COP3502: Introduction to Computer Science
Ethics Lecture 3

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COP3502 - 1 Introduction to Computer Science
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Intellectual Property

- Product of human intellect that has commercial value.
  - Books, songs, movies, paintings, inventions, chemical formulas, and computer programs.
  - Physical media is not intellectual property (Paper a poem is written on)

- Is it the same as the right to own property (physical)?

- Property Rights (according to John Locke (1632 - 1704):
  - Right to property in their own person.
  - Right to their own labor
  - Right to that which they have removed from nature through their own labor.

- Can this extending to intellectual property?
  - Difference: Physical ownership vs. ownership of an idea.
  - Who owns an identical idea developed independently?
  - Physical items are unique - differ from stealing said object or copying said object.
New ideas can improve quality of life.

People are motivated by wealth: will labour to that end.

Society grant rights to IP because of its benefits.

Articel I, Section 8 of the US Constitution.

excerpt: “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;”

Gives the US government the power to promote IP rights.

Limits: The public benefit most when inventions are in the public domain.

If everyone is allowed to produce the superior product: cheaper.

IP items have a time limit on their rights.

What is a reasonable time limit?
Protecting Intellectual Property

- Trade secrets:
  - Give companies a competitive edge in the market: processes, proprietary designs, etc.
  - Most famous: Coca Cola syrup.
  - Never needs to be disclosed.
  - Not protected from reverse engineering.

- Patents:
  - Exclusive right to a piece of intellectual property.
  - Public: provides detailed description of invention.
  - 20 year expiration date.
  - Allowed to license your product to others.
Protecting Intellectual Property

- **Copyrights:**
  - Rights to original works they have written.
  - Five principle rights:
    - Reproduce the work.
    - Distribute to the public.
    - Display copies of the work in public.
    - Preform work in public.
    - Produce new works derived from the copyrighted work.
  - Lasts for lifetime of author plus 70 years.

- **Trademarks/Service:**
  - Word, symbol, picture, sound, color, smell to identify goods.
  - Used for creating “Brand name”
Maintaining the balance

- Free copying of ideas and inventions promotes progress.
- Monopoly to creator promotes creation.
- Society wants progress but also sees need for incentive.
Right of copyright owner to reproduce work is a limited right.

Citing short excerpts for purposes of teaching, scholarship, research, criticism, commentary and news reporting.

Four factors of Fair use:

- Purpose and character of use?
- Nature of the work being copied?
- How much is begin used?
- How will the use affect the market of copyrighted work?
Fair Use example

- Sony vs. Universal City Studio
  - “Sony Betamax” case - Sony sells the first VCR (Betamax format) in 1975
  - Consumers use VCR to record television shows and movies for later viewing
  - Universal and Walt Disney sue Sony alleging responsibility for copyright infringement committed by consumers

- US Supreme court fair use analysis.
  - Intended purpose of copying was for private viewing, not commercial sale
  - Amount of material copied was the entire show or movie
  - The nature of the copyrighted work is creative, fictional movies. However, the actual use of the original works was to be sold to television channels, who depend upon viewers watching for free.
  - The effect on the market for the original work was not reducing the value of copyrighted material, but in fact creating more demand for it
Fair use example

- Recording Industry Association of America v. Diamond Multimedia Systems, Inc. - 180 F.3d 1072 (9th Cir. 1999)
- Diamond introduces first MP3 player (Rio)
- RIAA jack-booted thugs sue to stop manufacturing and distribution of the Rio
- Some technical arguments ensue
- U.S. Court of Appeals (9th Cir) held that copying a recording in order to make it portable (to listen elsewhere) is fair use
Fair use example

- MGM sues Grokster for writing and distributing file-sharing software
- Court differentiates Sony v. Universal City Studios as barring imputation of fault (and thus liability) based solely on distributing a product with alternative lawful and unlawful uses.
- In MGM Grokster is viewed as not just distributing but showing "a purpose to cause and profit from third-party acts of copyright infringement".
- Thus Grokster may be liable for the copyright infringement of software users despite the Sony case.
Effects of technology

- Digitization gives the ability to reproduce almost exactly, with high quality
- High capacity storage allows for holding large quantities of digital information (LQDI)
- High quality compression (mpeg, mp3) allows for holding even more LQDI
- High speed transfer allows us to reasonably distribute LQDI
- Peer-to-Peer networking (File-sharing)
  - Fair use?
  - Compared to Sony Betamax and Diamond Rio cases?
  - MGM v. Grokster
Legislation and restrictions

- **Digital Millennium Copyright Act (1998)**
  - Illegal to make copies of any digitally recorded work for any purpose
  - Illegal to sell (or even discuss) software programs designed to circumvent copy controls
  - Compare to Fair Use, First Amendment

- **Copy Protection**
  - Digital Rights Management (DRM)
  - Secure Digital Music Initiative (SDMI)
  - Content Scramble System (CSS) and DeCSS (Jon Johansen)
  - Interference with Fair Use
  - Interferes with even original use
Current Issues

- Restricting Copying
  - Undermines fair use
- Restricting copying technology
  - Unconstitutional restriction on speech
  - Holding non-violators responsible
- Enforcement of copyright and patent
  - Already don’t know what we are doing
  - Bad Patenting of software
  - Uncertainty over prior art and possibility of infringement
  - Copyrights are not promoting progress in computer software, since technology moves much faster than long protection times
  - Is revision necessary to handle new technologies?
Open-Source Software
- Software is provided with source code, and can be freely modified and re-compiled
- If Software is re-distributed, it must include source code
- Software may be given away or sold, and used in any way
- Contradicts argument that progress can only be supported by granting monopolies

Benefits
- Everyone has opportunity to improve software, adding features and fixing bugs
- New versions appear much more frequently
- Programs are property of entire community, and cannot be monopolized or abandoned by a single vendor
- Shifts focus from manufacturing of software to service of software (better Windows instead of more updates)
• **Drawbacks**
  • Driven by developers, so typically require more technical ability to use (e.g. lack of graphical interface)
  • Projects have filled immediate needs but not necessarily created completely new products

• **Examples**
  • "BIND" provides DNS service for entire Internet
  • "Apache" accounts for two-thirds of all web servers
  • Linux makes a lot of money for IBM, RedHat, SuSe
Recap

- Property Rights (according to John Locke (1632 - 1704).
  - Based on labor and removing from nature.
- Programmers put labor into writing software.
- Thus they should own the software they write, which implies control of the software
- Issues:
  - Does Locke’s Property Rights make logical sense?
  - Intellectual property is unique compared to tangible property.
  - Copying intellectual property is different from stealing physical objects.
- Utilitarianism
  - Act and rule argue by analyzing the consequence to society.
  - What is the overall Utility in allowing Intellectual Property protection for software?
Ethics of Copying Protected Software
- Law currently grants copyright protection for software

Social Contract Theory
- Law is generated from agreement on compromises for benefit of living in a society
- Should generally be law-abiding, or else work to change law

Kantian Categorical Imperative
- Characterize rule as “I may ignore a law that I believe to be unjust if I can make it universal”
- Other characterizations of applicable rule in copying software?

Utilitarianism
- In what kinds of situations may overall utility vary?
- Under Act Utilitarianism would a different general view result?