Intellectual Property in Cyberspace

CSE 4201

Ethical Issues and Professional Practice in Computing

University of Guyana
Lecturer: Muriana McPherson
Semester 2: 2018/2019

Scenario

- ***Bingo Software Systems*** is a small company that obtained venture capital (US$ 2 million) and spent 3 years to develop a new file organizing system
- When completed, the new system is successfully marketed for 1 year and Bingo recovers about 50% of the investment
- After the first year a competing company, ***Pete's Software***, starts distributing a file organizing system with many of the same functions of Bingo's one that can be freely downloaded using a license
- Pete's programmers studied Bingo's system, adopted a similar approach, then produced a new piece of software which is more efficient
- According to its lawyer, Bingo would be unlikely to prevail in a ***copyright*** or a "look and feel" lawsuit against Pete's software
- Pete's Software has plenty of business, whereas Bingo is unable to recover the full costs of developing its original system and files for bankruptcy
- Customers appear to be downloading Pete's software and then making multiple copies for internal use
- Some of these companies hire Pete's Software to help them
- Pete's Software, pleased by its success, begins another project in which they target another market segment currently served by proprietary software; they plan to again develop a Free Software alternative

Scenario Questions

- **Is it situation unfair? Has Pete's software wronged Bingo Software Systems?**
- **What, exactly, is Intellectual Property?**
- **How have intellectual property laws been challenged by the introduction of cybertechnology and digital information?**

What is (Tangible) Property?

When discussing property, we tend to think of tangible items.

- Originally, "property" referred to land.
- Property also includes objects that one can own, such as:
  - An automobile,
  - Articles of clothing,
  - DVD collection.

Property as a "Relational" Concept

- Property should not be viewed simply in terms of items or things (tangible or otherwise).
- Philosophers and legal theorists point out that property can best be understood as a *relationship between individuals in reference to things*, where three elements need to be considered:

1) an individual (*X*),
2) A "thing" or object (*Y*),
3) *X's* relation to other individuals (*A*, *B*, *C*, etc.) in reference to *Y*.

Property as a Form of "Control"

- *X* (as the owner of property *Y*) can control *Y* relative to persons *A*, *B*, *C*, and so forth.
- If Harry owns a certain object (e.g. a Dell laptop computer), then Harry can control who has access to that object and how it is used.
- For example, Harry has the right to exclude Sally from using that laptop; or he could grant her unlimited access to it.
- Ownership claims involving "intellectual objects" (involving IP) are both similar to and different from ownership of tangible objects.

Intellectual Objects

- The expression *intellectual object* can refer to various forms or instances of intellectual property.
- Intellectual property consists of “objects” that are not tangible.
- Intellectual objects represent creative works and inventions, i.e., the manifestations or expressions of ideas.

Intellectual vs. Tangible Objects

- Tangible objects are *exclusionary* in nature.
  - If Harry owns a laptop computer (a physical object), then Sally cannot, and *vice versa*.
- Intellectual objects, such as software programs, are *non-exclusionary*.
  - If Sally makes a copy of a word-processing program (that resides in Harry's computer), then both Sally and Harry can possess copies of the same word-processing program.
- The sense of *scarcity* that applies to tangible objects, which often causes competition and rivalry, need not exist for intellectual objects.
  - For example, there are practical limitations to the number of physical objects that one can own.
  - There are also limitations (natural and political) to the amount of land that can be owned.
- Intellectual objects can be easily reproduced.
  - Countless copies of a software program can be produced – each at a relatively low cost.

Ownership of Intellectual vs. Tangible Objects

- Legally, one cannot own an idea in the same sense that one can own a physical object.
- Governments do not grant ownership rights to individuals for ideas per se.
- Legal protection is given only to the tangible *expression* of an idea that is creative or original.

Ideas vs. Expressions of Ideas

- If an idea is literary or artistic in nature, it must be expressed (or "fixed") in some tangible medium in order to be protected.
- A “tangible medium” could be a physical book or a sheet of paper containing a musical score.
- If the idea is functional in nature, such as an invention, it must be expressed in terms of a machine or a process.
- Authors are granted copyright protections for expressions of their literary ideas, while inventors are given patent protection for their inventions.

