

# Professional Issues in Computing

Dr. Chris Staff  
Department of Artificial Intelligence

[chris.staff@um.edu.mt](mailto:chris.staff@um.edu.mt)

# Intellectual Property Rights

- We've discussed the rights of owners of the material expressions of work...
- What about “ideas”, “knowledge”, “know-how”, and other types of intellectual property?

# The O'Burger Burger

- Consider that you're eating a burger in an O'Burger fast food restaurant
- You like the taste of the burger
- You want the recipe so that you can make it at home

# The O'Burger Burger

- There isn't an O'Burger restaurant in your home town, so you figure that O'Burger will be pleased if you set up a stall to sell the ones you make
  - Visitors from your home town will seek out an O'Burger burger when they visit the city, so you're doing them a favour!
- The restaurant won't give you the recipe: "It's a secret"

# The O'Burger Burger

- You'll get it from one of the employees: "I can't! It's in my contract."
- Frustrated, you decide to buy a few burgers and by trial and error try to reproduce the taste, look, and feel of the O'Burger burger...
- Success!!!
- Start selling them from a stall in your home town

# The O'Burger Burger

- Lawyers representing O'Burger show up...
- Replace the O'Burger burger with any computer program of your choice...
  - ... do the ethics of the situation change?

# Can we keep secrets?

- And can secrets be kept from us?
- The O'Burger recipe is a secret
- Consider a computer program which contains an innovative sorting algorithm:
  - An arbitrarily long list of integers can be sorted in constant time

# Can we keep secrets?

- Company boasts about the algorithm, and you cannot tell how the algorithm works just by using the program
- You have an idea for a another program which will work only if you can use the sorting algorithm
- Alternatively, you disbelieve the company's claims and you want to verify them



# Can we keep secrets?

- You're not allowed to disassemble the program (license agreement)
- What can you do?
- Do we have the right to force O'Burger and the software manufacturer to divulge the secret?

# Keeping Secrets

- As citizens we have a moral and legal right to keep secrets, and to choose to whom to divulge them
- We also have a moral obligation to keep secrets that have been divulged to us (normally, and if we have been asked to)
- It would seem, then, that a corporate entity can also keep secrets, and request others to not divulge them as a condition of employment

# Reverse Engineering

- If we have legally obtained a work (computer program or the O'Burger), and we are not contractually obliged to the contrary, can we figure out how things work and then replicate them, or include them in other works?
- A licensed user may “determine the ideas and principles which underlie any element of the program” (Article 9(p) of the Copyright Act)

# Reverse Engineering

- Additionally, a licensed users may “reproduc[e]... and translat[e]... [the program’s] form indispensable to obtain the information necessary to achieve the interoperability of an independently created computer program with other programs... [as long as] the information has not previously been readily available to the licensed user” (Article 9(q), Copyright Act)

# Reverse Engineering

- But the copyright act forbids the translation of the computer program into other languages (article 7(d)) and any reverse engineered product must not be used to develop, produce or market a computer program similar to the original (article 9(q))

# Reverse Engineering

- So the copyright act would seem to allow the O'Burger sauce to be reverse engineered and used on some other foodstuff...
- ... and the sorting algorithm to be discovered through observation and used in another computer program...
- What protection is there for ideas and innovative solutions contained within copyrighted works?

# Patents

- Patents may be awarded to inventions that are useful, novel, and non-obvious
- Patents give the inventor(s) exclusive rights to their inventions for a limited period of time
- An issued patent prevents others from making, using, or selling the patented invention, and from including it in new inventions (without a license)

# Patents

- Once a patent is obtained, the details of the invention must be made available, to contribute to knowledge
- Patent Law differs from country to country
- Although the USA and other countries will grant patents to computer software, Malta does not (article 4(2), Patent Act)



# Patents and Software

- Software is a bit of an anomaly, because it is a literary work (according to copyright) but it also is also a set of instructions that can be processed by a *computer* to carry out some function. (As software becomes able to recognise and carry out instructions contained in other literary works originally unintended for execution by a computer, this implied distinction may become more interesting).

# Patents

- Originally, computer software was excluded in the US
  - worries about owning “mental acts” and “mathematical methods”
  - one cannot own the fundamentals of science and nature!

# Patents

- In *Diamond vs. Diehr* (1981), the court ruled that it was possible to patent a program, as long as the patent did not cover the mathematical method, and that the invention was solving a problem other than a mathematical problem

# Patents

- Since then, patent protection has been a more popular form of protection than copyright!
- The current fear is that protecting software through patents is stifling innovation: cost/time/checking

# Conclusion

- When it comes to software, ethics and law are intricately connected
- Johnson suggests that copying software is unethical because it is illegal
- The owner is not being deprived of the work
- The quality of the copy is no longer inferior to that of the original

# Conclusion

- Are we really depriving the owner of revenue if we pirate, rather than bootleg?
- Innovation is possible in a society where nothing is owned
- We do, however, have a right to keep secrets: fundamental right
- By extension, corporate entities can too

# Conclusion

- If software can be freely disassembled there can be no secrets
- Appears to be an infringement of our rights!
- Imitation through fair use is supported by copyright, though replication is excluded
- Can work out “the secret” (legitimately!) and apply it elsewhere
- Patent Law would stop that, but what if country’s laws don’t provide support?
- License agreement is contractual obligation

# Trademarks

- “I Can’t Believe It’s Not An O’Burger”
- Unilever Bestfoods owns “I Can’t Believe It’s Not Butter”...