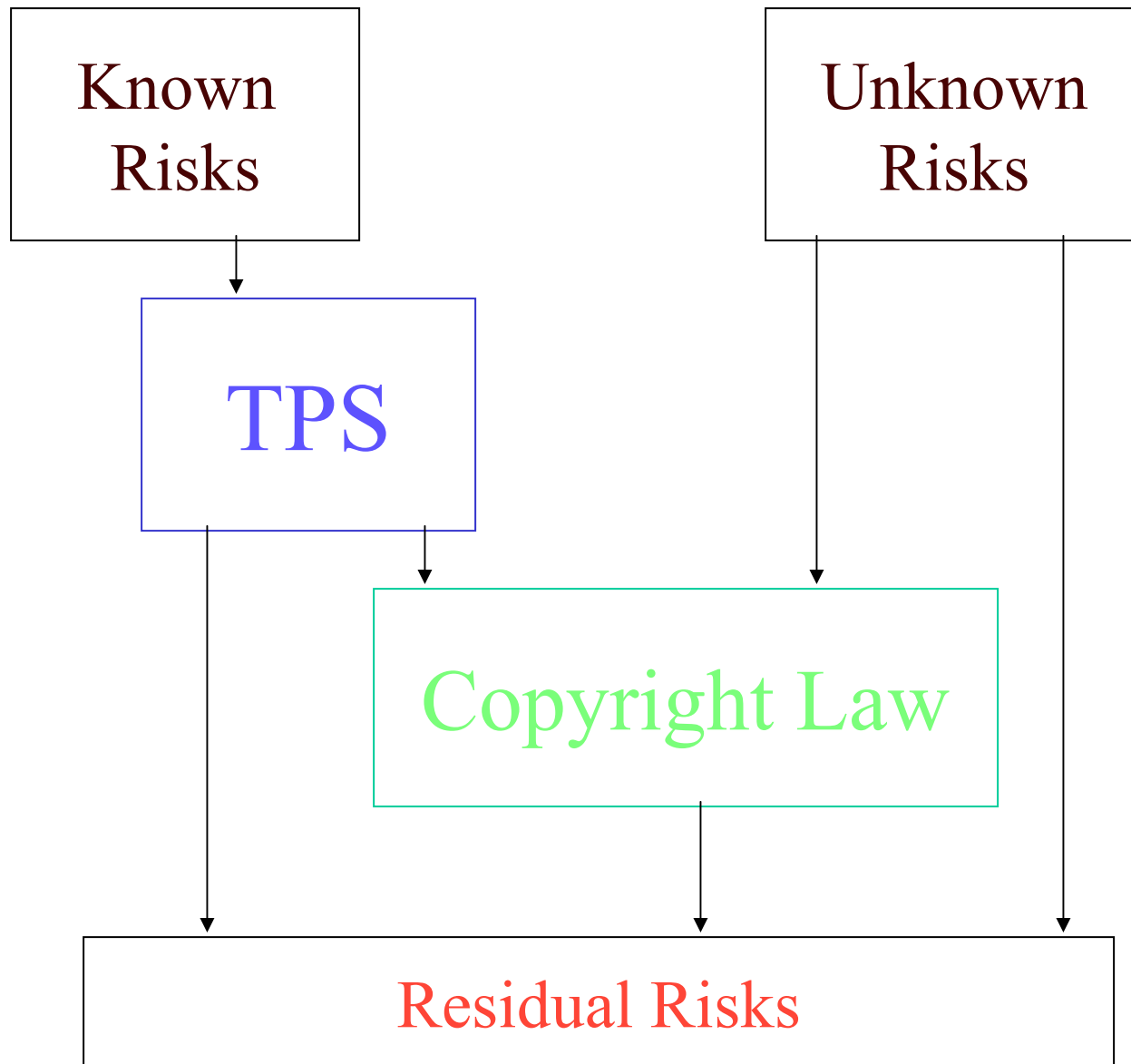
→ "Fair Use is a Defense" ??

(Could a good TPS render it moot?)

- "Private-use copying" may be harder to keep private in the digital world.
- "Private-use modification" needs to be considered. For example, do Linux users have the right to view DVDs for which they have paid full price?

