POLITECNICO DI MILANO





Computer Ethics

Normative Argumentation

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Normative argumentation

- Purpose of argumentation is to **justify** or **refute** a **statement**
  - **Argument** is a set of **statements**, of which one (the **conclusion**) is claimed **to follow** from the others (the **premises**)
  - **Conclusion** of an argument is the statement that is affirmed on the basis of the argument
  - **Premises** are the statements which are affirmed (or assumed) as providing support or reasons for accepting the conclusion

Valid argumentation

- **Valid argument** (logic) is an argument whose conclusion follows **with necessity** from the premises
  - If the premises are true, the conclusion must be true
- Valid argument are of a **deductive nature**, that is the **conclusion** is **enclosed** in (implied by) the **premises**

Valid argumentation: example

- Premise 1: *All men are mortal*
- Premise 2: *Socrates is a man*
- Conclusion: *Socrates is mortal*

Non deductive arguments

- Many arguments from daily practices are not constructed deductively at all, since we often **change** our **conclusions** when **new information** is **added** (non-monotonicity)
- In non-deductive arguments the **conclusion** is **logically stronger** than the premises (the premises if true give a limited amount of support to the conclusion)

Non deductive arguments: example

- Premise 1: *if John's wife dies, John will inherit her money* (and nothing else is known)
- Premise 2: *John's wife dies*
- Conclusion: *John inherits the money of his wife*
- This conclusion will change if we add the information that John has killed his wife

Sound argumentation

- **Sound** argumentation is an argumentation for which the corresponding **critical questions** can be answered positively and which therefore makes the conclusion **plausible** if the premises are true
- Critical questions are those belonging to a certain type of non-deductive argumentation to check the **degree of plausibility** of a conclusion
- Due to the **indirect nature** of non-deductive argumentation, there always is a small degree of **uncertainty**, whereas deductive argumentation completely excludes any possible doubt

