Logical Fallacies 101

UDLS by Elan Dubrofsky
Friday Oct. 19th 2007
Introduction

- Arguing is fun.
What is an argument?

- A bunch of premises and a conclusion
What is an argument?

- A bunch of premises and a conclusion

1. A great hockey team needs a great goalie.
2. Ray Emery rules
3. Leadership is important
4. Daniel Alfredsson is the greatest captain of all time.
5. Elan doesn't cheer for loser teams

THEREFORE:
What is an argument?

- A bunch of premises and a conclusion

1. A great hockey team needs a great goalie.
2. Ray Emery rules
3. Leadership is important
4. Daniel Alfredsson is the greatest captain of all time.
5. Elan doesn't cheer for loser teams

THEREFORE:

The Ottawa Senators are best hockey team of all time
WHAT A PAIR!
Validity vs. Soundness

- A **valid argument** is one in which its premises logically lead to its conclusion.

- A **sound argument** is one that is valid AND its premises are all true.
Soundness shmoundness

I'm only going to consider if an argument is valid.

1. EMT is really smart
2. Smart people are good grad students

Therefore: EMT is a good grad student

Valid but not sound
What's a logical fallacy?

● An error in reasoning.
● Your premises don't lead logically to your conclusion.

There are lots of different types of logical fallacies.
HERE WE GO!

BLAST OFF!!
Ad Hominem

- Attack against a person.
- Argument is rejected based on an irrelevant fact about the author.

"Einstein's theories are useless; he didn't even know how to dress!"

"How can you call yourself a credible witness? You once cheated on your girlfriend!"
Appeal to authority

- Stating your source as beyond reproach.
- The person in question is not a legitimate authority on the subject.

"I know the world is only 6000 years old because the pope said so"

CELEBRITY ENDORSEMENTS!
Appeal to Emotion

- Manipulating someone's emotions to convince them that your claim is true.

"As a mother I care about my kids. So I buy them cheerios."

"Taking this vitamin will cause you to lose weight, gain confidence and find the girl of your dreams!"
Strawman

- Exaggerating the opposing idea

"Euthanasia should be legal"
"So I suppose you support killing any old and sick person?"

"Marijuana should be legalized"
"I guess you also think that we should sell cocaine to children from ice cream trucks?"
False Correlation (Post Hoc)

- Assuming that if two things occur at (or close to) the same time then one is the cause of the other.

"I prayed for money and I found $20. My prayer was answered!"

NOTE: We don't remember non events

"I was wearing a pink shirt the last time I won playing settlers. So now it's my lucky settlers shirt!"
False Correlation (Post Hoc)

Global Average Temperature Vs. Number of Pirates

- Global Average Temperature (°C)
- Number of Pirates (Approximate)

Data points:
- 1820: 13°C
- 1860: 14°C
- 1880: 14.5°C
- 1920: 15°C
- 1940: 15.5°C
- 1980: 16°C
- 2000: 16.5°C

Source: www.venganza.org
Appeal to Majority

- Saying a claim is true just because it is popular.

"Windows is the best operating system. Everybody uses it!"

"50,000 smokers can't be wrong!"

"Everybody loves Raymond"
Appeal to Ignorance

- Reaching a conclusion because the information isn't known.

"I heard a ghost in my bedroom"
"Are you sure?"
"What else could it have been?"

"I think Fred is the murderer"
"How do you know"
"Well how do you know he ISN'T the killer"
False Dilemma

- Saying you have only 1 of 2 choices.
- In most situations there are more than two possible outcomes.

"If we don't stop driving our planet is doomed"
  - Maybe we'll come up with an alternative to gasoline?
  - Maybe we'll stop driving and then a big meteor will hit earth.
  - Maybe EMT's thesis will doom the planet (see Terminator 2)

"That person who cut me off is either stupid or on the phone"
  - Or he had a heart attack
  - Maybe he's stupid AND on the phone!
  - Maybe I'm the jerk for driving too slow
  - Maybe he made a mistake and would apologize
Fallacy of Division

- Assuming what is true of the whole is true of its parts.

"Human beings are made of atoms. Human beings are conscious. Therefore, atoms are conscious."

"UBC is a tremendous university. I go to UBC... so I'm tremendous!" (This one is actually true)
Selective Observation

- This is cherry picking only data that supports your argument.

"This study shows that cell phones cause cancer"

"The bible says, 'Do unto others as you would have them do unto you'"

- Related to false correlation. We only remember the times that the horoscope was right. (My horoscope: "You will embarrass yourself in front of your peers")
THERE ARE SO MANY MORE

1. Ad Hominem
2. Ad Hominem Tu Quoque
3. Appeal to Authority
4. Appeal to Belief
5. Appeal to Common Practice
6. Appeal to Consequences of a Belief
7. Appeal to Emotion
8. Appeal to Fear
9. Appeal to Flattery
10. Appeal to Novelty
11. Appeal to Pity
12. Appeal to Popularity
13. Appeal to Ridicule
14. Appeal to Spite
15. Appeal to Tradition
16. Bandwagon
17. Begging the Question
18. Biased Sample
20. Circumstantial Ad Hominem
21. Composition
22. Confusing Cause and Effect
23. Division
24. False Dilemma
25. Gambler's Fallacy
26. Genetic Fallacy
27. Guilt By Association
28. Hasty Generalization
29. Ignoring A Common Cause
30. Middle Ground
31. Misleading Vividness
32. Personal Attack
33. Poisoning the Well
34. Post Hoc
35. Questionable Cause
36. Red Herring
37. Relativist Fallacy

Now let's go through all of these in excruciating detail.
Conclusion

When in an argument, feel free to make up your facts. But at least be logical about it!