Why Protect Intellectual Property?

- One answer is: Our current laws say that intellectual property should be protected.
- But we can ask: On what philosophical grounds are our property laws themselves based?
- In Anglo-American law, philosophical justification for intellectual property rights is grounded in two different types of views:
  1) natural rights,
  2) conventional (or constructed) rights.
- One theory holds that a property right is a "natural right," to which individuals are justified for the products that result from their labor, including intellectual objects.
- The other theory views property rights as a social construct designed to encourage creators and inventors to bring forth their artistic works and inventions into the marketplace.

Software as Intellectual Property

- Should computer programs be eligible for patent protection?
- Should they be protected by copyright law?
- Do they deserve both, or perhaps neither, kind of protection?
- Computer software consist of lines of programming code (or codified thought).
- It is not expressed or "fixed" in a tangible medium in a way that literary works are.

Software as Intellectual Property

Any piece of software can be described in three different ways

- **Algorithm** is a step-by-step method for solving a particular problem
  - More abstract than a particular program written for a particular computer in a particular programming language
  - Same algorithm can be implemented in different programs
- **Source code** refers to the program expressed in a programming language (before compilation version of the program)
- **Object code** refers to the binary expression of that program in the machine language of a particular machine (after compilation version of the program). It is made up of executable images that run on the computer's hardware after they have been converted from the original source code.

Software as Intellectual Property

- Reproducibility
  - Software can be stolen merely by copying
  - The owner does not lose access to the software and he/she may not even notice that a copy has been made.
- Software has posed the more difficult challenge to conventional notions of property. Its digital
- composition makes software difficult to protect using conventional intellectual property regimens. Some argued that computer programs are more like inventions that can be patented .
- Initially, computer programs were not eligible for either copyright or patent protection.
  - Eventually, however, both copyright and patent protections were granted to software programs.

The Case for Protecting Software as a form of Intellectual Property

- The software industry has made the following kind of argument for why software should be protected with intellectual property rights.
- **PREMISE 1.** Stealing a tangible object is morally wrong.
- **PREMISE 2.** Making an unauthorized copy of proprietary software is identical to stealing a tangible object.
- **CONCLUSION.** Making unauthorized copies of proprietary software is morally wrong.

Protecting Software (Continued)

- If we apply the rules for logical validity, we see that this argument is *valid* because of its logical form.
- Consider that *if* both Premises 1 and 2 are assumed true, the conclusion cannot be false.
- Even though the argument's form is valid, we could still show the argument to be *unsound* if either or both of the premises are false.
- Premise 1 (in the above argument) is fairly straightforward, and few would question its truth.
- But Premise 2 is more controversial and thus we can question whether it is empirically true.
  - For example, is duplicating a software program *identical* to stealing a physical item?
- Consider that software programs, like other intellectual objects, are nonexclusionary; so my having a copy of Program X does not exclude your having a copy of that program, and vice versa.
- Because the truth of Premise 2 is questionable, we cannot infer that the above argument is sound.

Protecting Software (Continued)

- But even if the original argument turns out to be unsound, it does not follow that its conclusion – "Making unauthorized copies of proprietary software is morally wrong" – is false.
  - For example, the argument's conclusion could be true for reasons other than those stated in the premises.
- Consider that even if duplicating software is not identical to stealing physical property, it could still cause harm to the property owner because copying the proprietary software program (like the theft of someone's physical property) deprives the property owner of the legitimate use of his or her property.

Protecting Software (Continued)

- One could also argue, for example, that unauthorized copying is harmful because it is a misuse, misappropriation, or “unfair taking” of another person’s property against the property owner’s will (Spinello, 2008) .
- So, there could be alternative reasons why the original argument’s conclusion can be true, despite the fact that its second premise may be false.

Intellectual Property Protection Schemes

- Four forms of legal protection now widely used to own and control access to software:

1) *Copyrights*;
2) *Patents*;
3) *Trademarks*;
4) *Trade secrets*.

