

ISS 305:002

Evaluating Evidence:

Becoming a Smart Research Consumer

2. Fallacies of reasoning

Reminder: Turn on your I<CLICKER

AA is the base

### Fallacies

- A fallacious argument sounds reasonable or superficially true, but fails to provide good reasons to accept its conclusion (flawed / invalid) or is dishonest.
- An argument can fail for many reasons.
- **based on false or faulty premises/evidence**
- **premises are irrelevant to the conclusion**
- **there's not enough evidence**

### Deductive Fallacies: 1. Ad Hominem

- Why does this look like a deductive fallacy?
- Could reframe as follows:

Person A says that B is true.

Person A is a bad person.

**Bad people are always wrong.**

Therefore, B is false.

### Deductive Fallacies: 1. Ad Hominem

**There's a hidden premise here (and in many of the other fallacies we consider). Here, what is it?**

- **what makes the argument a fallacy is that this hidden premise is false**
  - **not all bad people are always wrong; sometimes bad people are right**
- **if all bad people were always wrong, this wouldn't be a fallacy, but rather a valid deductive argument**

### Deductive Fallacies: 1. Ad Hominem

- What makes an Ad Hominem argument a deductive fallacy is
- drawing really strong conclusions based on a very shaky premise (namely, that someone's bad character guarantees that their assertions are "bad"/false)
- Making the "quick and dirty" assumption that if there's something wrong with the messenger, their message must be wrong

### Deductive Fallacies: 1. Ad Hominem

- The major difficulty with labeling a piece of reasoning an Ad Hominem Fallacy is deciding whether the personal attack is relevant or irrelevant.

### Deductive Fallacies: 1. Ad hominem

- **Converse/Opposite of Ad Hominem** (Praise the Person)
- Prove the conclusion of a person's argument by praising the person's character, looks, etc.
- Basic structure of Converse-Ad Hominem fallacy.
  - A argues that B is true.
  - A is a good/smart/friendly... person.
  - Good/nice/attractive people are always right.**
  - Therefore, B is true.
  - What's the hidden (false) premise?**

### Deductive Fallacies: 2. Genetic

#### Genetic Fallacy

- If we can find some reason why the person might have made the claim (its origin or **genesis**) OTHER THAN its truth, we can dismiss the claim as false
- Reframed as a deductive argument:
  - Person A says that B is true.
  - Person A has some other (maybe ulterior) motive for saying B is true besides the truth of the statement.
  - **If a person ever has another motive--besides the actual truth--for saying something is true, then that something is always false.**
  - Therefore, B is false.
  - Hidden premise?**

## Deductive Fallacies: 2. Genetic

### Converse of Genetic Fallacy

- If we cannot find some reason why the person might have made the claim OTHER THAN its truth, we must accept the claim as true
- Reframed as a deductive argument:
  - Person A says that B is true.
  - Person A has no other apparent motive for saying B is true besides the truth of the statement.
  - **If a person has no motive--besides the actual truth--for saying something is true, then that something is always true.**
  - Therefore, B is true.

Hidden premise?

## Deductive Fallacies:

### 3. Appeal to (Questionable) Authority

- A says that P is true, therefore P is true (A should know because she's an **authority** on the subject)
- Converse: A says that P is true, therefore P is false (because A is **not** an authority)
- **Hidden premise?**
  - A says that B is true.
  - A is an authority/expert/credentialed person.
  - Authorities/Experts/Credentialed persons are always right.**
  - Therefore, B is true.

## Deductive Fallacies:

### 3. Appeal to (Questionable) Authority

**What's the less extreme premise that underlies the value of the heuristic?**

**Authorities/Experts/Credentialed persons are more likely to be right than non-experts.**

- Is it a fallacy to rely on authorities (like one's doctor)?
  - not if one doesn't assume that they MUST always be right AND
  - not if they are genuine experts
- Variation 1: If it's in print (or on the Internet), it must be true.
- Variation 2: If it is backed up with statistics, it must be true.
- Examples: 1. Political endorsements.

## Deductive Fallacies: 4. Bandwagon

- Everyone does it, so it must be ok. **OR**
- Everyone believes it, so it must be true.
- Variation: That's common sense, so it must be true.
  - Converse: That's counterintuitive, so it must be wrong.
- **Hidden (false) premise?**
  - Everyone believes that B is true.
  - If everyone believes something, it must be true.**
  - Therefore, B is true.

### Deductive Fallacies: 4. Bandwagon

- Variation: Most people want it or praise it, so it must be of high quality.

Last Weekend				< Previous Week				
THIS WEEK	LAST WEEK	T-METER	TITLE	WEEKS RELEASED	WEEKEND GROSS	TOTAL GROSS	THEATER AVERAGE	# OF THEATERS
1	--	86%	It	1	\$117.2M	\$117.2M	\$28.6K	4103
2	--	35%	Home Again	1	\$9.0M	\$9.0M	\$3.1k	2940
3	1	39%	The Hitman's Bodyguard	4	\$4.8M	\$64.9M	\$1.5k	3322
4	2	68%	Annabelle: Creation	5	\$4.0M	\$96.3M	\$1.3k	3003
5	3	86%	Wind River	6	\$3.2M	\$25.0M	\$1.1k	2890
6	4	35%	Leap!	3	\$2.5M	\$15.9M	\$929	2691
7	7	92%	Spider-Man: Homecoming	10	\$2.0M	\$327.7M	\$1.2k	1657
8	6	93%	Dunkirk	8	\$2.0M	\$183.1M	\$924	2110
9	5	92%	Logan Lucky	4	\$1.8M	\$25.2M	\$842	2167
10	9	8%	The Emoji Movie	7	\$1.1M	\$82.5M	\$731	1450
11	8	61%	Despicable Me 3	11	\$0.9M	\$260.0M	\$713	1274
12	10	89%	Girls Trip	8	\$0.8M	\$113.4M	\$714	1123

### Deductive Fallacies: 5. Past Practice (Tradition / Appeal to Traditional Wisdom)

- This has been going on for a very long time, so it must be true/valid/useful.

