

Philosophy 57 — Day 4

- Administrative Stuff
 - **First quiz Today!** Chapter 1: Multiple Choice/Short Answer
 - If anyone still needs an add code, see me.
 - **No Class This Thursday (02/06/03)** (I'll be out of town)
- Back to Chapter 1
 - Brief Review from Last Time
 - * Validity & Deductive Arguments
 - * Strength & Inductive Arguments
 - Onto New Stuff
 - * Distinguishing Deductive & Inductive Arguments
 - * Then, Onto Chapter 3 — Fallacies



Deductive vs Inductive Arguments I

- A **deductive argument** is an argument in which it is claimed (at least implicitly) that the argument is *valid*. In other words, a deductive argument aims to establish its conclusion *with certainty* (to *guarantee* its truth).
- **Deductive arguments will be the main focus of the course**. Chapters 4–7 will deal entirely with deductive arguments and establishing their validity or invalidity. Only chapters 1 and 3 will discuss non-deductive arguments.
- In particular, we will talk a bit about *inductive* arguments. **Inductive arguments** are arguments which aim only to establish their conclusions *with high probability*. Good inductive arguments are called “*strong*”, *not* “*valid*”.

All men are mortal.

Socrates is a man.

Therefore, Socrates is mortal.

vs

Most men are over 5' tall.

Socrates is a man.

Therefore, Socrates is over 5' tall.



Deductive vs Inductive Arguments II

- An (inductive) argument is **strong** if *any* of the following hold (else it's **weak**):
 - The truth of the premises makes the truth of the conclusion *probable*.
 - If all of the premises of the argument were true, then the conclusion of the argument would — *probably* — have to be true as well.
- Unlike deductive arguments, inductive arguments involve some **risk** that their conclusion *might* be false — *even if all their premises are true*.
- An (inductive) argument is said to be **cogent** if *both* of the following obtain:
 1. The argument is *strong*, and
 2. All of the premises of the argument are (actually) *true*.

Note: (1) is for Logic to decide, but (2) is *not* purely a matter of Logic.
- In other words:

Cogent = Strong [Logical Component] + All True Premises [Non-Logical Component]



Deductive vs Inductive Arguments VI

- **Prediction**: The barometric pressure has fallen significantly in the past 6 hours. Therefore, a storm will arrive soon.
- **Analogy**: Tina's 1998 Porche 911 has very good handling. Therefore, Branden's 1998 Porche 911 also has very good handling.
- **Authority**: My investment counselor says that Cisco stock will rise in the next 6 months. Therefore, Cisco stock will rise in the next 6 months.
- **Generalization** (from an observed sample): 89% of Palo Alto residents support more government funding for the arts. Therefore, 89% of California residents support more government funding for the arts.
- **Causal (Cause to Effect)**: The bottle of wine was accidentally left in the freezer last night. Therefore, the bottle is frozen now.
- **Causal (Effect to Cause)**: This chicken tastes dry and crunchy and it has a black color. Therefore, this chicken was overcooked.



Deductive vs Inductive Arguments VII

- Sometimes, arguments will not contain indicator words, nor will they be of an obvious form or a known type. In these cases, we need to think a bit.
- We need to determine whether the *intention* is to establish the conclusion *with certainty*, or merely to establish the conclusion with *high probability*.
- Sometimes, it will be clear from the context, or from the meanings of the concepts used in the argument as to whether it is deductive or inductive.
- For instance, if it seems clear (even though you may not see its *pattern*) that an argument is *valid*, then it's probably safe to say it is deductive.
- Example: “Eternity is simultaneously whole. But, time has a before and an after. Therefore, time and eternity are not the same thing.” (Aquinas)
- This argument is deductive (because it is *valid*), but it does not fit any pattern we will study in this course (what is the pattern of argument here?).



Deductive vs Inductive Arguments VIII

- Are these arguments deductive or inductive?
 - The headline of today's New York Times said that a hurricane struck Indonesia. Therefore, a hurricane really did strike Indonesia.
 - $x + y = 18$, and $x = 12$. Therefore, $y = 5$.
 - James got married a year ago, and today he is unhappy. Diane got married two years ago, and today, she, too, is unhappy. Apparently marriage no longer brings happiness to people.
 - Triangle A is inscribed in circle B . So, the area of A is $<$ the area of B .
 - Sonya is taciturn. Therefore, she doesn't talk much.
 - Given that x and y are odd integers, it follows that $x + y$ is an odd integer.
 - This bowling ball weighs 500 times as much as that marble. Therefore, if both are thrown out an open window at the same time, the bowling ball will fall 500 times faster than the marble.



Moving on to Chapter 3 — Fallacies Overview

- A **fallacy** is a (*logical*) defect in an argument that consists in something other than false premises. Both deductive & inductive arguments can be **fallacious**.
 - A **formal fallacy** is a fallacy that can be identified by merely examining the form or structure of an argument. We use the term ‘formal fallacy’ only for deductive arguments that have identifiable forms. Example:

All X's are Y's.