- However, software never fit neatly into these legal forms

Copyright Protection

- A copyright is a legal form of protection given to a "person" or author. The author can be an entity
- such as organization or a corporation, such as Microsoft, as well as an individual.
- A copyright protection is given for the expression of an idea such as a book, poem, musical
- composition, photograph, dance movement, motion pictures, audiovisual works, or computer software.
- The "machine readable" vs. "human readable" distinction had implications for decisions about
- whether software programs could qualify for copyright protection.
  - A software program’s source code can be read by humans.
  - Its "executable code," which "runs" on a computer, cannot be read by humans.

Copyright Protection

- A computer program was defined under the US Copyright Act as:
  - a set of statements or instructions to be used directly in a computer in order to bring about certain results
- To get a copyright for a computer program, the author had to show that the program contained an *original expression of ideas* and not simply the ideas themselves
- When a software developer creates an original piece of software, he can use copyright law to obtain a form of ownership excluding others from directly copying the software without permission

Copyright Protection

- At the heart of copyright law
  - An idea cannot be copyrighted (algorithms)
  - The expression of an idea can be (programs)
- Copyright protection is for the life of the author plus 70 years.
- Protection for "works of hire" (often commissioned by corporations) is 95 years.

Digital Millennium Copyright Act (DMCA)

- The DMCA has been severely criticized, because of the manner in which the rights are extended.
- The DMCA potentially restricts the development and use of digital technology.
- It contains a controversial "anti-circumvention clause," which forbids:

  the development of any software or hardware technology that *circumvents* (or devises a technological workaround) to copyrighted digital media.

What Does Copyright Law Protect?

- A copyright is a legal form of protection given to a "person" or author.
- The author can be an entity such as organization or a corporation, such as Microsoft, as well as an individual.
- A copyright protection is given for the expression of an idea such as a book, poem, musical composition, photograph, dance movement, motion pictures, audiovisual works, or computer software.
- For a work to be protected under copyright law, it must satisfy three conditions in that it needs to be:
  1) original;
  2) non-functional;
  3) fixed in a tangible medium.

Copyright Protection

- Complex issues of interpretation often arise
  - This distinction doesn't capture functionality or behaviour of software
  - Competitors can read a piece of software, comprehend its useful behaviour and develop new
- Copyright holders have the exclusive right to:
  - make copies of the work;
  - produce derivative works, translations into other languages, movies based on the book, and so forth;
  - distribute copies;
  - perform works in public (musicals, plays. etc.);
  - display works in public (e.g., art works).

The *Fair Use* Provision in Copyright Law

- The principle of *fair use* balances the exclusive controls given to copyright holders against the broader interests of society.
- Fair use means that an author or publisher may make limited use of another person's copyrighted work for purposes such as:
  - criticism,
  - comment,
  - teaching,
  - scholarship,
  - research.
- The fair-use principle has also supported the practice of "reverse engineering."
- Reverse engineering is very important in the computer industry in particular, and in engineering in general, because it allows someone to buy a product for the purpose of taking it apart to see how it work.

The *First-Sale* Doctrine in Copyright Law

- The first-sale doctrine is another balancing scheme in copyright law.
- It applies once the original work has been sold for the first time, when the original owner loses rights over the work of art.
- Once you purchase a copy of a book, audio tape, painting, etc., you are free to give away, resell, or even destroy the copy of that work.
- It is not clear whether one is permitted to give away digital versions of these works.

The (Now Classic) LaMacchia Case

- In 1994, Robert LaMacchia, a student at MIT, was arrested for operating an electronic bulletin board system (BBS) system (*Cynosure*), on which users could upload/download proprietary (copyrighted) software.
- LaMacchia did not charge users for his service and he did not make any money from the Cynosure BBS; so, did he commit a crime?
- How did the incident involving LaMacchia and Cynosure foreshadow the Napster case?

The Original Napster Case

- In 1999, the Napster Web site was sued by the Recording Industry Association of America (RIAA) for distributing copyrighted music on the Internet.
- Gnutella, Morpheus, and KaZaA have also distributed copyrighted music on the Internet.
- Unlike Napster, which used a centralized server, index, and registry of names, the other services used a “decentralized” system.

