

COMP 516

Research Methods in Computer Science

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1 / 34

Context

- Development and application of information technology happens in a
 - Cultural
 - Social
 - Legal
 - Ethicalcontext
- Implies that cultural, social, legal, and ethical constraints apply to the development and application of information technology
- This in turn implies that knowledge of these constraints is necessary
- Information technology can also change the cultural, social, legal, and ethical constraints that apply!

3 / 34

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Lecture 18: Legal, Social, Ethical and Professional Issues (1)

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2 / 34

Social Context

- Ownership
 - What can you own? Things, Rights, Ideas?
 - Can you fully or partially transfer ownership?
How? To whom? When? With what restrictions?
 - What rights, responsibilities, and liabilities does ownership carry?
- Participation
 - What rights to participate in society does an individual have?
 - What rights, responsibilities, and liabilities come with participating in or being part of a society?
- Employment
 - What contractual arrangements are allowed?
 - What rights, responsibilities, and liabilities do employers and employees have?

4 / 34

Social Context

■ Governance

- What mechanisms are there to adjust **cultural, social, and legal constraints** in a changing social context?
- What mechanisms are used to enforce **cultural, social, and legal constraints**?

■ Security and Privacy

- How many of your rights and those of others are you willing to sacrifice for your safety?
- How much privacy are you entitled to?

5 / 34

Social Context

IT professionals

- need to have an **awareness** of these questions and a rough idea what the answers are, possibly for a range of different societies
- might need to work out the answers to these questions from **first principles** due to the **innovative nature** of **information technology**
- can affect the answers to these questions due to the **disruptive nature** of **information technology**

6 / 34

Morality and Ethics

- It is a commonly held **belief** that **actions** can be classified into **right** or **wrong**
- Is also a commonly held **belief** that in **every society** there are **rules** which tell you in advance whether an **action** is **right** or **wrong**
- These rules are called **morality**
- **Ethics** is the philosophical **study of morality**, a rational examination into peoples moral beliefs and behaviour.
(M. J. Quinn: Ethics for the Information Age. Addison Wesley, 2001)
- If there is no society then are there no rules?
- If there are still rules then where do they come from?

7 / 34

Key Ethical Theories

- 1 Subjective relativism
- 2 Cultural relativism
- 3 Divine command
- 4 Kantianism
- 5 Act utilitarianism
- 6 Rule utilitarianism
- 7 Social contract theory

8 / 34

Relativism

- Maintains that there are **no universal moral norms** of right or wrong
- **Subjective relativism** holds that each individual decides what is right and what is wrong
- Problems:
 - Impossible to argue about morality
 - No universal morality
 - ↪ makes interactions between individuals difficult
- **Cultural relativism** holds that **society/cultures** decides what is right and what is wrong
- Problems:
 - How exactly does a society or culture decide morality?
 - No universal morality
 - ↪ makes interaction between societies/cultures difficult

9 / 34

Divine Command

- Morality emerges as behaviour in line with the will of God
- Pros:
 - In the context of **cultural relativism** explains where morality comes from
 - An all-seeing, all-knowing God that punishes immoral behaviour provides an excellent incentive to be moral
- Problems:
 - How exactly do we get to know God's will?
 - Makes it difficult to argue about morality
 - No universal morality
 - ↪ make interaction between religions difficult

10 / 34

Example: Ten Commandments

- **"Thou shalt not kill"**
 - Combined with
"Whoever sheds the blood of man, by man shall his blood be shed, for God made man in his own image."
seems to require an endless series of killings
 - ↪ Solution: Distinguish between **lawful killing** and **unlawful killing**
 - ↪ Problem: Who decides what is lawful and what is unlawful?
 - **"Thou shalt not steal"**
 - Problem: Is it possible to **steal** immaterial things like MP3 files or personal data?
- ↪
- The commandments need to be **refined** and **interpreted** by someone
- Possibility 1: You yourself do it ↪ subjective relativism
 - Possibility 2: Some authority does it ↪ authoritative regime

11 / 34

Kantianism (1)

- Based on the work of Immanuel Kant (1724–1804)
- Personal morality ought to be guided by principles which are universal
- He formulated the following **categorical imperative**:

Act only according to that maxim by which you can, at the same time, will that it would become a universal law.
- Called **categorical imperative** because
 - it is an **absolute, unconditional** requirement that exerts its authority **in all circumstances**, and
 - it is a **command** (commandment), not a suggestion or guideline



12 / 34

Kantianism (2)

Kant divides the duties imposed by this formulation into two subsets:

Perfect duty:

Do not act by maxims that result in logical contradictions when we attempt to universalise them.

Example:

I should be allowed to lie from time to time

Universalised: Everyone is allowed to lie whenever they want to
→ destroys the meaningfulness of language

The law

Everyone is allowed to lie whenever they want to

fails the **contradiction in conception** test
(this law cannot even be thought as a universal law)

Therefore, we have the **perfect duty** never to lie

13 / 34

Kantianism (3)

Kant divides the duties imposed by this formulation into two subsets:

Imperfect duty:

Act only by maxims that we would desire to be universalised.

