

Software Security  
415.725SC  
Lecture 4: Copyright  
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2-Aug-00

Copyright

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“Who Will Own Your Next Good Idea”

Charles C Mann

*The Atlantic Monthly*, September 1998

“[In 1997], copyrighted material contributed more than \$400 billion to the [US] economy and was the country’s single most valuable export... But opposing pressures from the Internauts who want to open copyright up and the software publishers who want to clamp it shut [are pressuring us] to change laws today to fit a tomorrow we can only dream about.”

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# Contents

- Copyright for books, movies, music and software
    - Historic development: French, English and American
    - Present: piracy in Hong Kong, Stallman's Free Software Foundation, database copyright, Digital Millennium Copyright Act
    - Future: e-books, ©-chips, fears for authors & culture
  - Validity of shrink-wrap and click-wrap contracts
- ☞ The author of this essay is deeply concerned about copyright. Do you share his concern?

## Historic View of Copyright

“Economists and historians tend to be exasperated by comments like ‘The advent of the web is the most transforming technological event since the capture of fire (Perry Barlow)’.”

The essayist draws parallels and lessons from the French, British and American experience with copyright since 1557.

# Copyright in the French Revolution

- Prior to 1789, “privileged booksellers” were prey to pirates, and authors had few rights.
- Privilege was abolished in the Revolution.
- Culture suffered when no “serious books” or “great texts of the Enlightenment” were published.
- In 1793, authors were given power over their own work lasting until ten years after their death.

## A Brief History of (British and) American Copyright

- 1557: Stationers’ Company gains control of all printing and book sales, authors have few rights.
- 1710: Writers gain control of works, but only for 14 years (renewable once).
- 1774: House of Lords affirms that the rights of authors and publishers are temporary so that the “products of the mind always return to their real state: owned by no one, usable by everyone.”
- 1776: US declares independence, starts to develop its own laws and theories of copyright.

# American Copyright Since 1776

- 1790: US Copyright Act passed: 14 year term with one renewal.
- 1790-1998: US Congress repeatedly extends the term of copyright.
- 1998: Copyright protection is extended to databases.
- 1998: Digital Millennium Copyright Act makes it illegal (in the US) to subvert “©-chips”.

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## Ethical Analysis of Copyright

- Samuel Johnson: “For the general good of the world,” a writer’s work “should be understood as belonging to the publick.” To which of Pfleeger’s “rights” does this argument refer?
  - ☞ The public’s right to information.
- Richard Aston: it is “against natural reason and moral rectitude” that a government should “strip businesses of their property after fourteen years.”
  - ☞ The publisher’s right to compensation.

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# Chinese Ethics of Copyright?

- The Hong Kong piracy stories were told from a “Western” viewpoint, *e.g.* Barlow saw “not the slightest trace of moral anxiety” in the salesclerk’s face, when she was told that the author of the software was trying to purchase a pirated copy.
- What is “fair compensation for work” in China?  
Multinationals might pay USD \$0.11/hour for labour.
- Which if any of the Confucian relationships (“Li”) lend support to Western notions of copyright?
- “Wen”: Mandarins should produce (but not sell) art.
- What were Mao’s thoughts on copyright?

## Conclusion

- Copyright law is a delicate balance, developed over centuries, among the rights of authors, publishers and the public in Western democracies.
- Technological developments and international commerce are forcing rapid change in copyright law. There hasn’t been enough time for wisdom!

# “Steal this Software”

Hillary Rosner

*The Standard.com*, 19 June, 2000

“Never paying for software is a point of pride among tech insiders. The Internet is making it easier for outsiders to join this jolly band of software pirates. ... [Adobe] estimates that as much as 50 percent of the company’s software in use today is stolen.”

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## Outline

- How and why “insiders” [crackers] steal software
- How “outsiders” (like you) could steal, too.
  - Napster, Gnutella, Freenet, Hotline
- For the foreseeable future, it will be difficult for any publisher to prevent the piracy of its software products.