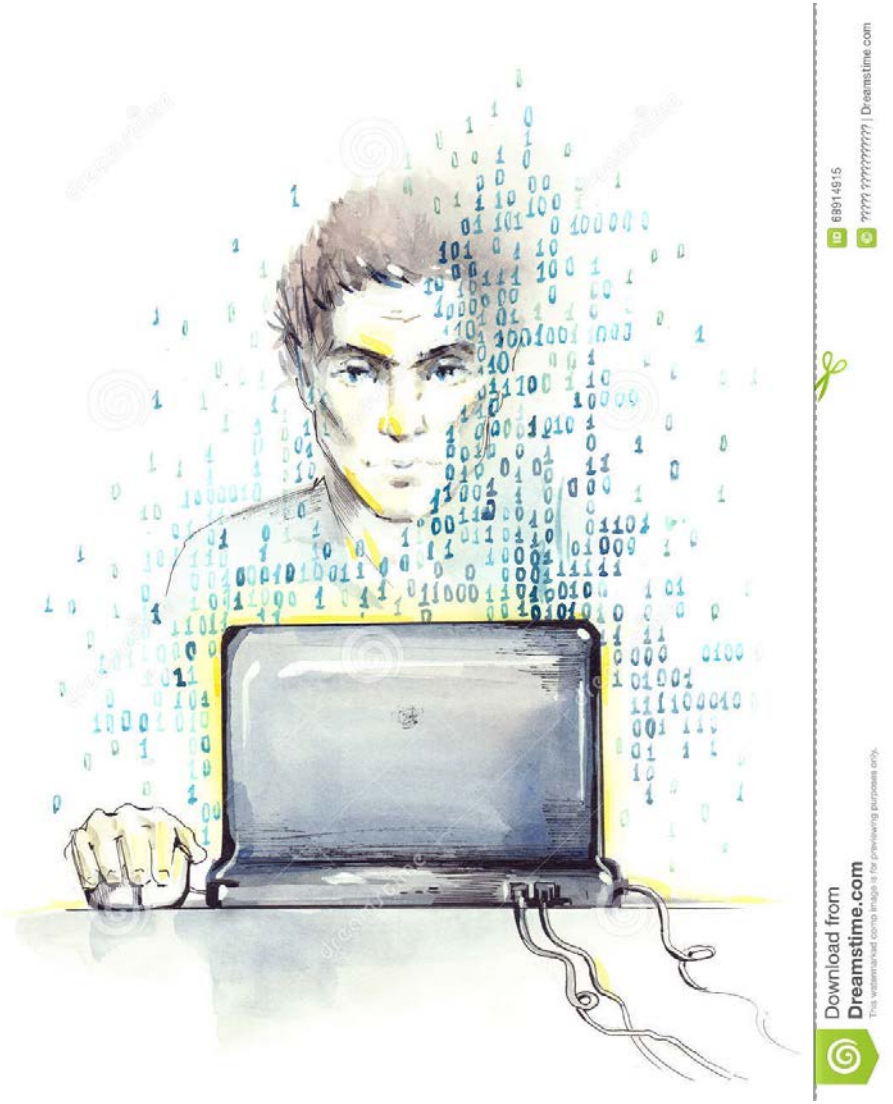
Argumentation by analogy

- Often used in **ethical discourse** to fill policy or moral vacuum surrounding modern technologies
- Type of non-deductive argumentation **based on comparison** with another situation in which the judgment is clear

- The judgment is supposed also to apply to the analogous situation

Argumentation by analogy: an example

- Discussion on hacking in the early 1990s
  - A number of hackers felt their behavior as morally acceptable because they wanted to help system managers to trace errors
  - Opponents used an argumentation by analogy: “You do not go to a clothing store and set fire to the clothing there to see whether fire safety procedures are in place”
  - Is this a good analogy?



Critical questions

- Are the two situations **comparable**?
  - Are there important relevant **similarities**?
  - Are there no important relevant **differences**?
- In the example about hacking the question whether are no important and relevant differences is problematic
  - In the case of hacking no damage is caused, whereas in the example situation there is damage to clothing
  - When this difference is highly relevant, the analogy fails (**false analogy**)

Arguments in a utilitarian framework

- An action is morally acceptable if and only if that action can be reasonably expected to produce the **greatest happiness** for the **greatest number** of people
- The **means-end argumentation** is at the forefront
- Type of **non-deductive argumentation** in **which from a given end the means are derived** to realize that end
  - If you wish to achieve end X, then you must carry out action Y

Critical questions

- Does action y **indeed realize** end x?
- Can action y be carried out?
- Does execution of action y lead to **unacceptable side effects**?
- Are there no other (**better**) **actions** to achieve x?
- Is the **end acceptable**?

Arguments in Kantian reasoning

- An action is morally acceptable if and only if the action meets the first/second categorical imperative
  - **Universality principle**

    "*Act only on that maxim which you can at the same time will that it should become a universal law*"
  - **Reciprocity principle**

    "*Act as to treat humanity, whether in your own person or in that of any other, in every case as an end, never as a means only*"
- Based on showing that the negation of the action leads to a contradiction as soon as you make a general law of it
- This a **proof from the absurd**

