Fallacies (Bad Arguments)

- Kinds of informal fallacies:
  - Introduction of false premises (not sound; possibly valid).
  - No argument (vague or not valid).

Classifying arguments

<table>
<tr><td>Good
(sound)</td><td colspan="2">Sound (and valid)
Exception: Tautology</td></tr>
<tr><td rowspan="3">Bad
(not sound)</td><td colspan="2">Invalid</td></tr>
<tr><td rowspan="2">Valid</td><td>not sound</td></tr>
<tr><td>contradiction</td></tr>
</table>

Previous ‘no argument’ fallacies

These are not valid

Denying the antecedent

A-> B; ~A; therefore, ~B

Affirming the consequent

A->B; B; therefore, A

False dilemma

- *Valid Form (disjunctive syllogism):*

  (P1) A v B

  (P2) ~A

  (C) B

- *Example*: You can go with me to the movie or you can stay at home and do work. You don't want to stay home and do work, so come with me to the movie.

- *Error:* Not all the options are covered by P1.

False dilemma (cont.)

- *Example*: If you're feeling introverted, you never talk to anyone so there's no point coming. If you're extroverted, you never shut up so no one would want you here. You're either one or the other, so don't bother showing up.
- *Error:* Not all the options are covered by P1&2.
- *Analysis*: Point out at least some of the possibilities that the speaker has failed to consider.

False presupposition

- *Valid Form:* Any
- *Examples*:The captain was not drunk today. Why are you acting stupid?
- *Example*: If you still take drugs, you have a problem. If you don't still take drugs, you had a problem. Therefore, you either still have a problem or had a problem in the past with drugs. (constructive dilemma)
- *Error:* An implicit premise is false.
- *Analysis:* Point out exactly what the unwarranted assumption is.

Straw man

- *Valid Form (disjunctive syllogism):*

  (P1) A v B

  (P2) ~A

  (C) B

- *Example*: We frequently hear prohibitionist propagandists like Dona Shalala say that the "latest research" proves that "marijuana isn't harmless, like everyone has been saying." This then refutes the arguments against arresting marijuana users, because these arguments are based on the assumption that marijuana is harmless.

Straw man (cont.)

- *Error:* Option A presented in P1 is a minority view or not held at all.
- *Analysis:* As with any false dilemma, point out a straw man argument by noting the important alternatives that have not been considered and showing why they're different from the position(s) that is considered.

Slippery slope

- *Valid Form (hypothetical syllogism):*

  (P1) A->B

  (P2) B->C (... and so on Pn: C_{n-1}->C_n)

  (C) A->C (or more generally C_{n-1})

  - *Example*: Arms control must be resisted. If automatic weapons are banned, then semiautomatic weapons will be next. After that, it's a short step to a ban against hunting rifles. If you want to hunt, or even practice shooting your compound bow, you must resist all arms control.

Slippery slope (cont.)

- *Error:* Just because one conditional premise is true doesn't mean the rest are.
- *Analysis*:
  - 1) Note why the sequence does not hold (outlawing automatic weapons doesn't imply outlawing rifles).
  - 2) Note lack of distinction between the first element and other relevant elements (some weapons are banned already).
- *Note:* Not always easy to avoid. Fairness and distinctness often conflict (e.g. French language rights).

Slippery Slope

- On same sex marriage: "I think that's where we should draw the line, and I don't want to get into the polygamy debate — but I fear if we do this, the next thing on the Liberal agenda will be polygamy and who knows what else."

  – Stephen Harper, Globe and Mail, 1/21/05

Inconsistency

- *Valid Form (modus ponens):*

  (P1) A

  (P2) ~A

  (P3) ~A v B (i.e. A->B)

  (C) B (for any B whatsoever)

- *Example*: Criminals know what they're doing when they commit crimes. Those who say otherwise are just trying to keep them from being punished. But criminals should be punished, because there's no better way to teach them right from wrong.

Inconsistency (cont.)

- *Error:* You can't assume a premise and it's negation.
- *Analysis:* Pointing out the inconsistency should do the trick (you hope). If not you mention that it's impossible for the argument to be sound.

