



Lecture 4-3

Intellectual Property

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Participation Quiz

Let X denote the set of all sets that do not contain themselves. Is it the case that $X \in X$?

- A. yes
- B. no
- C. none of the above

Fair Use/Fair Dealing

USA: Fair Use

- Cases where copyrighted work can be reproduced without permission
- Use can be for any purpose
- Usage must be fair
 1. Purpose, character of use
 2. Nature of work
 3. Amount of work copied
 4. Effect on market for work

Canada: Fair Dealing

- Three protected activities:
 - research or private study
 - criticism or review
 - news reporting
- Usage must be fair
 1. purpose (commercial/private)
 2. character (e.g., # copies made)
 3. amount copied from the original
 4. alternatives (was copying necessary?)
 5. nature (e.g., public availability of the copyrighted work)
 6. effect (does the copy compete with the original?)

Is it ethical to break a digital lock in order to make fair use of a copyrighted work?

Legitimacy of IP Protection for Software

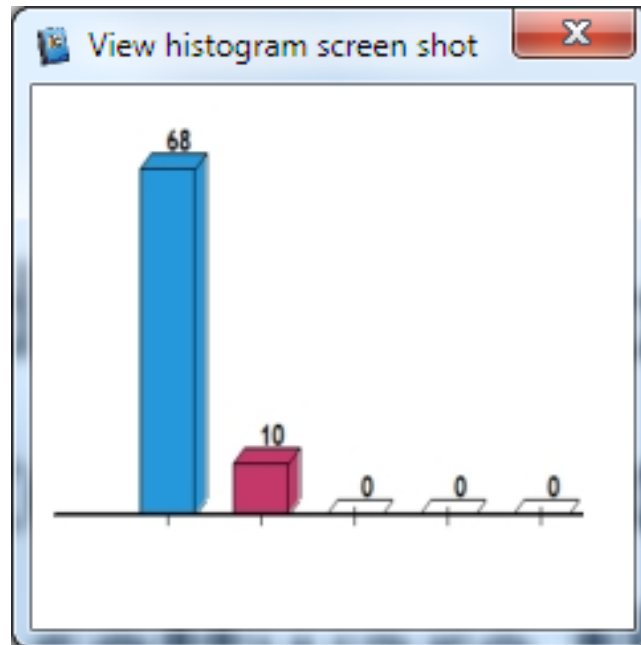
- Software licenses typically prohibit you from making copies of software to sell or give away
 - Our focus is not on whether it's ethical to violate such a legal agreement after having agreed to it.
- Instead, we will think about:
 - whether society *should* give IP protection to software
 - if so, how this protection ought to be limited
 - what ethical argument can be used to justify this protection.

Break into groups; discuss and debate:

“The producers of software should have the right to prevent others from copying the software they produce.”

Intellectual Property

“The producers of software should have the right to prevent others from copying the software they produce.”

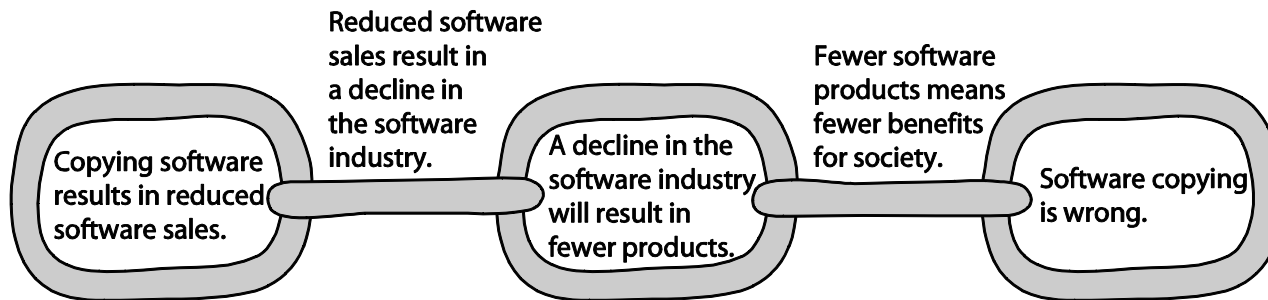


Rights-based Analysis

- “Just deserts” argument
 - Programming is hard work that only a few can do
 - Programmers should be rewarded for their labor
 - Mixing my labor with something implies ownership
- Criticism of “just deserts” argument
 - Why does labor imply ownership?
 - Maybe mixing my labor with something means I lose my labor
 - Pour a can of tomato juice into the ocean: I don’t own the ocean.
 - A society in which all labor went to common good could be just
 - Intellectual property not like physical property
 - I cut logs: I own the logs
 - I write a book: I get to restrict other people from copying the book
- *What do you think about this argument?*

