Logical Argumentation

CS210 Fall 2017
Lecture 3
Announcements

• Writing assignment (W1) due Tuesday
• Peer reviews (R0) due Tuesday
• New writing assignment (W2) due next Fri
• New peer review (R1) due next Fri
CYBERETHICS
Is “Cyberethics” Really a Thing?

• Cybertechnology is logical malleable
• Generates “new possibilities of human interaction”

YES!!!!

James Moor
Policy Vacuum

• Technology developed **before** policies are put in place
  – “policies” include laws **and** social norms

• *Conceptual muddles*

James Moor
Disclosure Model

• Some features of technology are *morally opaque*

• Need *disclosure method* to identify them
CREATE TABLE Person (first_name VARCHAR(20), sex ENUM('male', 'female'), age INT);
Tavani’s Method

1. Identify the practice or feature
   a. Disclose morally opaque features
   b. Assess sociological implications
   c. Search for existing policies or ethical codes

2. Analyze the ethical issue
   a. Identify any policy vacuums
   b. Clear up conceptual muddles
Tavani’s Method

3. *Deliberate* on the ethical issue
   
   a. *Apply* one or more ethical theories  
   
   b. *Justify* the position using logical argumentation
LOGICAL ARGUMENTATION
Logical Argumentation

• Method used to test an ethical thesis
• Claim - a statement or assertion
• Argument - a series of claims aimed at establishing the truth of one central claim (the conclusion)
• Each of the other claims is called a premise
Argument Structure

Premise 1
Premise 2
Premise 3
...
Premise n

---------------

Conclusion
Valid Arguments

• If we accept the premises, it is impossible for the conclusion to be false.

• An *invalid* argument - we can imagine that the conclusion *could* be false, even if we accept *all* of the premises as true.
Example

All students who drink coffee are smart.

Jamie is a student.

Jamie does not drink coffee.

Jamie is not smart.

A) VALID B) INVALID
Example

All smart students drink coffee.
Jamie is a student.
Jamie does not drink coffee.

Jamie is not smart.

A) VALID      B) INVALID
Sound Arguments

- A valid argument whose premises are all true
- A sound argument is *strong* (convincing)
Example

All CEOs of US companies have been US citizens.
Marissa Mayer is a US citizen.

Marissa Mayer is a CEO of a US company.

VALID
A) SOUND
B) UNSOUND
C) INVALID
Example

Most CEOs are college graduates.
Satya Nadella is a CEO.

Satya Nadella is a college graduate.

VALID
A) SOUND
B) UNSOUND
C) INVALID
Inductive Arguments

• Assuming premises are true, conclusion *likely* follows.

• An *invalid* argument can be strong if it is *inductive*.
Fallacious Arguments

• Invalid arguments whose premises do not support their conclusion
• Premises have no bearing on truth of conclusion
Storms usually come from the North West. The temperature drops before a storm. A cool wind is blowing from the North West.

There is (probably) a storm coming.

**VALID**

A) SOUND

B) UNSOUND

**INVALID**

C) INDUCTIVE

D) FALLACIOUS
Example

The Internet is a public space.
Privacy is not guaranteed by the Bill of Rights.

Those who use the Internet should not expect privacy.

A) SOUND
B) UNSOUND
C) INDUCTIVE
D) FALLACIOUS
Arguments

Valid

- Sound
- Strong

Invalid

- Unsound
- Inductive
- Fallacious
LOGICAL FALLACIES
Non Sequitur

- the conclusion doesn’t follow from the premises
- “it does not follow”
- technically, all fallacies are non sequiturs

**EXAMPLE**: People enjoy dance music. Everyone will get an A in CS210 if we play dance music during exams.
Assuming the Consequent

- reversing the direction of an implication
- If P, then Q.
- Q is true.
- Therefore P is true.
- **EXAMPLE**: If someone earns a CS degree, they will be happy. Since you are happy, you must have a CS degree.
**Appeal to X**

- $X \in \{\text{popularity, consequences, emotion, novelty, tradition, authority, threat, \ldots}\}$
- appealing to emotionally charged, but ultimately irrelevant information
- **EXAMPLE**: 9 out of 10 doctors agree that this soda is delicious.
- **EXAMPLE**: Free will must exist. Otherwise, we would all be mindless zombies.
Ad Hominem

- attacking a person *instead of* their argument
- “character assassination”
- **EXAMPLE**: You think the Xbox is better than the PlayStation? You’re just a Microsoft zealot.
- **CAREFUL**: Insults and rude language are not necessarily ad hominem.
Complex Question

