

Philosophy of CIT: Week 1

Introductory material

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Introductory material

- How to be right
- How to avoid being wrong
- Scientific method
- Introduction to models/perception

Modus ponens

If it is Saturday, I will have to get up at 7am.

It is Saturday.

Therefore I will have to get up at 7am.

- When making an **argument**, be clear about the **premises** and the **reasoning**.
- If the reasoning is *valid* and premises are *true*, then the conclusion is *sound*.

Modus tollens

If P, then Q.
Q is false.
Therefore P is false.

- Another common pattern of reasoning.

Other ways of being right

- Reductio ad absurdum
- Proof by induction

Proof by contradiction

- Example, proof that $\sqrt{2}$ is irrational

Tricky statement 1

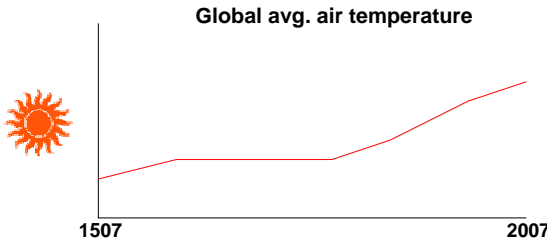
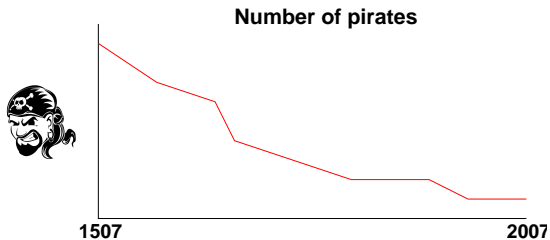
If I am in Jinja, then I am in Uganda.
I am not in Jinja.
Therefore I am not in Uganda.

Tricky statement 1

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- Conclusions do not follow from the premises.
- This is known as a **non-sequitur**.

Some background info



Tricky statement 2

Piracy has decreased over the last 500 years.
There has been a corresponding rise in air temperature.
Therefore, pirates were preventing global warming.

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- There is no reason to believe there is a causal link just because the data is correlated.

Tricky statement 3

People who drink a lot of coffee are more likely to get lung cancer.
Therefore, coffee drinking causes lung cancer.

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Therefore, coffee drinking causes lung cancer.

- People who smoke are more likely to both drink coffee and develop lung cancer.
- There is a common cause which is responsible for both things; a **confounding factor**.

Tricky statement 4

Tuhende restaurant has the best steak in town.
This is because their chef cooks better steak than anyone else.

Tricky statement 4

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- The conclusion is assumed in the premise.
- An example of **circular reasoning**, also known as “begging the question”.
- Note that the statement is still consistent.

Tricky statement 5

Linda is 31 years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti-nuclear demonstrations.

Which is more likely?

1. Linda is a bank teller.
2. Linda is a bank teller and is active in the feminist movement.

Source: Wikipedia

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Source: Wikipedia

- Most people choose option 2. However, mathematically, the probability of two events occurring together (in “conjunction”) will always be less than or equal to the probability of either one occurring alone. (**conjunction fallacy**)

Other common fallacies

- Straw men
 - ▶ Inaccurate (e.g. simplified) representation of something you want to disprove.
- Argument by analogy
 - ▶ An analogy can never *prove* anything.
 - ▶ It might help to make an argument accessible, however.
- False dilemma
 - ▶ You can ask: are any other options possible?
- Ad hominem arguments
 - ▶ The identity of the person making an argument is irrelevant.
- Argument from ignorance
 - ▶ I cannot explain, imagine, or understand this, therefore it cannot be true.

What do you think about this?

“Everybody knows that communism is bad. Senator Joseph McCarthy is hunting communists down. If I dissented from his policy, I’d be supporting communism, and therefore I’d be anti-American. I am a good American citizen, therefore McCarthy’s policy is correct.”

Source: Wikipedia

What do you think about this?

There are many hackers that use the internet. Therefore, if you use the internet without a firewall, it is inevitable that you will be hacked sooner or later.

Source: Wikipedia

What do you think about this?

If such actions were not illegal, then they would not be prohibited by the law.

Source: `www.nizkor.org`

What do you think about this?

Charging that welfare causes child poverty, [Gary Bauer] cites a study showing that "the highest increases in the rate of child poverty in recent years have occurred in those states which pay the highest welfare benefits. The lowest increases—or actual decreases—in child poverty have occurred in states which restrain the level of welfare payments."

Source: www.fallacyfiles.org

What do you think about this?

Extrasensory perception is likely to be real, as there is much that we do not know about the human brain.

What do you think about this?

It is claimed by some people that severe illness is caused by depression and anger. After all, people who are severely ill are very often depressed and angry. Thus, it follows that the cause of severe illness actually is the depression and anger. So, a good and cheerful attitude is key to staying healthy.

Source: www.nizkor.org

Intro for next week: models/perception

- Scientific discovery:
 - 1 We begin with a certain model of the world (prior beliefs).
 - 2 We note observations that we cannot explain, or cannot explain very well.
 - 3 We hypothesise new models which fit the observations.
 - 4 If the model is “good” we adopt it and proceed back to step 1.
- This process is recursive.
- So where did the first model come from?

Refs for this week

- Wikipedia pages on “logical fallacies”.
- “How to Argue”,
<http://www.theness.com/articles.asp?id=38>
- The Skeptic’s Guide to the Universe,
<http://www.theskepticsguide.org/logicalfallacies.asp>
- “Models in Science”, Stanford Encyclopedia of Philosophy,
<http://plato.stanford.edu/entries/models-science/>

Online material

- Lecture notes and reference material will be added to Blackboard each week: <http://blackboard.mak.ac.ug>.
- Lecture notes will also be available on the public course homepage: <http://omnipresence.org/jq/teaching/pcit> (this site will be moved to cit.ac.ug some time later).