Utilitarian Analysis

- Argument against copying
 - Copying software reduces software purchases...
 - Leading to fewer software producers...
 - Leading to lower production of new software...
 - Leading to fewer benefits to society

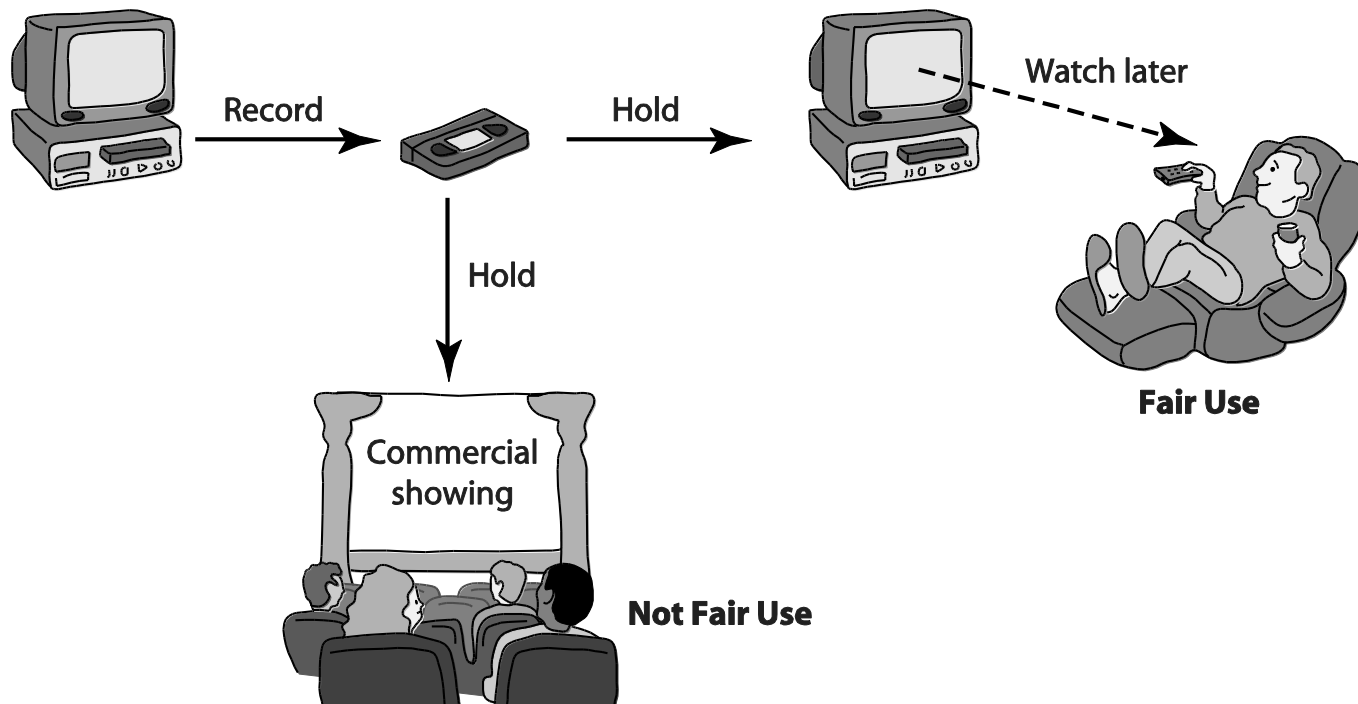


- Each of these claims can be debated
 - Not all who get free copies can afford to buy software
 - Open-source movement demonstrates many people are willing to donate their software-writing skills
 - Hardware industry wants to stimulate software industry; many apps are supported via ads
 - Difficult to quantify how much society would be harmed if certain software packages weren't released

What do you think about this argument?