Examples from George

- "The most important thing is for us to find Osama bin Laden. It is our number one priority and we will not rest until we find him." — 9/13/01
- "I don't know where bin Laden is. I have no idea and really don't care. It's not that important. It's not our priority."—3/13/02
- "I am truly not that concerned about him."—3/13/02
- "I'll repeat what I said. I truly am not that concerned about him."—3/13/02
- "Uhh—Gosh, I —don't think I ever said I'm not worried about Osama bin Laden. It's kind of one of those, uhh, exaggerations." — 10/13/2004

- Knowing these realities, America must not ignore the threat gathering against us. Facing clear evidence of peril, we cannot wait for the final proof - the smoking gun - that could come in the form of a mushroom cloud. – 10/6/02
- Donald Rumsfeld: "I don't know anybody in any government or any intelligence agency who suggested that the Iraqis had nuclear weapons."

Begging the question

- *Valid Form:*

  (P1) A

  (C) A

- *Example (circular)*: God guarantees that what I clearly and distinctly perceive is not an illusion. So, all things that I clearly and distinctly perceive exist. I clearly and distinctly perceive God. Therefore, God exists.

  – Rene Descartes

Begging the question

- *Example (begging the question)*: A fetus is a child. Killing children is murder. Therefore abortion is murder.
- *Error:* One of the premises is exactly the same (circular) or as questionable (question begging) as the conclusion.
- *Analysis:* Question begging arguments can be defused by noting how the conclusion restates one of the premises, or by noting which premise is as contentious as the conclusion.

Moving right along…

- Two kinds of informal fallacies:
  - Introduction of false premises (not sound) ✓
  - No argument (not valid).

Appeal to irrelevant authority

- *Form:*

  (P1) Superstar X says A

  (C) A

- *Example*: Sports stars have in recent years been among the most vocal supporters of magnet therapy, including Denver Bronco Bill Romanowski, who is a paid spokesman for BIOflex.

Appeal to irrelevant authority (cont.)

- A relevant authority should be:

  1) qualified and reliable

  2) an expert in the relevant area

  3) not especially interested in which conclusion you reach

  4) unpaid

  5) in general agreement with other authorities.

- *Analysis:* You should point out how the authority fails one or more of these criteria

Attacking the person (ad hominem)

- *Form:*

  (P1) Person P says A

  (P2) P is stupid (ugly, arrogant, a liar, etc.)

  (C) ~A

- *Example*: The latest Conservative budget is no good. The Conservatives are always pretending they have more money than they actually do.

Attacking the person (cont.)

- *Comment*: While it makes some sense to use past performance as an indicator of future performance for justification, such generalizations do not guarantee *truth*.
- *Analysis:* Ad hominem arguments can be defused by highlighting the argument actually presented. When the attack is personal, you can note that the personal attack is independent of your argument