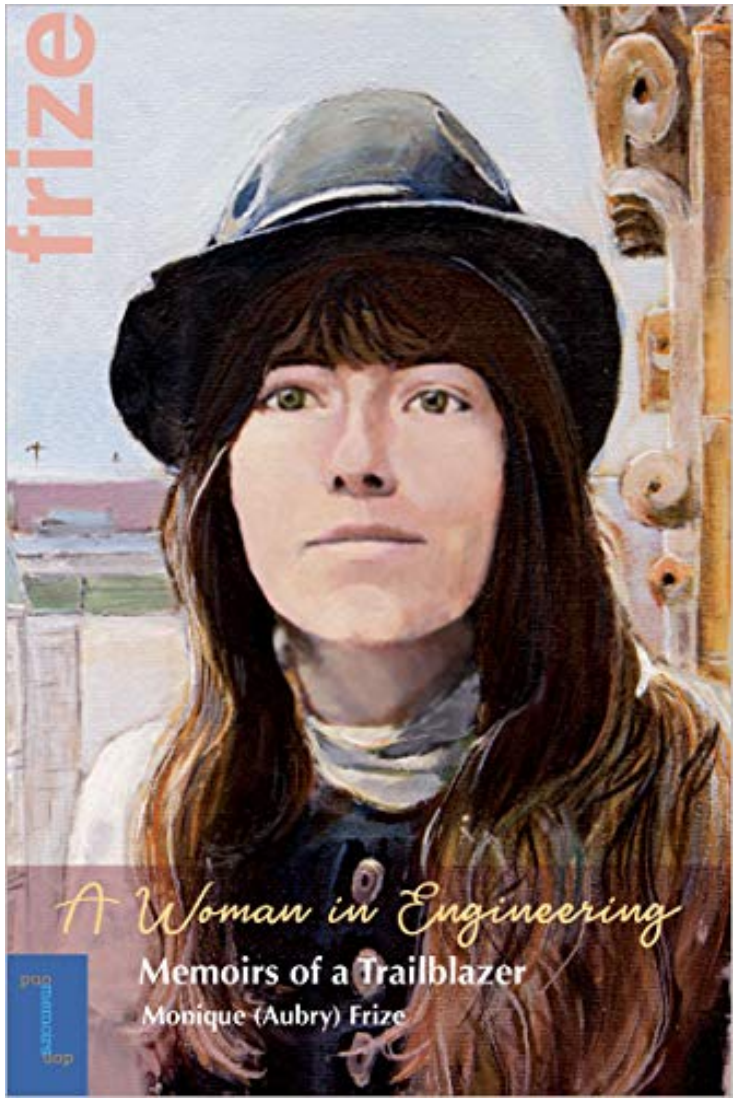
Arguments in Kantian reasoning: example

- Action '*I will not keep my promise*' is morally unacceptable if you're in need of money
- The maxim '*if I'm in need of money, I can break my promise*' leads to a contradiction as soon as a general law is made of it
- Promises no longer make sense, because everybody is allowed to break a promise
- You cannot make a general law of '*if I'm in need of money, I may break my promise*'

Argumentation in virtue-ethical theories

- An action is morally acceptable if and only if that action is what a virtuous agent would do in the circumstances
  - How do we define a **virtuous person**?
- **Characteristic-judgment argumentation** is a type of **non-deductive argumentation** based on the assumption that a certain judgment about a thing or a person can be derived from certain characteristics of that thing or person
  - To show that an employee is a virtuous employee, we need to demonstrate that the employee possesses the virtues of responsibility, loyalty and trust