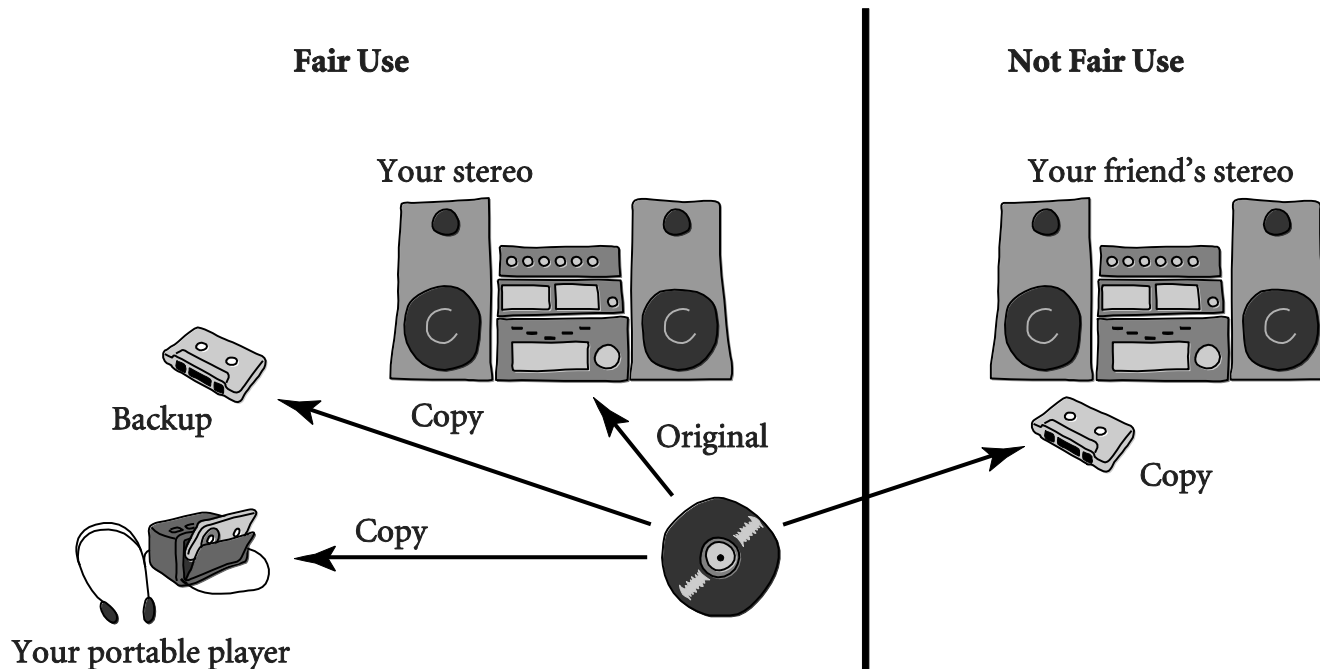
Sony v. Universal City Studios

- Sony introduces Betamax VCR (1975)
- People start time shifting TV shows
- Movie studios sue Sony for copyright infringements
- U.S. Supreme Court rules (5-4) time shifting is fair use