All Z's are Y's.

Therefore, All X's are Z's.

- An **informal fallacy** can only be identified by examining the *content* of the argument (*i.e.*, the *meaning* of its premises and conclusion). Example:

The Brooklyn Bridge is made of atoms.

Atoms are invisible.

Therefore, the Brooklyn Bridge is invisible.

- Chapter 3 discusses common *informal* fallacies (chs. 4–7 cover *formal* ones).



Informal Fallacies I — Fallacies of Relevance

- In chapter 3, Hurley describes over twenty-five (25) types of informal fallacies (see pp. 161–2 for a laundry list). These are broken up into five (5) categories.
- I may not cover all of these fallacies in lecture (and some that I do cover will not appear on quizzes or exams, since I disagree with Hurley about them).
- An argument commits a **fallacy of relevance** if its premises are **logically irrelevant** to its conclusion, but a *psychological* or *emotional* connection (perhaps “persuasive”!) *does* exist between its premises and its conclusion.
- An **appeal to force** (also called *argumentum ad baculum* – “appeal to the stick”) is a fallacy of relevance that occurs whenever an arguer uses *threat(s)* in place of *logic*. Threats, of course, are no surrogate for logical support.

Secretary to boss: I deserve a raise in salary for the coming year. After all, you know how friendly I am with your wife, and I’m sure you wouldn’t want her to find out what’s been going on between you and that sexpot client of yours.



Brief Digression: Fallacies & Charitable Readings

- It is clear that the secretary's threat of extortion provides no *logical support* for the truth of the claim "I deserve a raise in salary for the coming year."
- But, wouldn't the secretary *know* this? If we are at all *charitable* to the secretary here, we should assume that the secretary *does* know this.
- But, if that's right, then why do we say the secretary is committing a *fallacy*?
- It's important to note that the secretary is committing a fallacy **only if** they're posing the conclusion: (*) "I deserve a raise in salary for the coming year".
- **If** the secretary really is trying to establish the truth of *this* claim, **then** their threats *are* logically irrelevant, and a fallacy *is* being committed. *But ...*
- How *else* could we reconstruct the secretary's argument? What *else* might the conclusion of the secretary's argument be here? What's a *charitable* reading?
- Hint: what *goal* is the secretary *trying to achieve* here? And, does the achievement of this goal *require* establishing the truth of (*)?



Fallacies of Relevance II

- An **appeal to pity** (also called *argumentum ad misericordium*) fallacy occurs when an arguer tries to persuade a reader or listener by *evoking pity*.

Taxpayer to judge: Your honor, I admit that I declared thirteen children as dependents on my tax return, even though I have only two. But if you find me guilty of tax evasion, my reputation will be ruined. I'll probably lose my job, my poor wife will not be able to have the operation that she desperately needs, and my kids will starve. Surely, I am not guilty.

- The taxpayer's pathetic circumstances are not relevant to whether the judge should find them guilty of tax evasion. What related legal issue *might* they be relevant to? **Think critically, but charitably.** Is there a good argument *nearby*?

Constituent to senator: I am writing to urge your support for higher salaries for state correctional facility guards. Guards work long hours, often giving up weekends, at a dangerous job. They cannot afford expensive houses, or even nice clothes. Things that other state employees take for granted, like orthodontia for their children and a 2nd car, are not possibilities on their salaries, which have not been raised in 5 years.

- Is this an appeal to pity? This one is subtle. Some care is required here.



Fallacies of Relevance III

- An **appeal to the people** (*argumentum ad populum*) occurs when an arguer tries to persuade the reader or listener by exploiting their desire to be loved, esteemed, admired, valued, recognized, or accepted by others in society.
- There are two approaches to making appeals to the people:
 1. **The Direct Approach** makes a *direct* appeal to the emotions and enthusiasm of a large group to win acceptance of some conclusion:

Ladies and gentlemen, the minds of our children are in jeopardy. Today a reckless band of heathen teachers is shoving Darwinism down our children's throats. This mindless theory holds that human beings, the children of God, developed from mere monkeys. It holds that blind accident accounts for all life. Down with this godless theory! Fire the heathen teachers! Return God to the classroom!
 2. **The Indirect Approach** focuses on one or more members of “the crowd”, and tries to exploit their (desired) relationship to the others in “the crowd”.



Fallacies of Relevance III — Continued

- There are several kinds of *indirect* appeals to the people.
 - **Bandwagon argument:**

Of course you want to buy Zing toothpaste. After all, 90% of America brushes with Zing.
 - **Appeal to Snobbery:**

A Rolls-Royce is not for everyone. If you qualify as one of the select few, this distinguished classic may be seen and driven at British Motor Cars, Ltd. (By appointment only, please.)
 - **Appeal to Vanity:**

The roman empire, poised at the height of its power but eaten up by internal moral decay, had only a few years of political integrity left to it, though none of its contemporary citizens realized that gloomy fact. The moral for our nation is obvious.



