



Lecture 4-2

Intellectual Property

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Participation Quiz

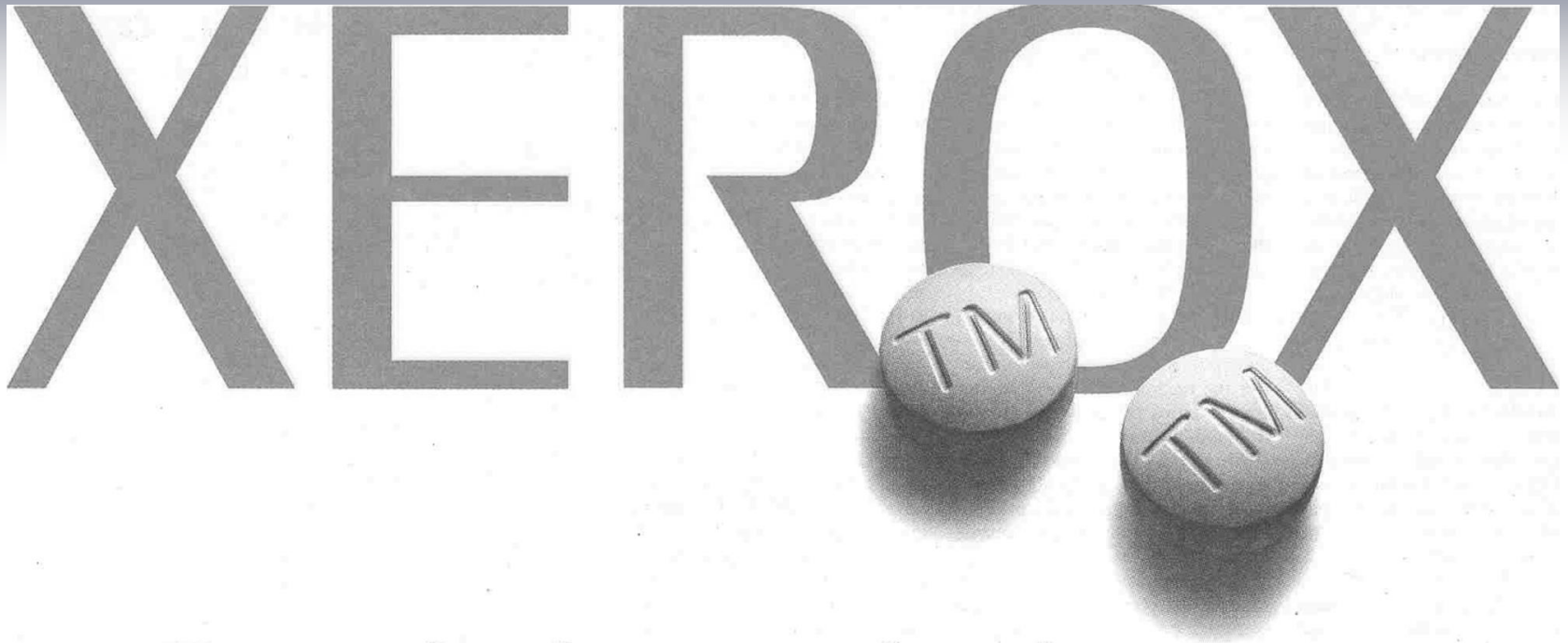
- If you choose an answer to this question at random, what is the chance you will be correct?
 - A. 25%
 - B. 50%
 - C. 33.3%
 - D. 25%

1. Trade Secret

- Confidential piece of intellectual property that gives company a competitive advantage
- Never expires
- No legal protection
- Reverse engineering allowed
- May be compromised when employees leave firm

2. Trademark, Service Mark

- Trademark: Identifies goods
- Service mark: Identifies services
- Company can establish a “brand name”
- Does not expire
- If brand name becomes common noun, trademark may be lost
- Companies advertise to protect their trademarks
- Companies also protect trademarks by contacting those who misuse them



When you use “Xerox” the way you use “aspirin,” we get a headache.
There’s a new way to look at it.

Boy, what a headache! And all because some of you may be using our name in a generic manner. Which could cause it to lose its trademark status the way the name “aspirin” did years ago. So when you do use our name, please use it as an

adjective to identify our products and services, e.g., Xerox copiers. Never as a verb: “to Xerox” in place of “to copy,” or as a noun: “Xeroxes” in place of “copies.” Thank you. Now, could you excuse us, we’ve got to lie down for a few minutes.

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3. Patent

- A public document that provides detailed description of invention
- A government office decides whether the invention is novel, non-obvious
- Provides owner with exclusive right to the invention
- Owner can prevent others from making, using, or selling invention for 20 years

Software Patents

- Patent protection began in 1981
- Inventions can be patented, but not algorithms
- Patent Office having a hard time determining prior art
- Result: some bad patents have been issued
 - Amazon One-Click purchasing
 - Apple: squares with rounded corners
- General skepticism about value of software patents
- *Patent trolls: what are they? What do you think?*

