

Economics, Law and Ethics
Part IB CST 75%, Part II CST 50%
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with many thanks to Ross Anderson

Overview

- Ethics:
 - Philosophies of ethics
 - Theory of moral reasoning
 - Professional codes of ethics
 - Responsible vulnerability disclosure
 - Ethics in research

Ethics

- In our field, laws are often ten years behind, and even then often don't fit reality very well
- Practical ethics: in what circumstances should we restrain our actions more than the law requires?
- Analogy: medical ethics (used to) require doctors to observe stricter confidentiality than either the law of confidence or data protection law required
- The philosophy of ethics asks “What are true moral values?” and “Why?”

Philosophies of ethics

- Authority theories mostly derive from religion. But God usually talks via scriptures or a priesthood; so how do you resolve disputes?
- Intuitionist theories say we can tell what's good and bad, like we can tell something is green. But again, our intuitions can differ, and how do you resolve disputes?
- Egoist theories say we act rationally in our own self-interest. We've seen the limits on that...

Philosophies of ethics (2)

- Consequentialism:
 - Whether an act is right or wrong depends only on the results of that act
 - The more good consequences an act produces, the better or more right that act
- Consequentialist theories include Hume, Bentham and Mill's utilitarianism: maximise $W = \sum U_i$ (or, 'greatest happiness of the greatest number')
- But how do you work out consequences in detail?
- Cheney's 'ticking bomb' justification for torture
- Modern debate: act vs rule utilitarianism

Philosophies of ethics (3)

- John Rawls 'Theory of Justice': we should make moral decisions about a society behind a "veil of ignorance" of whether we'll be born high or low
- Deduces: we should maximise $W = \min U_i$
- Would you rather be reincarnated in the USA or (say) Portugal – poorer but with better welfare?
- Randomised algorithms, anyone?

Philosophies of ethics (4)

- Aristotle: consequentialist theories are ‘for beasts’: you’d be happier if you were stupid
- People should act in accordance with nature and duty: they will do good and be happy
- It’s not just the consequences of actions that make them right or wrong, but the motives of the actors
- The many flavours include Kantian theory of duty: act only on maxims that you’d like to be universal and treat people as ends not means

Moral reasoning

- Kohlberg's theory of moral development
 - Pre-conventional
 - Stage 1: Punishment and obedience
 - Stage 2: Instrumental hedonism
 - Conventional
 - Stage 3: Conformity
 - Stage 4: Authority and social order
 - Post-conventional
 - Stage 5: Morality of contract, individual rights and democratically accepted law
 - Stage 6: Morality of universal principles of conscience

Professional codes of ethics

- ACM's code of ethics <https://ethics.acm.org/code-of-ethics/using-the-code/>
- A computing professional should...
 - Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing
 - Avoid harm
 - Be honest and trustworthy
 - Be fair and take action not to discriminate
 - Respect the work required to produce new ideas, inventions, creative works, and computing artifacts
 - Respect privacy
 - Honour confidentiality

Responsible vulnerability disclosure

- If vulnerabilities found: range of responses from not disclosing to immediately making public
- Responsible disclosure: Confidential disclosure to those that can remedy or mitigate the impact
- Bug bounty programs

Ethics in research

- 1940s: Nazi human experiments
- 1930s-1970s: Tuskegee syphilis experiment
- 1970s: Stanford prison experiment
- 1960s: The Milgram experiment
- 2010s: Facebook emotional manipulation study

Ethics in research

- Research Ethics Boards:
 - Ethics Committees in UK, Institutional Review Boards (IRBs) in the US
- Research funding bodies
- Program committees and journal editors
- Professional Ethical Guidelines or Codes of Practice
- For computer science: The Menlo Report
 - Core principles: respect for persons, beneficence, justice, and respect for law and public interest.

Ethics in research

- Your Part II project may involve human experimental subjects
- Independent review by uninvolved scientists greatly reduces risks of both civil litigation, and criminal prosecution if things go wrong
- Pay attention to the procedures for ethics committee approval
- And if they say no, don't do it – unlike in the Cambridge Analytica case!