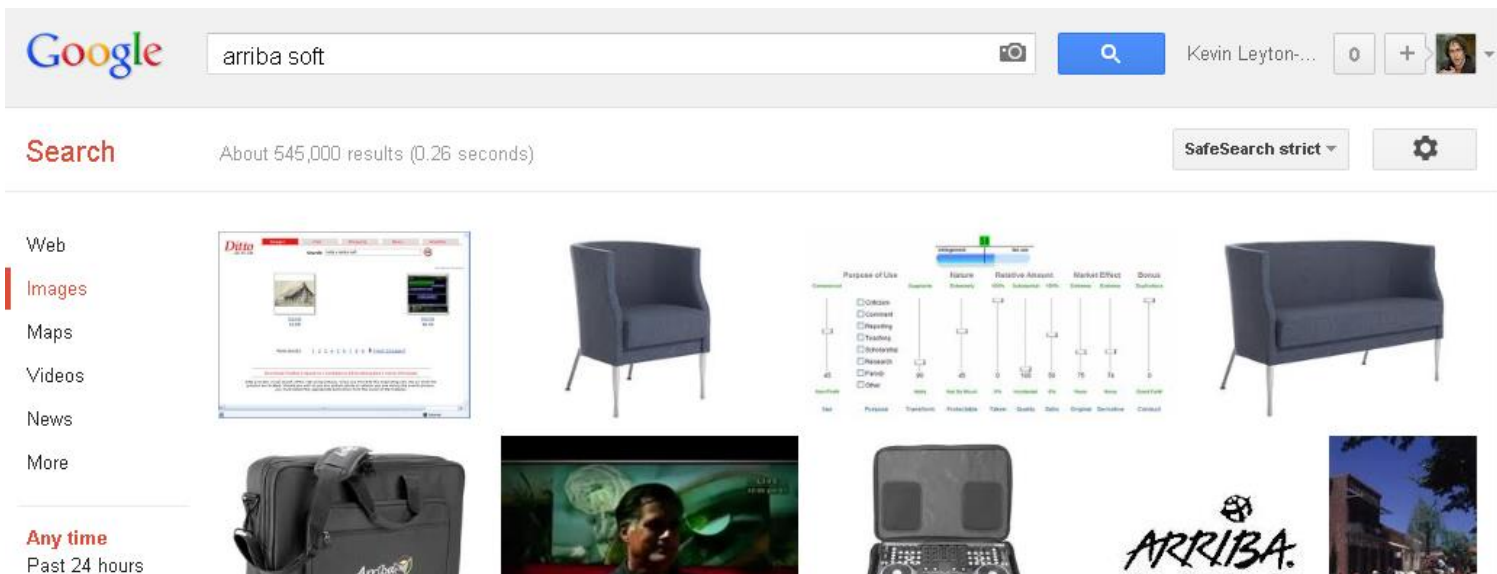
RIAA v. Diamond Multimedia Systems

- MP3 compression allows songs to be stored in 10% of the space, with little degradation
- Diamond introduces Rio MP3 player (1998)
- People start space shifting their music
- RIAA starts legal action against Diamond
- U.S. Court of Appeals: space shifting is a fair use



Kelly v. Arriba Soft Corporation

- Kelly: Photographer maintaining Web site with copyrighted photos
- Arriba Soft: Creates search engine that returned thumbnail images
- Kelly sues Arriba Soft for copyright infringement
- U.S. Court of Appeals: use of images is a fair use