Example:

I will not help others

Universalised: Nobody helps anyone

→ no one will ever achieve anything that requires someone else's help

The law

Nobody helps anyone

fails the **contradiction in willing** test
(this law can be thought but cannot be willed as a universal law)

There, we have the **imperfect duty** to help others

14 / 34

Kantianism (4)

The distinction between **perfect duties** and **imperfect duties** is important when having to resolve conflicts between various duties

1 Perfect duties never conflict

Example: the duty not to murder and the duty not to lie never conflict

2 If a perfect duty conflicts with an imperfect duty, then one must fulfil the perfect duty

Example: if the duty to help others and the duty not to lie conflict, then one must not lie, and hence, not help others

3 If an imperfect duty conflicts with another imperfect duty (and neither conflicts with any perfect duty), one may choose between them

Example: if the duty to help others and the duty to develop your talents conflict, then you can choose between them

15 / 34

Kantianism and MP3 files

Question:

According to **Kantianism**,
should you copy commercial MP3 files without paying for them?

Universalised: Everyone copies commercial MP3 files
without paying for them

- There would be no point for commercial MP3 files to exist, since nobody pays for them
- You obviously cannot copy what does not exist
- Thus the law under consideration fails the **contradiction in conception** test
- Therefore, we have the **perfect duty** never to copy commercial MP3 files

16 / 34

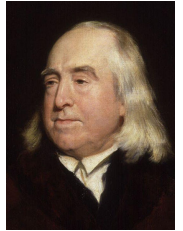
Kantianism (5)

- **Pros:**
 - Rational
 - Produces universal moral guidelines
 - All people are treated as moral equals and minorities are protected
- **Cons:**
 - That perfect duties always trump imperfect duties does not always produce results that appear acceptable
 - Example 1:** You should not steal! (perfect duty)
You should feed your children! (imperfect duty)
You should not steal to feed your children?
 - Example 2:** You should not lie! (perfect duty)
You should help others! (imperfect duty)
You should not help others if you have to lie to do so?
 - No exceptions to moral laws

17 / 34

Utilitarianism (1)

- Due to Jeremy Bentham (1748–1832) and John Stuart Mill (1806–1873)
- **Principle of utility:**
The greatest good (happiness) for the greatest number should be the aim of personal and social morality
- We can distinguish
 - Act utilitarianism**
An **action** is good if its net effect, over all those affected, is likely to produce more happiness than unhappiness
 - Rule utilitarianism**
Those **moral rules** should be adopted that if followed by everyone will lead to the greatest increase in total happiness



18 / 34

Utilitarianism versus Kantianism (1)

Utilitarianism easily deals with the cases that were problematic for Kantianism:

- Example 1:** You should not steal!
You should feed your children!
You should not steal to feed your children?
- The people you steal from will be unhappier
- But your children will be much happier
- So, the net happiness is positive
- Therefore, you should steal to feed your children

19 / 34

Utilitarianism versus Kantianism (2)

Utilitarianism easily deals with the cases that were problematic for Kantianism:

- Example 2:** You should not lie!
You should help others!
You should not help others if you have to lie to do so?
- The people you lie to will be unhappier (assuming they find out)
- The people you help will be happier
- As long as the net happiness is positive, you are allowed to lie

20 / 34

Utilitarianism (2)

Question: Are only people 'affected'?

Answer: No, anyone or anything that can be happy or unhappy

Example:

Small children and animals can be happy or unhappy
So, small children but also animals should be included when considering the effects of actions / rules on total happiness

Consequences:

- Animals should not be made to suffer needlessly
- But animals can be killed for consumption or for medical experiments
- Animals could also be made to suffer if sufficiently many people derive happiness from it (e.g. **dog fights** or **fox hunting**)

21 / 34

Utilitarianism (3)

Question: What length of time following an action should one take into account when calculating total or net happiness?

Answer: One should try to account for all future changes in happiness that depend on that action

Example:

- Each individual knows best what is in their own best interest and makes them happy
 - However, an individual must first be sufficiently educated and knowledgeable to appreciate their real interests
 - Therefore, children need to go to school whether they want to or not
- ↪ Justifies "short term pain for long term gain"
- ↪ Might mean that we should take the happiness of **future generations** into account

22 / 34

Utilitarianism (4)

Question: Are there any actions that are always wrong according to this theory?

Answer: No

Example:

- The sight of beggars makes people unhappy
- Therefore, we should lock beggars away in workhouses
- The beggars will be less happy but all others will be happier (the net happiness effect is positive)
- To speed up the process, a bounty should be paid to ordinary citizen for each beggar they bring to a workhouse
- Once we have dealt with all the beggars we should move on to other members of society that offend our sensibilities

- ↪ Minorities and individuals have no protection under utilitarianism
- ↪ Torture, murder, and even mass murder are easily justifiable

23 / 34

Utilitarianism versus Kantianism (3)

Consider the following two examples:

- 1 There is an overly crowded lifeboat with ten people and unless at least one person is sacrificed all ten people might/will be lost
Is it ethically justified to sacrifice one of the ten people?
 - 2 Human activities cause climate change that might/will kill all 7 billion humans and it could be stopped by killing the population of the US and the EU (about 10% of the world population)
Is it ethically justified to do so?
- According to **Kantianism** we have the perfect duty not to murder anyone ↪ the answer to both questions is negative
 - According to **Utilitarianism** net happiness increases if we sacrifice 10% of the population ↪ the answer to both questions is positive

24 / 34

Utilitarianism and MP3 files

Question:

According to [Utilitarianism](#), should you copy commercial MP3 files without paying for them?