Appeal to force/pity

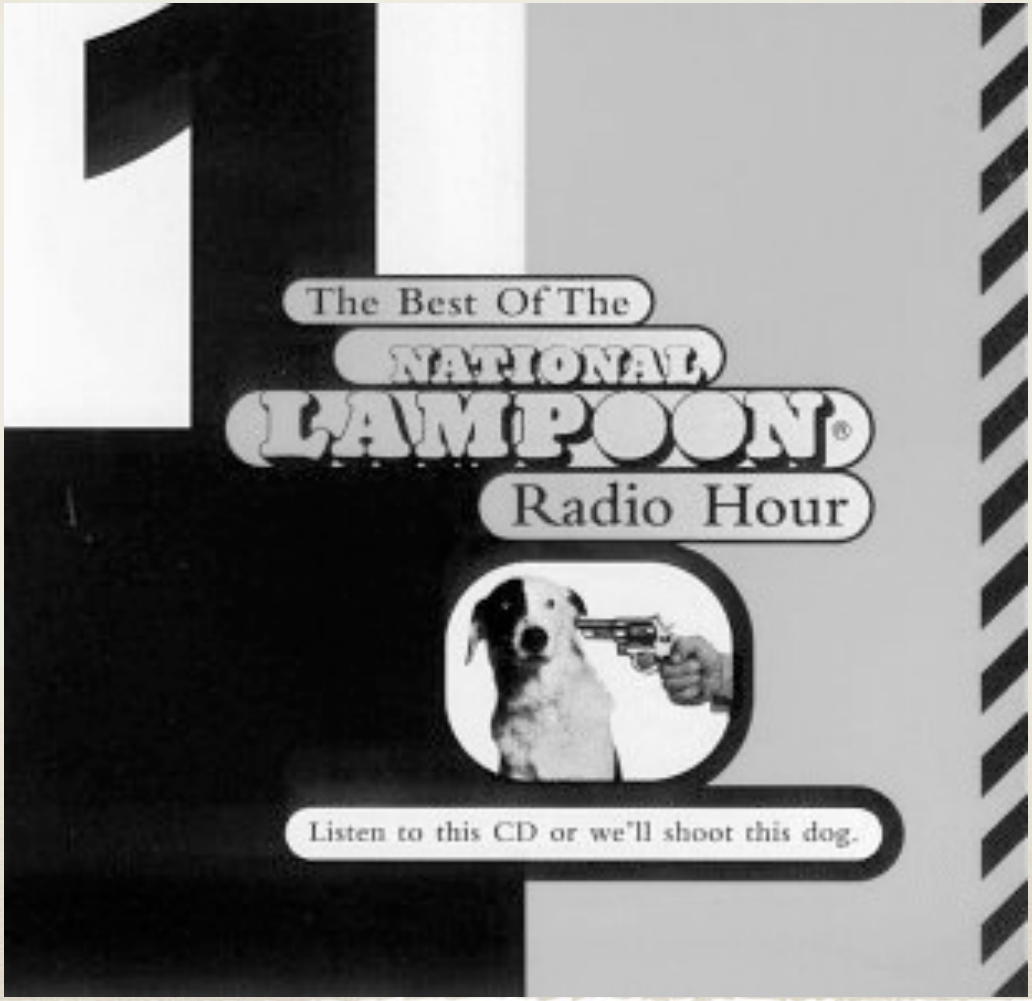
- *Form:*

  (P1) If you don't believe A, I'll hurt you/cry

  (C) A

- *Example*: The folks who pay your salary don't believe that your research is interesting, so you shouldn't.
- *Example*: My tooth aches, my girlfriend left me, and my cat got run over, so don't you think I deserve an extension?
- *Analysis*: Identify the appeal and note it is not a reason for belief, though it may be for action.

Appeal to force/pity



Argument from ignorance

- *Form:*

  (P1) A has not been shown to be true

  (C) ~A

- *Example*: Nobody has shown that unicorns exist therefore unicorns don't exist.

- *Analysis*: You can often invert the premises of the argument and then show a contradiction arises (i.e., both A and ~A).

- Note: This *is* a reasonable form of argument for justification, and is used in science often. It isn't, strictly *valid,* however. If we've tried to find A and failed, it can be a good argument.

Beside the point

- *Form:*

  (P1) B

  (C) A

- *Example*: I've been waiting at the bank for over an hour, so I should yell at the teller at the first possible opportunity.

- *Analysis*: You can simply point out that it isn't clear how the premises are relevant to the conclusion.

Summary/taxonomy

Introduction of false premises			
	False dilemma		A or B not B therefore A, where A and B (and so on) are not the only possibilities.
		Straw man	Opposing position is unrealistically portrayed
		Slippery slope	Undesirable positions, all supposedly relevantly similar
		False presupposition	An implicit premise is an unreasonable disjunction.
	Inconsistency		A and not A. Anything can be proven
	Begging the question		Conclusion is the same as or as questionable as a premise
No argument (Beside the point, vagueness)			
	Genetic fallacies		Arguments that attack the source, not the argument
		Attacking the person	
		Appeal to irrelevant authority	
	Appeals to act		Reasons given are for acting, not believing
		Appeal to force	
		Appeal to pity	
	Arguing from ignorance		A has not been shown therefore not A

Summary & Portfolios

- Not all fallacies are reflected in this summary.
- You can use any fallacies mentioned in the text or in-class when doing your portfolios
- You don't need to memorize names of all the fallacies, but knowing how to analyze them is important. You should know the names on the summary slide.

Analogy

- *Example:* Electrons are to their nuclei as planets are to their sun.

Source (analog)	**Target** (principle subj. matter)
orbit (S1, S2)	orbit (T1, T2)
S1: planets	T1: electrons
S2: sun	T2: nucleus

- Uses: discovery (Eureka!), explanation , argument

Analogy (cont.)