• sneaking a premise into a question
• sometimes an ad hominem

**EXAMPLE**: How often do you beat your wife?

**EXAMPLE**: How can you support this law? Don’t you believe in freedom?
Tu Quoque

• dismissing a moral argument by pointing out the hypocrisy of the proponent
• “two wrongs make a right”

**EXAMPLE:** How can you say it’s wrong to lie? I’m sure you’ve been dishonest before.

**CAREFUL:** Pointing out an inconsistency is not necessarily a tu quoque fallacy
Naturalistic Fallacy

• inferring *ought* from *is*
• establishing normative (values) from description (facts)

**EXAMPLE:** If I don’t steal this laptop, then someone else will, so it is not unethical.

**CAREFUL:** This is *not* an appeal to nature.
False Dilemma

- limited choices are presented in an argument when other choices are possible
- **EXAMPLE**: *If you’re not my friend, then you’re my enemy.*
- **Careful**: Sometimes, there really are only two choices (e.g. *I am either alive or dead.* )
Begging the Question

• assuming the conclusion in your argument
• “circular reasoning”

**EXAMPLE:** We know software piracy is unethical, because it is illegal. If it were moral, it wouldn’t be against the law.
Equivocation

• using ambiguity of meaning to mislead in an argument

• **EXAMPLE:** I have the right to make money, therefore making money is right.
Argument to Moderation

• assuming the middle of two positions is correct

• **EXAMPLE**: Some people think vaccines cause autism. Others disagree. The truth must be somewhere in the middle.

• **EXAMPLE**: Arrays should be indexed starting from 0.5
Special Pleading

• applying inconsistent standards without justification
• holding a double standard

**EXAMPLE**: Stealing is wrong, but not for Jake. He’s a cool guy.
Name That Fallacy!

• Thoughts have no physical substance, because thoughts are by their nature non-physical.
• Nothing is better than being happy. Having $2 is better than nothing. Having $2 is better than being happy.
• I cheated. So what? Lots of people cheat.
• How can you complain about my smoking when you drink so much?
False Analogy

• assuming that things that are similar in some way must be similar in others

• **EXAMPLE**: An MP3 is like a physical album, so getting a copy without paying is theft.

• **EXAMPLE**: People who are addicted to coffee should be arrested. They’re no better than heroin addicts.
Straw Man Argument

• ignoring your opponent’s argument and refuting a weaker argument

• **EXAMPLE:** You say we should cut school funding by 10%. Why do you hate education?

• **CAUTION!** This term is thrown around incorrectly on the internet.
Argument From Ignorance

- arguing that a claim is true because we can’t prove the claim is false
- ”shifting the burden of proof”
- **EXAMPLE**: *We don’t know how crop circles were formed. Therefore, they must be made by aliens.*
Post Hoc Ergo Propter Hoc

• assuming causation from a correlation
• “after this, therefore because of this”

**EXAMPLE:** The divorce rate in Maine is correlated with the consumption of margarine. If you eat margarine, you are causing divorce!
Name That Fallacy!

- If you don’t vote for my candidate, you support the other candidate.
- This flooding is all your fault. We never had a problem until you moved to town.
- People need food to survive. That man is dead, so he didn’t have enough food.
Composition/Division

- Composition: arguing that the whole has the attributes of its parts
  - EXAMPLE This laptop is the best. It has the best processor, RAM, and hard drive.
- Division: arguing that the parts have attributes of the whole
  - EXAMPLE: I can eat table salt, so it is safe to eat sodium.
Slippery Slope

• arguing that one event must inevitably follow from another without justification

• **EXAMPLE**: Allowing the NSA to spy on us will lead to a fascist dictatorship.

• **EXAMPLE**: If we legalize pot, we’ll eventually legalize heroine and crack, too.
• assuming that an argument is false because a logical fallacy is present
• **EXAMPLE:**

A: The Earth is flat.

B: The Earth is round, you weirdo. Do you think people fall off the edge if they walk too far?

A: Ad hominem! Non sequitur! Strawman! You’re wrong! I win!
Name That Fallacy!

- Humans have gone to war for all of history. How can it be immoral?
- Pacifism is moral. Einstein was a pacifist.
- People who oppose the death penalty think the lives of murders are more important than their victims.
- You support the death penalty? How does it feel to be on the wrong side of history?
I would never die for my beliefs, because I might be wrong.

- Bertrand Russell