The *Verizon v. RIAA* Controversy

- The Recording Industry took a different approach in challenging Gnutella, Morpheus, and KaZaA.
- It issued court subpoenas to Internet Service Providers (ISPs) such as Comcast and Verizon, as well as to major universities, for the names of users it suspected to have downloaded and exchanged large volumes of copyrighted music via those ISPs.
- In the *Verizon v. RIAA* case, Verizon challenged the RIAA in court on the grounds that complying with such requests violated specific articles of the U.S. Constitution.
- As a result of the RIAA's suits, some universities have disabled their P2P file-sharing systems altogether.

The *MGM v. Grokster* Case

- Review the discussion of the *MGM v. Grokster* case (in the textbook).
- MGM and several motion picture studios sued Grokster for "contributory copyright infringement" through its file-sharing service.
- MGM alleged that over 90% of the material exchanged on Grokster was copyrighted material and that the P2P service was legally liable for the material being exchanged.
- A district court disagreed with MGM, ruling that Grokster could not be held liable for the distribution of copyrighted material because:
  1) it lacked sufficient knowledge of the infringement, and
  2) it did not materially contribute to the copyright infringement.
- The case was later appealed to U.S. Supreme Court, which sided with MGM.

Patent Protections

- A patent is a form of legal protection given to individuals who create an invention or process.
- It offers the strongest form of protection because a patent gives the inventor a monopoly on the use of the invention.
  - Referring back to the scenario, patent protection could have given Bingo Software the power to prevent Pete's from marketing its system if important aspects of Bingo's system were deemed patentable.
  - Unlike copyrights, patents offer a 20-year exclusive monopoly over an expression or implementation of a protected work.
- Current U.S. patent law is based on the Patent Act of 1952, amended in 1995.

Patents (Continued)

- Patent protection can be applied to inventions and discoveries that include utilitarian or functional devices such as machines, “articles of manufacture,” or "compositions of matter.“
- Patents are granted to inventions and discoveries that satisfy three conditions:
  1) *usefulness*,
  2) *novelty*,
  3) *non-obviousness*.
- Computer hardware inventions clearly satisfied the requirements of patent law
  - But what subject matter is transformed by software?
  - What exactly does one own when one has a patent on a piece of software?

Patents (Continued)

- Computer hardware inventions clearly satisfied the requirements of patent law.
- Computer software did not (initially).
- Beginning with *Gotshalk v. Benson* (1972), the U.S. Patent Office and the courts established a strong opposition to patents.
- Benson applied for a patent for an algorithm he developed that translated the representation of numbers from base 10 to base 2.

Gotshalk vs. Benson (1972)

- The U.S. Patent Office and the courts established a strong opposition to patents.
- Benson applied for a patent for an algorithm he developed that translated the representation of numbers from base 10 to base 2.
- Benson's algorithm is an important feature of all programs. If he had been granted a patent for his algorithm, Benson would have controlled almost every computer in use for 12 years.
- The patent was denied to Benson on the basis of a policy that bars patents for mere mathematical formulas or abstract processes that can be performed by a series of "mental steps" with the aid of pencil and paper.

The *Diamond v. Diehr* Case

- The *Diamond v. Diehr* case is considered a landmark ruling in the dispute over patenting software.
- The outcome of this court case, based on 5-4 decision, resulted in the first patent awarded for a computer program.
- In this instance, the computer program assisted in a process of converting rubber into tires.
- Critics argued that Diehr had only a new computer program, since all of the parts of the machine used in the conversion process consisted of traditional technology except for the computer program.
- Although the Court ruled in favor of Diehr, the justices, in their decision, continued to affirm the view that computer algorithms themselves are not patentable.
- The Court pointed out that the patent awarded to Diehr was not for the computer program but for the rubber tire transformation process as a whole.

Proliferation of Patents for Computer Software

- Some worry that patent protection has gone too far.
- The U.S. Patent and Trademark Office (PTO) issues about 20,000 new software patents every year.
- Aharonian (2001) notes that between 1993 and 1999, the number of patents issued increased by tenfold.
- Between 1979 and 1999, more than 700,000 patents had been issued for electronics inventions.