Digital Video Disks (DVDs)

- Developed by movie studios and consumer electronics companies in 1995.
- Compatible with CDs. Same size and thickness as CDs. Up to 25 times the storage capacity as CDs.
- TPS for DVDs includes
 - CSS encryption ("content scrambling system")
 - R/W'able copy-control marks (*e.g.*, "copy freely," "one copy," "no copies")
 - Macrovision analog copy protection
 - Other ingredients



Studios' Overall IP-Management Strategy

- Use TPS to “keep honest people honest.”
- Assume (temporarily) that lack of bandwidth will prevent large-scale Internet distribution of movies.
- Use courts aggressively to punish (alleged) violators of existing copyright laws and *lobby heavily* for new laws that favor rights holders.

Digital Millennium Copyright Act (1998)

- Illegal, except under narrowly defined special circumstances, **to circumvent effective technological protection measures**
- Illegal to distribute **circumvention tools**
- Gives content owners a property right in TPS as well as the content that the TPS protects. In SAT terms, circumvention is to infringement as breaking and entering is to burglary.

Examples of Allowed Circumventions

- Nonprofits may circumvent to “shop.”
- Law enforcement and intelligence agencies.
- Reverse engineering to achieve interoperability.
- “Encryption research.” The “researcher” has to “make a good faith effort to obtain authorization.”
- Protection of “personally identifying information.”

Techies' Objection to DMCA

- What is an “**effective** technological protection measure?”
 - If a skilled hacker can break it, is it “**effective**”?
 - If an average computer-literate person can break it, *but few do*, is it “**effective**”?
- Weakens incentives for content owners to pay for good IP-management technology.
- Shifts costs from content owners to society at large, by shifting responsibility from TPSs to courts and police.
- **Exceptions for R&D are vague.**

DMCA vs. Copyright Violations

Questions:

- What does the DMCA actually do to existing copyright law?
- What happens to fair use?
- Are there differences between violations of copyright law and violations of the DMCA?

DeCSS Violates DMCA

- DeCSS is software that **reads** CSS-scrambled video from a DVD and **writes** unscrambled MPEG-2 video. (**Copying?**)
- DeCSS provides Linux users with access to DVD content.
- In effect, DeCSS **circumvents** the TPS for DVDs.
 - **Question:** Is CSS an **effective** copy-protection mechanism?

DeCSS Violates DMCA (continued)

- Magazine that published the DeCSS algorithm got sued.
 - **Question:** Is this different from "a reputable journal" publishing **research**?
- **Question:** Is DeCSS different from a regular DVD player?
- **Questions:** Does DeCSS fit under any of the DMCA exceptions? Where is the **copyright violation**?

Adobe eBook Processor

Violates DMCA

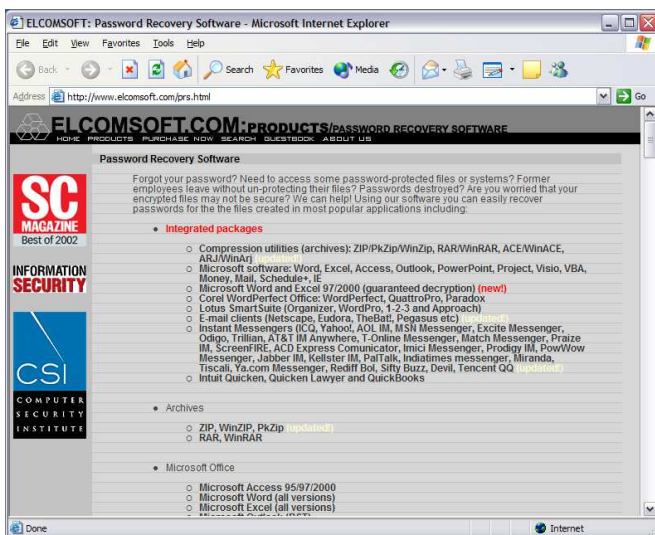
- Adobe established one format for electronic books: the **eBook**.
- To use eBooks, purchase and download them, and view them using a special reader (Adobe eBook software).
- The eBook format contains provisions for publisher controls on:
 - Text-to-speech processing
 - Copying to another device or making a backup
 - Translating between formats

Adobe eBook Processor Violates DMCA (continued)

- ElcomSoft, a Russian company, created **AEBPR**, the **eBook Processor**.
 - AEBPR **translates** eBooks to Adobe PDF.
 - Software available for purchase on ElcomSoft's website and through a U.S. firm, RegNow (used for handling payments).
- Dimitri Sklyarov, one of the designers, presented his methods at DEF CON, a conference in the U.S.