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# Software Piracy in Hotline

- “Cracked” software (“warez”) can be downloaded inexpensively, if you “go through a series of links to obtain a username and password” to a Hotline server.
- “Most Hotline servers are maintained by people who have no interest in software and are just in it for the money they can make when software seekers click through the ads.”
- “The rest are college kids and anarchic programmers in it for the thrill.”

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## Rosner’s Ethics of Software Piracy

- “Insider’s entitlement”: if you’re clever enough to find “warez” then you deserve to have it without paying.
  - If you buy any software, then you’re also in danger of buying the [Brooklyn] bridge if someone tried to sell it to you. [This is an old joke in America, making fun of naïve immigrants.]
- ☞ Is this an accurate description of cracker (phreak) culture?

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# The New Hacker's Dictionary

- See <http://www.tuxedo.org/~esr/jargon>
- A “lamer” is someone who “scams codes off others, rather than doing cracks or really understanding the fundamental concepts.”
- If this is an accurate reflection of cracker culture, then the warez available to non-crackers on Hotline will be pretty lame.

## The Faction's 10 Point Program (1998)

[<http://www.gamespot.com/features/pirates>]

“Sort of a moral code for crackers”

1. Releases are limited to 50\*2.88 MB
2. Releases are functionally and playably complete games.
3. Sound effects must be included.
4. Only two add-ons will be released, per game.
5. No intros, outros, or cut-scenes should be included unless the release is less than 40\*2.88 MB.

# The Faction's 10 Point Program (cont.)

6. A brief outline of what has been stripped should be clearly stated in the release.
7. Kiddie games and edutainment do not qualify.
8. Later releases are DUPES unless they play differently.
9. Fully cracked update patches & trainers are highly regarded.
10. Admittance to the Faction is by invite/vote-in only.

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## Ethics of Software Piracy

- If crackers only share with other crackers, who (if anyone) is harmed?
  - Legal analysis: the author and the publisher (who may assert their rights under the laws of contract, copyright, trademark or patent)
  - Ethical analysis: rights of knowledge *vs* compensation
- Is it worse if crackers post warez for lamers too?
  - Legal analysis: yes, more damage is done.
  - Ethical analysis: what rights do lamers have to this knowledge?

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# Conclusion

- If crackers post warez for lamers, then the scale of software piracy increases greatly.
- Napster was shut down last weekend because the scale of MP3 piracy became too large to be ignored once “almost anyone with a computer” could crack music CD-ROMs into downloadable files.
- Watermarks (on software, music, and video) may allow crackers to be traced.

## CyberSoft, Incorporated Moral Guidelines Peter V Radatti, May 1995

<http://www.cybersoft.com/papers/locks.html>

“People who are responsible for security can only do their jobs if they understand the true nature of the problems they are combating... This argument was well made [in 1853] and there is no reason to reinvent the argument now.”

# Rudimentary Treatise on the Construction of Locks, 1853

Charles Tomlinson

- “Rogues knew a good deal about lockpicking long before locksmiths discussed it among themselves.”
- “If a lock... is not so inviolable as it has hitherto been deemed to be, surely it is in the interest of *honest* persons to know this fact.”

## Tomlinson’s Argument (cont.)

- “The inventor produces a lock which he honestly thinks will possess such and such qualities; and he declares the belief to the world. If others differ... the discussion, truthfully conducted, must lead to public advantage.”
- What is your ethical analysis? (Right to information *vs* ??)
- Would your analysis change if the “lock design” were protected by trade secret?

# Readings for Next Week

- Wednesday:
  - Collberg & Thomborson, “Watermarking, Tamper-Proofing, and Obfuscation -- Tools for Software Protection”, July 2000.
- Thursday:
  - Cohen, Operating System Protection Through Program Evolution (presented by J Macness)
  - Margrave, GSM Security and Encryption (presented by J Li)
- Monday:
  - Garcia-Molina & Shivakumar, Safeguarding & Charging for Information on the Internet (presented by Q Dong)
  - Bellare et al, Design [of an] Electronic Payment System (presented by K von Randow)