Trademarks

- A *trademark* is a word, name phrase, or symbol that identifies a product or service.
- The Lanham Act, also referred to as the Trademark Act of 1946, was passed to provide protection for registered trademarks.
- The Act intends to ensure that the quality associated with a certain logo or symbol used by a business actually represents the quality that consumers expect (e.g., the BMW label).
- To qualify for a trademark, the "mark" or name is supposed to be *distinctive*.
- However, Deborah Halbert (1999) notes that a (not so distinctive) trademark for "uh-huh" was granted to Pepsi.
- Also, consider that a major movie theatre in the U.S. has trademarked the expression “Silence is Golden.”

AOL v. AT&T

- America OnLine (AOL) tried to register a number of symbols as official trademarks.
- For example, it applied for trademarks of its expression "You've Got Mail," "Buddy List," and "IM" (for Instant Messenger).
- If AOL was allowed to register them, other providers who used these expressions would be infringing on AOL's registered trademarks.
- AT&T challenged AOL.
- The court ruled that the expressions were not unique to AOL.

Trade Secrets

- A trade secret is defined as

  information used in the operation of a business or other enterprise that is sufficiently valuable and secret to afford an actual or potential economic advantage over others.

- Trade secrets can be used to protect:
  - formulas (such as the one used by Coca-Cola);
  - blueprints for future projects;
  - chemical compounds;
  - process of manufacturing.

Trade Secrets

- What is claimed as a trade secret must
  - Have novelty
  - Represent an economic investment to the claimant
  - Have involved some effort in development
  - The company must show that it made some effort to keep the information a secret
- Software can meet these requirements
- Software developers employ a variety of tools to protect their secrets
  - Nondisclosure clauses and licensing agreements
  - Limiting what is available to the user (no access to the source program) or building into the program identifying codes

Jurisdictional Issues Involving Copyright Laws

- Intellectual property (IP) laws enacted in the U.S. have implications that are global.
- Some international treaties for IP have been signed, such as TRIPS (Trade Relationship Aspects of Intellectual Property Standards).
- The TRIPS agreement implemented requirements from the Berne Convention for the Protection of Literary and Artistic Works.
- TRIPS is recognized by signatories to the World Intellectual Property Organization (WIPO).

Philosophical Foundations for Intellectual Property

- Software as we are using the term here didn't exist before computers .
- Much of the struggle about what software is takes place around social conceptions of property .
- We can distinguish three theories of property that are often hidden beneath the surface of debates about ownership of software:
  1) labor theory;
  2) utilitarian theory;
  3) personality theory.
- It is important to note that some theorists argue against property protection of any kind.
- Others argue against protecting intellectual property, but not against tangible property.

Natural rights theory (Labour Theory)

Natural Rights Arguments (according to John Locke's theory of property)

- Individuals have a right – a natural right – to what they produce with their labour
- One's labour is an extension of one's self
- To seize the products of someone's labour is to render the person a slave
- Software developers could argue that the software they create is rightfully theirs because they produced it with their labour (both intellectual and physical)
  - The Scenario: it seemed unfair for Bingo to invest its resources and labour in software only to have it used by Pete's
  - Pete's Software used the work of Bingo and was able to make money from the work, yet they paid Bingo nothing

Criticisms of the Natural Rights (Labour Theory)

The rationale for granting property rights should not be confused with an individual's labour or with natural right.

- Intellectual works don't always require the same kind of onerous labour.
- Software is nontangible (intellectual) and therefore making confiscation impossible
  - If I labour in creating a song and someone hears the song (even memorizes it), I don't lose the song.

The Utilitarian Theory of Property

- Granting property rights will maximize the good for the greatest number of people in society.
- Economic and financial incentives in the form of copyrights and patents would motivate individuals to bring their creative products to the marketplace. Property rights is justified based on economic incentives.
- Software developers could argue that the software they create was done for financial/economic gain. They invested financially in the development of the software and therefore it is reasonable to expect returns on their investment.
  - The Scenario: it seemed unfair for Bingo to invest its resources in software only to have it used by Pete's and not reap the anticipated returns.
  - Pete's Software used the work of Bingo and was able to make money from the work, yet they paid Bingo nothing.