Fallacies of Relevance IV

- An **argument against the person** (*argumentum ad hominem*) occurs when, rather than responding to the substance of someone's *argument*, a would-be objector directs our attention instead to the *person doing the arguing*.
- There are several types of *ad hominem* arguments:

- ***Ad Hominem Abusive***:

Before he died, poet Allen Ginsburg argued in favor of legalizing pornography. But, Ginsberg's arguments are nothing but trash. Ginsberg was a marijuana-smoking homosexual and a thoroughgoing advocate of the drug culture.

- ***Ad Hominem Circumstantial***:

The Dalai Lama argues that China has no business in Tibet and that the West should do something about it. But the Dalai Lama just wants the Chinese to leave so he can return as leader. Naturally he argues this way. So, we should reject his arguments.



Fallacies of Relevance IV — Continued

– *Tu Quoque* (“you too”):

Child to parent: Your argument that I should stop stealing candy from the corner store is no good. You told me yourself just a week ago that you, too, stole candy when you were a kid.

- **Cautionary Remark:** *Ad Hominem* is fallacious **only if** it aims to criticize a person’s *argument* by criticizing the person. This may *not* be the aim ...
- If the *aim is* to criticize the *person*, then there may be no fallacy at all.

Osama Bin Laden planned the destruction of the World Trade Center, killing thousands of innocent people, and he supports terrorist causes all over the world. Bin Laden is therefore a brutal and violent person.

- Here’s a more subtle example:

Mickey testified that he saw Freddy set fire to the building. But, Mickey was recently convicted on 10 counts of perjury, and he hates Freddy and would love to see him sent to jail. So, you shouldn’t believe Mickey’s testimony.



Fallacies of Relevance V

- The fallacy of **accident** occurs when a general rule is applied to a specific case it was not intended to cover. Typically, the general rule is cited (a.l. implicitly) in the premises, and then misapplied to a case mentioned in the conclusion.
 - Freedom of speech is a constitutionally guaranteed right.
Therefore, John Q. Radical should not be arrested for his speech that incited a riot last week.
 - Property should be returned to its rightful owner. That drunken sailor who is starting a fight with his opponents at the pool table lent you his .45-caliber pistol, and now he wants it back.
Therefore, you should return it to him now.
- One or more accidental features of the specific case make it an exception to the rule. In the first example, the accidental feature is that the speech incited a riot. In the second example, the accidental features are that the sailor is drunk, that he is starting a fight, and that the property in question is dangerous.



Fallacies of Relevance VI

- The **straw man** fallacy is committed when an arguer (1) distorts an opponent's argument, making it easily refutable, (2) refutes the distorted argument, then (3) concludes that the opponent's *original* argument has been refuted.
 - Ms. Volmer has argued that we reduce the speed limit on our freeways to 55 miles per hour. Using her logic, we should go a bit further and reduce it to 35. Then we'll just be crawling along. Think of the massive traffic congestion we'll have. Total gridlock! I think we can all see that Ms. Volmer's argument is a bad idea.
 - Mr. Rankin has just given his argument against affirmative action for women. What he's *really* saying is that women should stay out of the work place altogether — just keep them barefoot and pregnant! I think we are all smart enough to reject *that* argument.
- Typically, the creator of a straw man will try to make their opponent's argument sound more *extreme* or more *controversial* than it really is.



Fallacies of Relevance VII

- The **red herring** fallacy is committed when an arguer diverts the attention of the reader by *changing the subject* to a different (maybe subtly related) one.
 - The Auto Advisor column of the newspaper says that the Chevy Corsica is a great car. But the column fails to mention that General Motors executives make millions of dollars. Nobody deserves to be paid that much. In fairness, people should be paid according to the amount of work they do, and none of those executives does any more work than the average guy on the assembly line. Clearly the Auto Advisor is out to lunch.
 - Animal rights activists say that animals are abused in biomedical research labs. But consider this: Pets are abused by their owners every day. Probably 25% of pet owners should never get near animals. Some cases of abuse are enough to make you sick.
- Red herrings *don't* involve 'defeating' a distorted argument (straw men *do*).



Fallacies of Relevance VIII

- An arguer is guilty of **missing the point** (*ignorantio elenchi*) if the premises of their argument support one (identifiable!) conclusion, but then they infer a *different* (sometimes vaguely related), and *illogical* conclusion.
 - Wage earners cannot currently live on the minimum wage.
Therefore, the minimum wage should be abolished.
 - Grade school children these days can neither read or write.
Clearly, prayer should be returned to the classroom.
- You should always be able to *identify* at least one statement which the premises seem to logically suggest as an appropriate conclusion.
- In cases of red herring and straw man, the conclusion drawn by the arguer *is relevant* to the premises they cite (it's just that the premises they cite have nothing to do with the original argument!). Not so with missing the point.
- Missing the point is sort of a 'catch all' category for fallacies. It is a 'last resort', if one cannot fit a fallacy into any of the other known categories.