4. Copyright

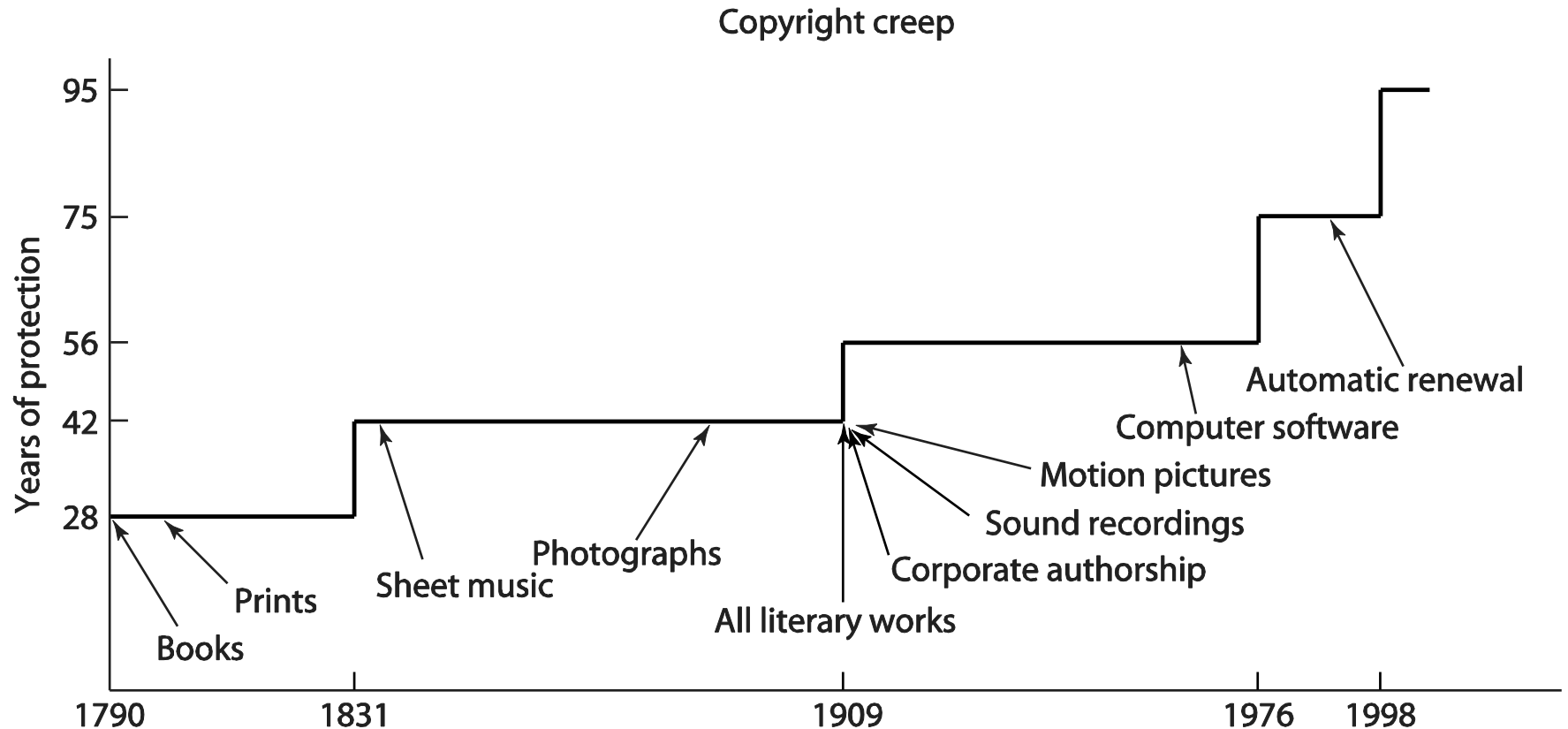
- Provides owner of an original work five rights
 - Reproduction
 - Distribution
 - Public display
 - Public performance
 - Production of derivative works
- Copyright-related industries represent 5% of U.S. gross domestic product (> \$500 billion/yr)
- Copyright protection has expanded greatly since 1790

Software Copyrights

- Copyright protection began 1964
- What gets copyrighted?
 - Expression of idea, not idea itself
 - Object program, not source program
- Companies treat source code as a trade secret
- Violations of copyright
 - Copying a program to give or sell to someone else
 - Preloading a program onto a computer being sold
 - Distributing a program over the Internet
- Important court cases
 - Apple Computer v. Franklin Computer
 - Established that object programs are copyrightable
 - Sega v. Accolade
 - Established that disassembling object code to determine technical specifications is fair use

Copyright Creep

- Since 1790, protection for books extended from 28 years to 95 years or more
 - latest extension done to prevent Disney characters from becoming public domain?
- Copyright Term Extension Act of 1998 challenged as unconstitutional
- U.S. Supreme Court disagreed: CTEA does not create perpetual copyrights



Digital Millennium Copyright Act

- First big revision of US copyright law since 1976
- Brought US into compliance with Europe
- Extended length of copyright
- Extended copyright protection to music broadcast over Internet
- Made it illegal for anyone to
 - Circumvent encryption schemes placed on digital media
 - Circumvent copy controls, even for fair use purposes

Digital Rights Management

- Actions owners of IP take to protect their rights
- Approaches
 - Encrypt digital content
 - Digital marking so devices can recognize content as copy-protected
- Example: the (failed) Secure Digital Music Initiative (2000)
 - Consortium didn't stick together
 - Cracked by CS researchers
- Example: Sony BMG Rootkit (2005)
 - Made everyone angry; retracted
- Example: online music stores (2003—2009)
 - Started out with DRM, in part to lock people into platforms
 - Lately, moving away from it

DRM Example: Encrypting DVDs

- Contents of DVDs encrypted using Content Scramble System (CSS)
- Need decryption keys to view a DVD
- Jon Johansen wrote a decryption program for Linux
- 2600 Magazine published the code
- Motion picture studios sued 2600 Magazine and won
- Johansen tried in Norway and found not guilty

DRM Example: Foiling HD-DVD Encryption

- Hardware, software, and entertainment companies created Advanced Access Content System to encrypt HD-DVDs
- Encryption key posted on Digg.com
 - AACCS leaned on Digg.com to censor postings containing key
 - Digg users fought back
 - AACCS “expired” the key and issued a new one
 - A month later, a Digg user posted the new key

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?