Criticisms of the Utilitarian Theory of Property

- How would the interest of the minority be protected?
- This theory assumes that there must be an economic incentive to produce creative works. Otherwise creative works will not be produced.
- Not everyone is motivated by financial benefits. For example, someone may produce a good piece of music for sheer enjoyment / entertainment

The Personality Theory of Property

- We cannot underestimate the persona or personality of the creator of the intellectual work.
- The intellectual object is an extension of the creator's personality and deserves legal protection.
- Authors should be given protection for their artistic work even if they have no legal claim to any monetary reward associated with it. They should have a say in how their work is represented.

Criticism of the Personality Theory

- The personality theory assumes that property rights are natural or moral rights.
- This theory ignores three factors:
  a) the role of economic incentives;
  b) the role of labor involved;
  c) the fact that an author might not have invested her “true” personality in some creative work (such as a deliberate attempt on the part of the author of a creative work to deceive someone).

Summary of the Three Philosophical Theories of Property

Labor Theory	Argues that a property right is a "natural right" and that property rights can be justified by the labor or "toil" that one invests in cultivating land or in creating a work of art.
Utilitarian Theory	Argues that property rights are not natural rights but rather artificial rights created by the state. Property rights are granted to individuals and to corporations because they result in greater social utility overall.
Personality Theory	Argues that a property right is a "moral right" and that property rights are justified not because of labor or social utility but because creative works express the personalities of the authors that create them.

The Case Against Property Rights for Software

- Not everyone believes that property rights for software are justified.
- Some argue that while property rights for physical objects make sense, intellectual property rights for software does not.
- Richard Stallman has opposed copyright protection for software.

Alternative Frameworks to Property Rights for Software

- Stallman (2004) views software ownership as a form of “hoarding” that disregards the general welfare of society.
- He believes that software should be freely available for humankind rather than restricted by property rights.
- Stallman notes that the development of software in the computer industry has evolved from a spirit of cooperation and sharing to one in which cooperation is virtually forbidden.
- Although Stallman advocates for the view that software should be free, he intends “free” to refer to liberty not to price (or “free” as in free speech versus free beer).

Alternative Frameworks (Continued)

- In the late 1970s and early 1980s, the burgeoning computer industry hired many of the best software developers and programmers from academic computing labs.
- Some of those individuals took the software they developed with them, and some of that software eventually became proprietary.
- In response, Stallman began his GNU (Gnu's Not Unix) project in 1984, whose goal was to develop an entire Unix-like operating system that was "open" and freely accessible.

Free and Open Source Software (FOSS)

Two-track system for control and distribution of software

- Proprietary systems (PS) protected by copyright, trade secrecy, and patent law
- Software that is produced and distributed under one of the categories of Free and Open Source Software (FOSS)
- FOSS vision is for transparent software that users can modify to fix their needs and that is widely available
- FOSS programmers do nothing illegal but they make their software available to the public, often for free and under a license allowing users access to the source code
- Three approaches to digital ‘sharing’
  - Free software (FS)
  - Open Source Software (OSS)
  - Creative Commons (CC)

GNU and the Free Software Foundation (FSF)

- FSF was formed in 1985 to support of Stallman's GNU project.
- According to FSF, four "freedoms" are essential for free software, i.e., the *freedom to*:
  1. run the program, for any purpose;
  2. study how the program works, and adapt it for your needs;
  3. redistribute copies so you can help your neighbor;
  4. improve the program, and release your improvements to the public so that the whole community benefits.

The Open Source Initiative (OSI)

- OSI shares many of the same goals as FSF, including the ability of a software user to look at, understand, modify and redistribute the source code for that software.
- Like FSF, OSI requires that the source code for “open source software” (OSS) is freely available.
- So, both the OSS and FSF movements are similar with respect to their requirements for source code in the software development process.
- There are also important differences between OSS and FSF.

OSS and FSF (Continued)

- Raymond (2004) notes that OSS and FSF have different philosophies or “attitudes” because:
- FSF continues to focus on promoting its philosophical position that software should be free.
- OSS has concentrated its efforts more on promoting the open source model as an alternative methodology to “closed-source” development for software.
- OSS and FSF also differ with respect to requirements for how the software is used “downstream.”