Virtues for engineers



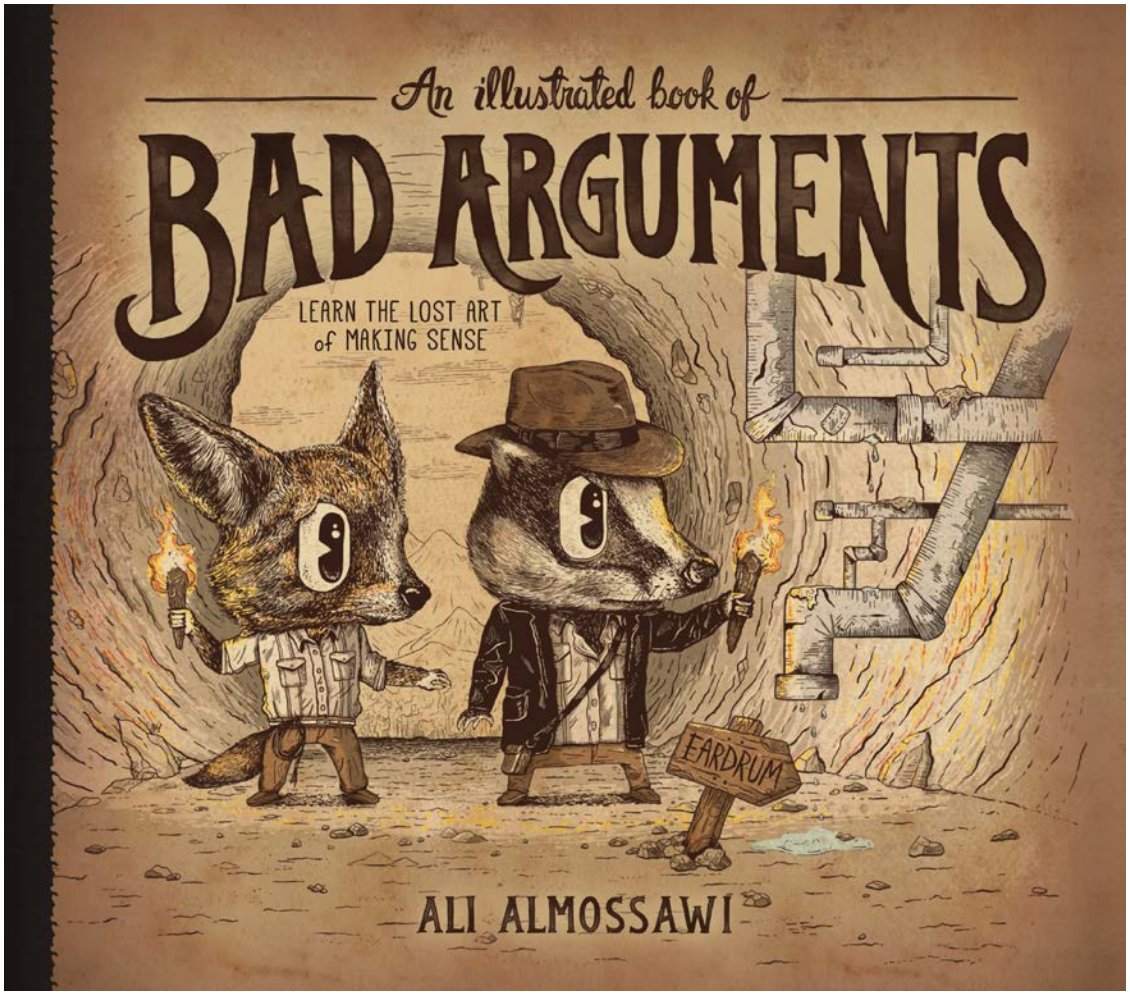
- Virtues for **morally responsible engineers** focusing on **engineering practice** (Pritchard 2001)
  - Expertise/professionalism
  - Clear and informative communication
  - Cooperation
  - Willingness to make compromises
  - Objectivity
  - Being open to criticism
  - Creativity
  - Striving for quality
  - Having an eye for detail
  - Being in the habit of reporting on your work carefully

Critical questions

- Do the characteristics mentioned **justify** judgment A?
- Are the characteristics mentioned all **typical** of A?
- Are there any other characteristics **necessary** for A?
- Does X possess characteristics that justify the judgment not A?
- Does X posses the characteristics mentioned?

Fallacies

- **Informal fallacies** are based on the consideration of the **context** and **content** of the arguments



Fallacies: types and examples

- **Attack on the person** is an attempt to discredit an argument by bringing into question in some negative ways the presenter of the argument instead of attacking the argument itself
- **Confusion of law and ethics**: "*if it isn't illegal, it is ethical*" without recognizing that ethics is more compassing than law

Fallacies: types and examples (more)

- **Wishful thinking** occurs when a person interprets fact, events, etc. according to what she/he would like the case rather than according to the actual or rational evidence ("*Surely God exists, because I have complete belief that He does*")
- **The privacy fallacy** ("*If you have done nothing wrong, you have nothing to worry about*")
- **Fallacies of ambiguity** when words or phrases are used unclearly

Fallacies of risk

- **Specific fallacies** on the **acceptability** of **technological risks** in public debates
  - **The sheer size fallacy**: *you must accept nuclear energy because the risks are smaller than that of driving a car"*
  - **The fallacy of naturalness**: *X is unnatural, so X should not be accepted*
  - **The ostrich's fallacy**: *X does not give risk to any detectable risk, so X does not give rise to any unacceptable risk*
  - **The delay fallacy**: *if we wait we will know more about X, so no decision about X should be made now*
  - **The technocratic fallacy**: *it is an engineering issue how dangerous X is, so engineers should decide whether or not X is acceptable*
  - **The fallacy of pricing**: *we have to weight the risks of X against its benefits so we must put a price on the risks of X*

References

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- Pritchard, M.S. (2001). Responsible engineering. The importance of character and imagination. *Science and Engineering Ethics*, 7 (3), 391-402
- Van de Poel, I. and Royakkers, L. (2011). *Ethics, Technology, and Engineering*, Wiley-Blackwell