ElcomSoft's Product Webpage

<http://www.elcomsoft.com/prs.html>



Here is a partial list of products for which ElcomSoft has developed “password recovery” software:

Compression archives: ZIP, RAR, etc.
Microsoft software, including Word, Excel, Access, PowerPoint, Project, Visio, Money, etc.
Corel WordPerfect Office
Lotus SmartSuite
E-mail clients, including Netscape, Eudora, Pegasus, Microsoft Mail
Instant Messaging clients, including ICQ, Yahoo!, AOL, MSN, etc.
Intuit Quicken, Quicken Lawyer
Adobe Acrobat

Adobe eBook Processor Violates DMCA (continued)

- Sklyarov was arrested for **violating the DMCA** by circumventing Adobe's protection built into the eBook format.
- **Question:** Does it matter that Sklyarov was working for a company?
- **Question:** Does it matter that the company is Russian, and that its software is legal in Russia?

Adobe eBook Processor

Violates DMCA (continued)

- **Question:** Does the software simply allow “fair use” that was prevented by Adobe’s format? (Does that even matter?)
 - People can **make backups** of eBooks they bought and don’t want to lose.
 - People can **transfer copies** to their laptop or handheld.
 - People with visual impairments can have the computer read the eBook.
- **Other Questions:** Is AEBPR a product of research? Is the eBook an **effective** TPS?

Consumer Broadband and Digital Television Protection Act

- Introductory statement by Senator Hollings:
“... **[A]ny device** that can legitimately play, copy, or electronically transmit ... media **also can be misused for illegal copyright infringement**, unless special protection technologies are incorporated into such a device. ... I believe the private sector is capable ... of adopting standards ... [to] ensure the secure transmission of copyrighted content on the Internet and over the airwaves. But given the pace of private talks so far, **the private sector needs a nudge. The government can provide that nudge ...**”

Examples of Previous Government Intervention

- **1962, All Channel Receiver Act**
All TVs must be built to tune all VHF and UHF channels allocated for broadcast.
- **1998, Macrovision**
All analog VCRs must recognize a standard copy-control mechanism called "Macrovision."

Main Argument of CBDTPA

(yes, this is a paraphrase ---
you may have your own interpretation)

- The technology and entertainment industry have been **slow to develop suitable copy-protection technology**.
- Copyright holders are hesitant to publish digital material because of the **threat of copyright infringement**.
- Consumers are not purchasing high-quality appliances (broadband or HDTV) because of the **lack of content**.
- **Solution**: force an agreement on **security standards** → remove barrier to production → increase high-quality content → encourage consumers to buy devices and subscriptions

The Government Nudge

- Give the industry **one year** to decide on **security system standards** and encoding rules. Reports are given to the Commerce and Judiciary Committees.
- Government steps in with help from the FCC if agreement is not reached.
- **Clauses are present** to ensure that certain limitations on copyright owners remain, including **"personal use copies"** and the **"fair use doctrine."**

Effects of the Bill

(Source: *Wired News*, March 22, 2002)

- **Device creation:** any device that can reproduce or display copyrighted works **must** include government-approved security mechanisms.
- **Importation:** illegal if devices don't obey security standards.
- **Protection markers:** illegal to remove copy-protection markers individually or through services. Networks and peer-to-peer systems are specifically named here.
- **MP3 players / fair use:** the bill tries to override the legality of the Rio MP3 player as-is and provides some minimal protection against limiting fair use.

Questions About CBDTPA

- What is the ultimate purpose? How does it help content distributors?
- Will (should) the federal government be able to help decide what are **standard security systems**?
- Is it right to mandate how products are manufactured?

Reading Assignment for February 6

- Text, chapters 3 and 4.