

# Professional Issues in Computing

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# Property Rights

- What does it mean to own something?
- Can society work if nobody owns anything (everything is communal 'property')?
- Does innovation require compensation?
- Does copying digital material deprive anyone of anything?
- What is copyright, really?
- Copyright, associated rights, and the Free Software Foundation

# Owning things

- You're walking on a sandy beach and you see a sea shell. Can you pick it up and take it away?
- You're walking on the Sliema sea front and you see a chair. Can you take it away and use it as your own?
- You're in Paceville and you see a car with the engine running and the door ajar. Can you get into it, drive it away, and keep it?
- 'Finders keepers, losers weepers'

# Property and Value

- Previously, we have considered information that has value
- Now, objects have value - but *why* do they have value?
  - What if things are generally unowned until they are claimed? Does this create problems?
  - What if objects were all unowned? And anyone could have anything they wanted (so that supply not meeting demand doesn't create artificial values)

# Claiming Unowned Property

- What are the problems?
  - Is the claim legitimate? Are there prior claims?
  - How can you independently assure that a prior claim is legitimate?
    - Land ownership...
  - Not everything can be owned, but who decides?
    - You can take a seashell, but not a tonne of pebbles
    - You can't pick trees off a roundabout
    - Can you own natural phenomena like the rain?

# Natural Rights

- Do you have a natural right to own the fruit of your labour?
  - If you pick up a seashell, can somebody else come along and say ‘Excuse me, I’d like to have that’?
  - Can you draw on the shell, sign it, and sell it for pots of money?
  - Do you have a natural right to own anything that you make, write, draw, etc.?

# Locke's Labour Theory

- If you take a thing (e.g., uncultivated land) and mix your labour with it (i.e., sow crops), then you have a natural right to the land, and that right deserves to be protected by law
- Stealing (i.e., confiscating a labourer's labour) is wrong (establishment of a prior right)
  - Which is why the land referred to above needs to be uncultivated
- How much labour is required?
  - Any - even picking up a previously unclaimed shell is enough!

# Locke's Labour Theory

- Locke sets a limitation or *proviso*:
  - Should not acquire more than you can use
- You can also lose property, by:
  - having more than you can use!
  - by ceasing to mix your labour with it!
- You can, however, produce with the intention of selling (e.g., an orchard full of apples is more than you can eat before they rot, but you can pick them to sell them)



# Problems with Locke

- We rarely mix our labour with nature any more
  - Mostly, we acquire money, through our labour, that we can exchange for other goods and services - so it's become an economic issue, rather than an ethical issue
  - Is it unethical to horde money?

# Problems with Locke

- Locke contemplated extending ownership over physical property, but what about intellectual property?
  - Mixing our ideas with nature? Ability to patent seems to satisfy (Easterbrook referred to by Spinello, 2006, pg. 98)
  - But can somebody “confiscate” an idea, in the same way that physical property can be confiscated?
    - No, but can confiscate *economic* rights, e.g. potential earnings!

# Arguments Against Natural Rights

- If everything is unowned (you lose your labour when you mix it, as does everyone else) (Nozick, 1974):
  - Society not necessarily unjust, as long as nobody can acquire rights to things created by others
  - E.g., can copy software and distributed it f.o.c. to others, but cannot claim ownership and charge for it, as it is unethical to confiscate labour!
  - Similarly with ideas and other intellectual ideas: remembering and humming a song does not deprive the creator of the song!

# Problems with software

- Natural rights causes problems for software creation and ownership
  - The ideas behind a piece of software are intellectual: you can explain how software works, and another can reproduce it without depriving you of the original
  - It is easy to mix your own labour with any source code to modify it, and others can too!
  - Rather than being deprived of your labour, when software is copied by others, you lose the ability to *sell* and make money from your labour (economics, rather than ethics)

# Consequentialism

- Do we have a social and economic right to sell the fruits of our labour?
  - A car that you design and manufacture?
  - Software that you design and manufacture?
  - Rainfall that you've put into a bottle?
  - Drugs that you design and manufacture?
- There can be good consequences from ownership and bad consequences from no ownership

# Consequentialism and Software

- Bad consequences from no ownership
  - Will companies and self-employed invest time, effort, money, and resources into software development if they cannot own the software?
  - Innovation may suffer
  - If IT is to be a cornerstone of global economy, then it must be possible to make a living from it
  - But then why do some developers release freeware? And allow it to be copied/distributed?
  - Scientific researchers do not make money out of most of their 'creations', just recognition of being published - admittedly, may improve salary

# Consequentialism and Software

- Good consequences from ownership:
  - Can patent, copyright inventions, and cover them as trade secrets
    - Which are supposed to support innovation and creation - but only if you're rich enough to pay!!!
    - And for which there are strong arguments against!
  - You can earn a living directly from software development, rather than needing some other job and doing development in your 'spare time'

# Associated Rights

- Assuming that we can own physical property, what can we do with it?
  - Can you dispose of it in any way you like?
  - Can you treat it in any way you like?
  - Can you set fire to it?
  - Can you use it to annoy your neighbours?
- Usually granted *limited* rather than *unlimited* associated rights by the copyright holder or the law...