Note:

This is different from asking whether as a [rule](#) copying commercial MP3 files should be allowed

- Not having to pay obviously makes you happier
- Whether the owner of a commercial MP3 file is unhappier depends on
 - whether your act of copying has [displaced](#) a sale of the file
 - whether your act of copying may have [positive side effects](#) that allow the owner to earn money
- Thus, to answer the question we have to work out what its effect on the music industry is

25 / 34

Utilitarianism (4)

■ Pros:

- Can be applied to acts as well as rules
- Produces [universal moral guidelines](#)
- Easy to understand

■ Cons:

- How do you [define 'happiness'](#)?
- What if we cannot agree on a definition?
- How do we measure total happiness over every subject able to be happy and over an in future?
- [Act utilitarianism](#) is difficult if [big numbers](#) are involved
- Is an [unequal distribution](#) of happiness [fair](#)?

Remark: "I do what is best for me" is [not](#) utilitarianism!

26 / 34

Other ethical principles

Besides [Kant's Categorical Imperative](#) and the [Principle of Utility](#) there exist a number of others, for example:

Golden rule

Do unto others as you would have them do unto you

Justification:

We should not treat others better or worse than we ourselves would like to be treated

Example:

A company selling software should not use unlicensed software

27 / 34

Other ethical principles

Besides [Kant's Categorical Imperative](#) and the [Principle of Utility](#) there exist a number of others, for example:

Slippery-slope rule

If an action cannot be taken repeatedly, it is not right to take at all

Justification:

- An action may bring about a small change now that is acceptable, but if it is repeated, it would bring unacceptable changes in the long run
- Such an action should then not be taken at all

Example:

Legalising cannabis may be acceptable, but may lead to legalisation of other more harmful drugs which is not acceptable.

28 / 34

Other ethical principles

Besides [Kant's Categorical Imperative](#) and the [Principle of Utility](#) there exist a number of others, for example:

Risk aversion principle

Take the action that produces the least harm or the least potential cost

Justification:

- Some actions have extremely high failure costs of very low probability or high failure costs of moderate probability
- Try to identify such high-failure-cost actions and avoid them

Example:

Building a nuclear plant on the coast in an earth quake zone

29 / 34

Social Contract (1)

- Proposed by Thomas Hobbes (1603–1679) and Jean-Jacques Rousseau (1712–1778)
- Moral rules are motivated by the conflict between our desire of [freedom](#) and our desire of [security](#)
- By joining together through a [social contract](#) and abandoning their claims of natural right, individuals can both preserve themselves and remain free

Morality consists in the set of rules, governing how people treat one another, that rational people will agree to accept, for their mutual benefit, on the condition that others follow those rules as well (Rachels, 2003; as quoted by Quinn, 2004).

31 / 34

Other ethical principles

Besides [Kant's Categorical Imperative](#) and the [Principle of Utility](#) there exist a number of others, for example:

No free lunch rule

Assume that virtually all tangible and intangible objects are owned by someone else unless there is a specific declaration otherwise.

Justification:

If something someone else has created is useful to you, it has value, and you should assume the creator wants compensation for this work

Example:

Texts, pictures, video, sound recordings found on the web should all be assumed to be owned by someone

30 / 34

Social Contract (2)

- **Pros:**
 - Framed in the language of (individual) rights
 - Explains selfish actions in the absence of common agreement
 - Explains the relationship between people and government
- **Cons:**
 - How exactly do you set up a social contract?
 - How do you become subject to a social contract?
 - How do you enforce a social contract?
 - How do we resolve conflicting rights?

32 / 34

Comparison Table

Theory	Motivation	Criteria	Focus
Kantianism	Duty	Actions/Rules	Individual
Act utilitarianism	Consequence	Actions	Group
Rule utilitarianism	Consequence/Duty	Rules	Group
Social contract	Security	Rules	Individual

The perfect ethical theory

- A [perfect ethical theory](#) would tell us once and for all how we ought to behave in all kinds of situations
- Neither [Utilitarianism](#) nor [Kantianism](#) nor any of the other [ethical principles](#) are [perfect ethical theories](#)
- The [perfect ethical theory](#) will have to combine elements of both [Utilitarianism](#) and [Kantianism](#) as well as some elements of other [ethical principles](#)
- However, so far nobody has been able to devise such a [perfect ethical theory](#)
- Thus, [moral behaviour](#) is still something to strive for without unequivocal guidance on what is right or wrong