Google Books

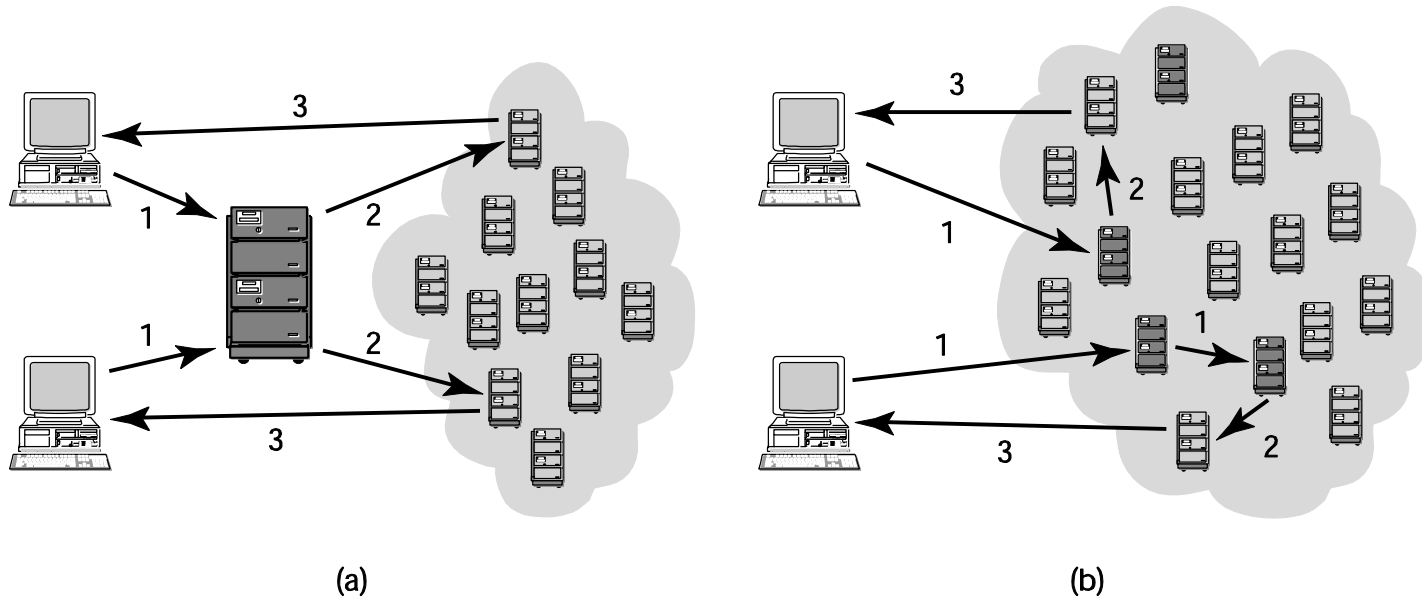
- Google announced plan to scan millions of books held by several huge libraries, creating searchable database
 - If public domain book, system returns PDF
 - If under copyright, user can see a few sentences; system provides links to libraries and online booksellers
- Authors Guild and publishers sued Google
 - They settled, but the settlement was thrown out by a judge
 - Publishers settled again in 2012
<http://www.nytimes.com/2012/10/05/technology/google-and-publishers-settle-over-digital-books.html>
 - Authors Guild lawsuit still outstanding (I think)

Napster

- Peer-to-peer music exchange network
- Began operation in 1999
- Sued by RIAA for copyright violations
- Courts ruled in favor of RIAA
- Went off-line in July 2001
- Re-emerged in 2003 as a subscription music service

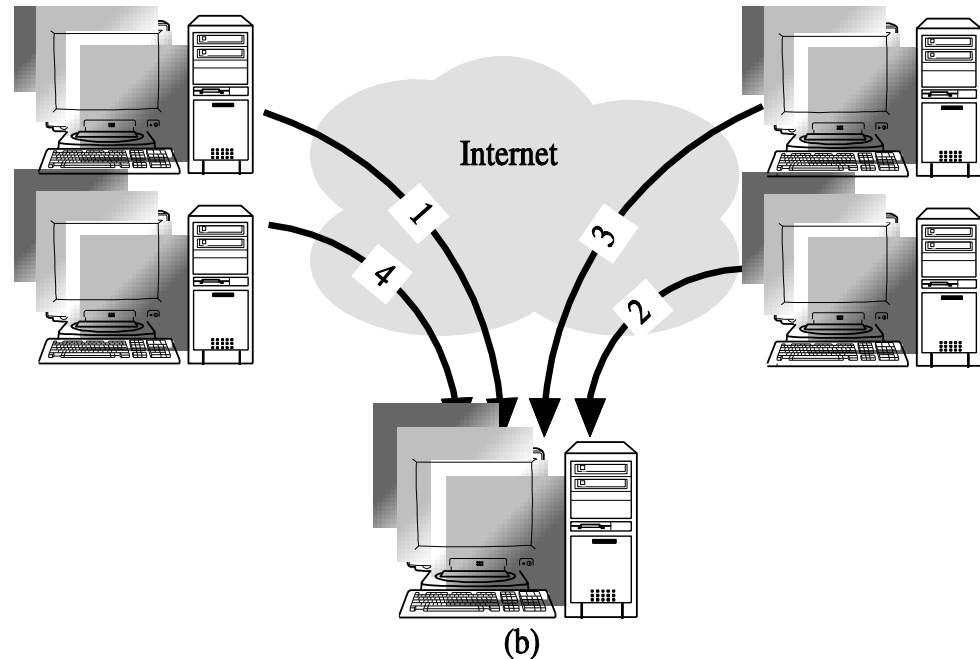
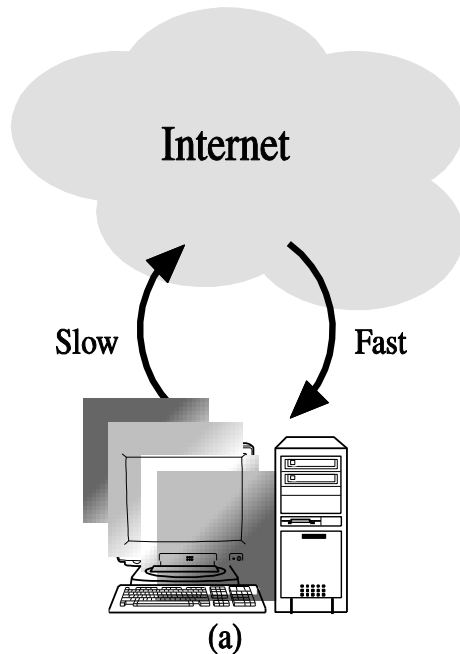
FastTrack (Kazaa, Grokster)