OSS and FSF (Continued)

- FSF requires that all derivative pieces of software be subject to the original requirements and thus remain “open” and nonproprietary.
- OSS is more flexible with respect to its derivative software.
- FSF requires that users strictly adhere to its GPL (General Programming License) in all derivative uses of its software.
- OSS supports less restrictive licenses that permit programmers to alter the open source software and to release it as a proprietary product.

Free and Open Source Software & Propriety Software

- A common misconception is that FOSS is never distributed with a cost
  - Red Hat Linux is a counterexample
- It is the rights that come with the software that distinguish FOSS from PS, particularly the right to view and modify the source code
  - Software developers can still make money selling and customizing FOSS
  - In the last few years, big corporations (e.g. SUN and IBM) have begun to develop and distribute FOSS
- However, FOSS represents a threat to PS, and some PS developers have long argued against FOSS, claiming that is unreliable and ‘communistic’

Free and Open Source Software Vs Propriety Software

- Difference between PS and FOSS in terms of the best system for the production and distribution of software
  - ‘Best system’ as a matter of which produces the best consequences?
  - Which system will create the most robust environment for software development?
  - Which system will produce the best – most useful –software?
  - Which system will lead to the most widely accessible software?
- This framework puts the focus on deciding ownership issues in terms of effects on continued creativity and development in the field of software
- It suggests that the courts will have to continue to draw a delicate line between what should be ownable and what should not be ownable

Is It Morally wrong to copy Propriety Software (PS)?

- Making copies of PS is not uncommon
  - It would seem that many individuals do not think it is wrong to copy PS (individuals who would not break other laws will make illegal copies of software)
- In arguing that it is wrong to copy PS without permission, it is argued that it is immoral to do something illegal
- Does this also hold when the laws (e.g. those protecting software ownership) are bad laws?
- This implies that it is permissible to break laws whenever they are bad
  - A rich philosophical literature addresses why citizens have an obligation to obey the law and when citizens are justified in breaking the law

Alternative Frameworks and the Sharing of Information

- Stallman focuses his arguments specifically on why computer software, not necessarily all information, should be free (although some of his followers subscribe to the view: information wants to be free).
- But Stallman correctly recognizes that information is something that humans desire to *share* with one another.
- We do not need to accept his position on software being free to appreciate the force of Stallman's insight about the broader notion of information.
- In order for information to be shared, it must be communicated.
- So, intellectual-property laws that prohibit or even discourage the communication of information undermine the very purpose of information as "something to be shared" (McFarland, 2004).

The “Common Good” Approach

- Stallman's insight about the nature of information dovetails with the “common- good” approach to ethics.
- McFarland (2004, 2005) draws on some principles of virtue ethics and natural law theory in discussing how the “common good” applies to intellectual property issues.
- McFarland does not necessarily accept Stallman's claim that software should be totally free.
- De George (2003) notes that original copyright laws (involving print media) were designed to encourage information distribution.
- With recent laws covering digital media, such as the DMCA, the distribution of electronic information is now being inhibited, despite the fact that this kind of information exchange is easy and inexpensive.

“Information Wants to Be Shared” vs. “Information Wants to Be Free”

- Building on the insights of McFarland and others, we argue for the principle: *information wants to be shared*.
- This principle could be used as a starting point to guide policy debates.
- If we presume in favor of this principle, we can have fairer information policies.
- The original computing and Internet environments were governed by an implicit principle of *sharing* information.
  - For example, Doug Englebart did not apply for a patent for the mouse that he invented.
  - Also, Tim Berners-Lee did not copyright his HTML code that was eventually used as the standard protocol for the Web.

Defending the Principle: *Information Wants to Be Shared*

- If we defend the principle that information wants to be shared (but not totally free), then it will be possible to frame reasonable intellectual property policies that both:

a) encourage the flow of information in digital form;

b) reward fairly the creators of intellectual objects, including software manufacturers.

- One promising scheme for accomplishing these objectives is the Creative Commons initiative.

The Creative Commons (CC)

- The Creative Commons (CC), a nonprofit organization, was launched by Lawrence Lessig and others in 2001.
- CC aims at providing creative solutions to problems that current copyright laws pose for sharing information.
- CC expands the range of creative work available to others legally to build upon and share.
- CC provides a set of licensing options that help artists and authors give others the freedom and creativity to build upon their creativity.
- Lessig (2004) points out that a “creative” scheme for licensing is needed because the current intellectual property rights regime does not make sense in the digital world.