- *Example (Vitruvius)*: Voice is a flowing breath of air, perceptible to the hearing by contact. It moves in an endless number of circular rounds, like the innumerably increasing circular waves which appear when a stone is thrown into smooth water, and which keep spreading indefinitely from the center unless interrupted by narrow limits, or by some obstruction which prevents such waves from reaching their end in due formation. When they are interrupted by obstructions, the first waves, flowing back, break up the formation of those that follow. In the same manner the voice executes its movements in concentric circles; but while in the case of water the circles move horizontally on a plane surface, the voice not only proceeds horizontally but also ascends vertically by regular stages. (Holyoak and Thagard, 1995)

Analogy as argument

- *Formal:* Construct an analogy with the same formal structure in source and target to show the strength/weakness of the target.
- *Example*:

  (Target) If I spend my money then I will have nothing in my bank account. I didn't spend any money so I still have something in my bank account.

  (Source) If I get drunk then I will fall over. But I didn't get drunk so I won't fall over.

Analogy as argument

- *Informal:* Rhetorical motivation for hypothesis/formal argument.
- *Example*: The way I look at it, the liver is like a muscle. Just as you keep a muscle in shape by exercising it, you need to exercise your liver by drinking an ample quantity of alcoholic beverages.
- *Logical Form (modus ponens)*:

  (P1) A->B (general principle: e.g. if you want healthy organs, use them)

  (P2) A (target: e.g. you want a healthy liver)

  (C) B (conclusion: e.g. use your liver by drinking)

Analogy as argument

- Sometimes the analogy can obscure the deduction.
  - [S]uppose I had found a watch upon the ground, and it should be inquired how the watch happened to be in that place (...) There must have existed, at some time, and at some place or other, an artificer or artificers, who formed [the watch] for the purpose which we find it actually to answer; who comprehended its construction, and designed its use. (...) Every indication of contrivance, every manifestation of design, which existed in the watch, exists in the works of nature (...) The marks of design are too strong to be gotten over. Design must have had a designer. That designer must have been a person. That person is God."
    - William Paley, *Natural Theology (1802)*
- The analogy only supports the weaker conclusion that there is some designer or other.

Analogy as argument

- *Form*:

  (1) Like A, most things with P_1-P_n and have G (connecting principle).

  (2) B is like A (in having P_1-P_n).

  (C) B has G.

- Sometimes the general/connecting principle (1) is not easy to state and becomes:

  (1) A has G.

- In such cases, (2) often becomes more of the form:

  (2) B is like A in ways that are relevant to having G.

Analogy as argument

- *Example (Franklin)*: Electrical fluid agrees with lightning in these particulars: 1. Giving light. 2. Colour of the light. 3. Crooked direction. 4. Swift motion. 5. Being conducted by metals. 6. Crack or noise in exploding. 7. Subsisting in water or ice. 8. Rending bodies it passes through. 9. Destroying animals. 10. Melting metals. 11. Firing inflammable substances. 12. Sulfureous smell. -the electric fluid is attracted by points. -we do not know whether this property is in lightning. -but since they agreed in all the particulars wherein we can already compare them, is it not probable they agree likewise in this? Let the experiment be made.

- Note that there are no claims regarding 'relevant similarity'. We have to judge relevance for ourselves.

Evaluating analogies

- Irrelevant analogies are bad analogies
- *Example*: Electricity and lightning produce light, are attracted by points, etc. Lightning is only produced when there are clouds so electricity is only produced when there are clouds.

Criticizing analogies

- Formulate the connection principle and evaluate the logical form of the argument.

Otherwise,

- Determine what (and how many) properties are being mapped and whether these are likely to be relevant to the conclusion that is drawn.

Otherwise,

- Construct a disanalogy

Criticizing analogies

Example: [Kao-Tzu suggests making morality out of human nature is like making cups and bowls out of the willow] "Can you," said Mencius, "make cups and bowls by following the nature of the willow? Or must you mutilate the willow before you can make it into cups and bowls? If you have to mutilate the willow to make it into cups and bowls, must you, then, also mutilate a man to make him moral? Surely it will be these words of yours men in the world will follow in bringing disaster upon morality."

Example

Question: Choose a fallacy and give an argument of that form.

Prisoner reform through religious intervention:

http://slate.msn.com/id/2086617/

Original article: http://www.opinionjournal.com/taste/?id=110003652