# Property Rights in Software

- For most things, it's pretty obvious what you're buying:
  - Car, house, foodstuff, appliances, etc.
- But with others it's not so obvious:
  - Books, videos/DVDs, software
- So what are you actually buying?

# Property Rights in Software

- First of all, what's a computer?
  - A computer provides an environment for the execution of computer programs
    - The execution of a computer program on a computer modifies the state of computer registers, temporary storage, and output devices.
    - Providing data interactively or in batch mode through input devices may cause changes to the behaviour of the computer program.
    - There is nothing else like a computer... if an algorithm can be designed for a task, a computer can execute that task.

# Property Rights in Software

- “computer programs whatever may be the mode or form of their expression including those which are incorporated in hardware, interfaces which provide for the physical interconnection and interaction or the interoperability between elements of software and hardware and preparatory design material leading to the development of a computer program: Provided that the nature of the preparatory design material is such that a computer program can result therefrom at a later stage;” The Copyright Act (Chapter 415, Laws of Malta)

# Property Rights in Software

- So what are you actually buying when you buy software?
  - Only what's covered by the license agreement!
  - Where does the license agreement come from?
    - Copyright!
    - Same with books: license agreement specifies what can and cannot be done with the artifact.
    - So copyright gives the copyright holder certain rights

# Copyright

- According to the Copyright Act, there are five types of works that are eligible for copyright:
  1. artistic works;
  2. audiovisual works;
  3. databases;
  4. literary works, including software;
  5. musical works.
- a computer program, must have "an original character", and must have been "written down, recorded, fixed, or otherwise reduced to material form". (The Copyright Act, 3(2))

# What does copyright cover?

- Copyright gives the copyright holder the *exclusive* right to authorise or prohibit the following, through a licence agreement:
  1. reproduction of all or part of the work;
  2. rental and lending;
  3. distribution;
  4. translation into other languages, including other programming languages;
  5. modification, and the application of this law to the modification;
  6. broadcast or communication;
  7. display or performance.

# What does copyright cover?

- In addition, copyright holder can extend limited rights through a license agreement
- Copyright offers no protection in the event that other nearly identical work is derived independently

# What does copyright not cover?

- In the case of computer programs, there is nothing to stop a licensed user from figuring out how a program works, or what it does, as long as it is done through “normal” or “fair” use which does not include disassembly.
- A licensed user is also allowed to reproduce or translate copyrighted code to achieve interoperability with other code, if this is not made readily available.



# Who holds the copyright?

- In all cases other than computer programs, copyright is held by the author or joint authors, unless there is an agreement to the contrary. For computer programs, however, if the program is written "in the course of the author's employment, in the execution of his duties or following the instructions given by his employer", then the economic rights transfer to the employer unless agreed otherwise.

# In Favour of Copyright

- Copyright proponents claim:
  - the right of an author/creator to be known as the creator of the work (the right to recognition);
  - the right to prevent others from profiteering from their work without permission;
  - and that copyright will create an environment in which innovation can flourish.

# Against Copyright

- Copyright opponents claim:
  - that the real motivation is to ensure that the copyright holder can maximise their profits, but that this is a false economy because the vast majority of people who use copied work would not have bought it anyway, and that innovation can happen even in a world in which things are not owned.

# Free Software Foundation

- "Free software is a matter of freedom: people should be free to use software in all the ways that are socially useful. Software differs from material objects-- such as chairs, sandwiches, and gasoline--in that it can be copied and changed much more easily. These possibilities make software as useful as it is; we believe software users should be able to make use of them." (Philosophy of the GNU Project)

# Free Software Foundation

- FSF argues software should be unowned and free, where 'free' refers to "the users' freedom to run, copy, distribute, study, change and improve the software". (The Free Software Definition), rather than the software being non-commercial.

# The Ethics of Copying

- The Free Software Foundation wants *everyone* to have free access to all software
- Laws, generally, identify and protect the *owner*

# Computing and Copyright

- Our interests are twofold:
  - As citizens, we should uphold the law...
  - As IT professionals, we need to know what our own rights are!