- Second-generation peer-to-peer network technology
- Used by Kazaa and Grokster
- Distributes index among large number of “supernodes”
- Cannot be shut down as easily as Napster



BitTorrent

- Broadband connections: download much faster than upload
- BitTorrent speeds downloading
 - Files broken into pieces
 - Different pieces downloaded from different computers
- Used for downloading large files
 - Computer programs
 - Television shows
 - Movies



Legal Action Against P2P

- RIAA Lawsuits (2003)
 - Sued 100s of high-volume sharers
- Universities hotbed for sharing
 - Responses: banning, signing site licenses
- MGM vs. Grokster
 - Grokster won at lower levels, eventually lost at Supreme Court
 - Ruling: the technology existed primarily for infringement
- More recently: Pirate Bay...

Legal Action Against The Pirate Bay

- The Pirate Bay located in Stockholm, Sweden
 - One of world's biggest BitTorrent file-sharing sites
 - People download songs, movies, TV shows, etc.
- After 2006 raid by police, popularity increased
- In 2008 the International Federation of the Phonographic Industry sued four individuals connected with site
 - Defendants said The Pirate Bay just a search engine
 - Swedish court sentenced all four to prison time and fined them a total of \$3.5 million
- Meanwhile, The Pirate Bay still operational
 - Shifted to hosting only “magnet links” (Feb 2012)
 - All servers moved to the cloud (Oct 2012)

Open Source

- A variety of licenses. Some typical ingredients:
 - No restrictions preventing others from selling or giving away software
 - Source code included in distribution
 - No restrictions preventing others from modifying source code
 - No restrictions regarding how people can use software
 - Same rights apply to everyone receiving redistributions of the software (copyleft)
- GNU Project (Richard Stallman, 1984-)
 - Goal: Develop open-source, Unix-like operating system
 - Most components developed in late 1980s
- Linux
 - Linus Torvalds wrote Unix-like kernel in 1991
 - Combined with GNU components to make an OS
 - putting pressure on Microsoft, Apple, and companies selling proprietary versions of Unix

Benefits and Drawbacks of Open Source

- Benefits
 - Gives everyone opportunity to improve program
 - New versions of programs appear more frequently
 - Eliminates tension between obeying law and helping others
 - Programs belong to entire community
 - Shifts focus from manufacturing to service
- Drawbacks
 - Without critical mass of developers, quality can be poor
 - Without an “owner,” incompatible versions can arise
 - Relatively weak graphical user interfaces
 - Poor mechanism for stimulating innovation (no companies will spend billions on new programs)

Safe Software Development

- Reverse engineering okay
- Companies must protect against unconscious copying
- Solution: “clean room” software development strategy
 - Team 1 analyzes competitor’s program and writes specification
 - Team 2 uses specification to develop software
- Interestingly, same development strategies also used to ensure that open source licenses don’t “infect” commercial software

Creative Commons

- Under current copyright law, eligible works are copyrighted the moment they are created
- No copyright notice does not mean it's ok to copy
- Must contact people before using work
- That slows down creative reuse
- Free Creative Commons license indicates
 - Which kinds of copying are ok
 - Which rights are being retained
- Flickr and Magnatune two well-known sites using Creative Commons licenses