CC (Continued)

- CC does not aim to undermine copyright law.
- Lessig believes that there should be a way to maintain copyrighted works and still make it possible for people to license the use of those works.
- Traditional copyright regimes tend to promote an “all or nothing” kind of protection scheme with their “exclusive rights” clauses.
- Goetz (2004) notes that CC provides a middle ground because it makes possible a “some rights reserved” approach versus an “all rights reserved” policy.
- Lessig believes that the Internet allows for an “innovation commons” and that the CC licensing schemes help to promote this vision.
- CC provides a menu of options in its licensing and contract schemes, available for free on its Web site.
- These enable copyright holders to grant some of their rights to the public while retaining others.

CC (Continued)

- The CC menu provides four options:

1. **Attribution**—Permit others to copy, distribute, display, and perform the work and derivative works based upon it only if they give you credit;
2. **Noncommercial**—Permit others to copy, distribute, display, and perform the work and derivative works based upon it only for noncommercial purposes;
3. **Derivative works**—Permit others to copy, distribute, display, and perform only verbatim copies of the work, not derivative works based upon it;
4. **Share alike**—Permit others to distribute derivative works only under a license identical to the license that governs your work.

CC (Continued)

- With its creative and flexible licensing schemes, CC both encourages the flow of information in digital form and protects the legal rights and interests of artists and authors.
- Artists and authors can be recognized and rewarded, financially and otherwise, for their creative contributions, yet still share their works (or portions of their works) with others.
- This also supports Lessig's notion of an "innovation commons" because it allows authors and artists to build upon the works of others.

CC (Continued)

- CC also helps to preserve the future of the commons, and it promotes the kind of spirit of cooperation and sharing among creators advocated by FSF and OSI.
- CC also provides an implementation scheme for our principle *information wants to be shared*, by helping us to frame intellectual property policies that avoid having either to:

a) endorse the view that information should be absolutely free,

b) support overly strong copyright laws that discourage sharing and innovation and also diminish the intellectual commons.

Recent Legislation: PIPA, SOPA, and RWA

- In 2011, three controversial pieces of legislation threaten the information commons were introduced in the US Congress:
- PIPA (Protect Intellectual Property Act),
- SOPA (Stop Online Piracy Act),
- RWA (Research Work Act).

PIPA and SOPA

- PIPA's and SOPA's supporters argued that stronger laws were needed to enforce copyright protection online and to crack down on pirates, especially those operating from Web sites in countries outside the US.
- Critics argued that SOPA and PIPA would grant the U.S. government, as well as some major corporations, broad powers that allow them to shut down Web sites that they merely suspect are involved in copyright infringement.
- Critics also worried that the government and corporations would be able to do this without first having to get a court order and go through the traditional process of having either a trial or court hearing.
- The bills were eventually shelved, but some critics worry that the Cyber Intelligence Sharing and Protection Act (CISPA), introduced in Congress in 2012, is a "back door" effort to get PIPA- and SOPA-like legislation passed.

Intellectual Property Battles in the Near Future

- The current intellectual property disputes over digital information seem to be as contentious as ever.
- Copyright owners and corporations will likely continue to lobby the U.S. Congress for stronger copyright protections.
- Academic and library organizations will likely continue to argue for legislation that will favor online scientific and academic information being freely accessible to students and ordinary users.
- It is not yet clear how the information commons will ultimately be affected.

In Defense of Software Copying

- You have to show that
  - The system of property rights for software is not just a bad system, but an unjust system
  - Adhering to those laws compels you to perform immoral acts or support unjust institutions
- If you can make the case for (1) (which is not easy), then (2) will become more plausible
- Several authors have made this sort of argument although their conclusions apply only to copying in restricted circumstances (Stallmann 1995 and Nissenbaum 1995)
  - A person having a great deal of trouble trying with a computer and a close friend has software that will solve the problems
  - Not helping your friend seems wrong; however, these authors don't seem to recognize the harm done to copyright or patent holder when a copy is made