- Consistency in time (vs. consistency across people for the Bandwagon fallacy)

- **Hidden (false) premise?**

People have believed that B is true for a long time.

**Things that have been believed for a long time are always true.**

Therefore, B is true.

### Deductive Fallacies: 5. Past Practice (Tradition / Appeal to Traditional Wisdom)

- What valid premises underlies the use of this heuristic?
  - Generally speaking, the longer that more people have been doing or believing something, the more likely it is to be correct. People aren't stupid; if something doesn't work, they stop using it.
  - Yes, usually, but...



### Deductive Fallacies: 7. Two wrongs make a right (or, "look who's talking")

- Proving one's own wrong position is correct by finding fault in an opposing position.

- **Hidden premise?**

Person A asserts one thing while Person B asserts another.

Person A points out some flaw in B's position.

**When there are two opposing sides, one opponent is all or mostly wrong and the other is all or mostly right.**

Therefore, Person A is right.

- The hidden premise is a **false dichotomy**

### Langer, Blank, & Chanowitz (1978)



- 3 request conditions:
  - Simple request: "Excuse me, I have five pages. May I use the copy machine?"
    - even without a reason, 60% complied with the request
  - Nonredundant request: "Excuse me, I have five pages. May I use the copy machine because I am in a rush?"
    - with a good(?) reason, more (94%) complied
  - Redundant request: "Excuse me, I have five pages. May I use the copy machine because I have to make copies?"
    - what would you expect?
    - Langer et al. found that 93% complied with the redundant, circular request

### Langer, Blank, & Chanowitz (1978)



- Moral:
  - We may automatically and mindlessly assume that the "evidence" someone provides is independent/good evidence, even when it is not
  - When the decision is important, though, we tend to rely less on such heuristics
    - Langer et al. also had a 25-pages condition. Now, it really cost (in time) to comply
    - Simple request (24% comply)
    - Nonredundant request (42% comply)
    - Redundant request (24% comply)

### Deductive Fallacies: 12. Irrelevant thesis (see Gray) / Irrelevant conclusion

- Examples:
  - 1. "Governor Clinton says he would be the education president, but do you know that his state of Arkansas ranks 47<sup>th</sup> in the 50 states in education scores?"
    - Is this rank relevant to Clinton's effectiveness on education?
      - What if Arkansas was 50<sup>th</sup> when he came into office, but had risen to 47<sup>th</sup> when he left?
  - 2. "If there was a Big Bang, a moment of creation, then of course there has to be a Creator."
    - But does the fact that something has a beginning mean that some sentient being created that something?
      - Each hour has a beginning, but who created the hour?
      - A lighting bolt can begin a forest fire, but does that mean the fire had a creator?

### Deductive Fallacies: 12. Irrelevant thesis (see Gray) / Irrelevant conclusion

- Examples:
  - 3. "The Nazi's instituted a national health plan. Part of that health plan was the euthanasia of 'undesirables', like mentally handicapped persons or Gypsies. Do we really want a national health system in the U.S.?"
    - Euthanasia is not a necessary component of a national health system.
    - What Nazis did as part of their system may be wholly irrelevant to what would happen in US.
  - 4. Dennis Adams...

**Deductive Fallacies: 12. Irrelevant thesis (see Gray) / Irrelevant conclusion**

- **Red Herring?**

- **Misleads or distracts in an effort to lead people towards a false conclusion**

**Deductive Fallacies: 13. Straw man**

- Misrepresenting the position of someone (i.e., erecting a **straw man**) to make it easy to refute.



- **Hidden premise?**

If X is true, then Y (your conclusion) must be false.

But you also say that X is true.

**You actually do say that X is true (I'm accurately stating your position).**

Therefore, your conclusion, Y, is false.



**Deductive Fallacies: 14. Equivocation.**

- Using a single word or phrase with different meanings as if it only had one meaning, or changing definitions halfway through a discussion.

- Exploits the multiple meanings of some words

- 1. Pick-up lines:

- **“I know you’re attracted to me because I learned in my physics class that every object in the universe is attracted to every other object”**

- **gravitational attraction ≠ interpersonal attraction**



**Deductive Fallacies:**

**17. Appeal to Ignorance**

**Appeal to Ignorance**

- If P has never been proved true (i.e., we lack proof, or are **ignorant**), then P must be false.
- The absence of evidence is taken as evidence.
- **Hidden premise?**

There is no (or no conclusive) evidence that B is true.

**If we now have no evidence supporting B, it means that there is or never could be any such evidence.**

Therefore, B is false.

**Converse to Appeal to ignorance**

- If P has never been proved false, then P must be true.