Fallacies: a mistake in reasoning

Video Lecture covers:
- Definitions:
  - Fallacy
  - Fallacious argument: an argument that contains a mistake in reasoning (a fallacy)
  - Reminder: Syllogism & Enthymeme
- Classifications of fallacies
  - Inductive/Deductive
  - Valid & Soundness
- Important notes (who commits a fallacy, etc.)

Fallacies: “a mistake in reasoning”

- Look at the premises & conclusions
  - Is there a “mistake” in reasoning?
  - Does the conclusion follow from the premise(s)?
  - Is the premise “true”?
  - Is the “evidence” valid?

General Categories of Fallacies

- **Linguistic Confusion** – language
- **Begging the Question** – circular reasoning
- **Unwarranted Assumptions** – arguments based upon questionable assumptions
- **Missing Evidence** – no evidence used
- **Causal Fallacies** – false or insufficient cause
- **Fallacies/Appeals of Irrelevance** – don’t apply
- **Fallacies of Diversion** – misdirection
- **Statistical Fallacies** – improper use of statistical data
Important:
- You must be able to explain the concept, applying it to the fallacious statement.
- Merely labeling the fallacy (AKA: “post hoc”)
  - doesn’t help those who don’t know the fallacy by name (or at all)
  - doesn’t demonstrate that it is a fallacy (you just asserted it was)
- Be careful of just restating the fallacious argument or saying it is a fallacy by just giving the definition of the fallacy.

Linguistic Confusion
- When there is some misuse of or confusion in the meaning of words, phrases, or sentences used in an argument dealing with the words used.

Subcategories:
- Equivocation
- Ambiguity
- Semantical
- Syntactical
- False
- Distinction without a Difference
- Emotionally Loaded Language
- Technical Jargon
- Hyperbole (exaggeration)

Linguistic Confusion Fallacies
- **Equivocation** - directing an opponent toward an unwarranted conclusion by making a word or phrase, employed in two different senses in an argument, appear to have the same meaning throughout.
  (To “equivocate” is to make it appear that two words have the same meaning when, in fact, they do not.)

  "I don’t see any reason why we should listen to the superintendent of schools on this textbook issue. We need to hear from someone with some authority in the field of education. Our superintendent doesn’t even have enough authority to keep the students and teachers in line. Nobody respects her orders.”

continued...
Linguistic Confusion Fallacies

- **Ambiguity**
  - **Semantical Ambiguity** - presenting a claim or argument that uses the same word or phrase in two or more different ways, without making it clear which meaning is intended.
    - "Yesterday we moved into a new house."
  - **Syntactical Ambiguity** (amphiboly) - due to poor grammatical construction, which allows for the question/statement/argument to be taken in two or more different ways.
    - "Charles never argues with his father when he’s drunk."

- **False Ambiguity** - carelessly interpreting a word or phrase in a manner not justified by the context.
  - (Taking something too literally—entirely the listener’s fault.)

Linguistic Confusion Fallacies

- **Distinction Without a Difference** – trying to say something is different when it isn’t necessarily so.

- **Emotionally Loaded Language** – manipulating the connotative meaning of words to establish a claim without proof.

- **Technical Jargon** – using technical terms not immediately understood by audiences (intentionally or unintentionally).

- **Hyperbole** – deliberate exaggerations to create emphasis or effect.
  - (Okay as a literary device, such as in poetry, but not okay in an argument)
  - "enough food to feed a whole army"
Begging-the-Question Fallacies

- An argument that uses its conclusion as part of the evidence in support of that very same conclusion.
  
  We should do X.  
  Why?  
  Because X is what we should do.

Subcategories:
- Circular Reasoning
- Loaded or Complex Question
- Leading Question

Circular Reasoning - either explicitly or implicitly asserting in one of the premises of an argument what is asserted in the conclusion of that argument.

The Bible is the authority on morality. (Why?)  
Because it says so in the Bible.

Loaded or Complex Question - formulating a question in such a way that a definite answer has already been given to some other (unasked) question.

Does your mother know you are gay?

Leading Question - planting a proposed answer to a question at issue by the manner in which the question is asked.

"You did plan to return the money you ‘borrowed’ from the cash register, didn’t you?"

Unwarranted Assumptions Fallacies

- Arguments based upon questionable, although sometimes popular, principles or assumptions.

  Evidence/Assumption → Conclusion

  If this is questionable... How likely is this to be true?

Subcategories:
- Fallacy of the continuum
- Transfer Fallacies
- Fallacy of Composition
- Fallacy of Division
- False Alternatives
- Is/Ought Fallacy / Wishful Thinking
- Misuse of a Generalization (Hasty G)
- False Analogy
- Fallacy of Novelty
- Fallacy of Incomplete Comparison
Unwarranted Assumption Fallacies

- **Fallacy of the Continuum** - assumes that small differences are always unimportant, or that supposed contraries (as long as they are connected by intermediate small differences) are really very much the same. Failing to recognize the importance or necessity of sometimes making what might appear to be arbitrary cut off points. “One more straw won’t break the camel’s back.”

- **Transfer Fallacies** - assumes that properties of one “transfer” to the other.
  - **Fallacy of Composition** - assumes that, because a property is affirmed or denied of the parts of some whole, that same property may also be affirmed or denied of the whole. (Completely inductive reasoning)
  - **Fallacy of Division** - assumes that, because a property is affirmed or denied of some whole, that same property may also be affirmed or denied of any of the parts of that whole. (Completely deductive reasoning)

Unwarranted Assumption Fallacies

- **False Alternatives (False Dilemma, False Dichotomy, Either/Or)** - assuming too few alternatives and, at the same time, assuming that one of the suggested alternatives must be true.
- **Is/Ought Fallacy** - assumes that because something is the case, it ought to be the case. Likewise, assumes that because something is not the case, it ought not be.
- **Wishful Thinking** - assumes that because you want (wish) something to be the case, it is or will be the case. Conversely, it assumes that because you don’t want something to be the case, it is or will not be the case.

Unwarranted Assumption Fallacies

- **Hasty Generalization (argument from small numbers)** - Drawing a conclusion based on a small sample size, rather than looking at statistics that are much more in line with the typical or average situation.
  - May be an exception to the rule
  - “My father smoked four packs of cigarettes a day since age fourteen and lived until age 69. Therefore, smoking really can’t be that bad for you.”
- **Faulty Analogy (False Analogy)** - assumes that because two things are alike in one or more respects, they are necessarily alike in some other respect. (Comparing apples to oranges)
- **Fallacy of Novelty** - assumes and argues that a new idea, new law, new policy, or new action is good simply because it is “new.”
- **Fallacy of Incomplete Comparison** - implies a comparison where no standard for comparison is given.

This is better!
Fallacies of Missing Evidence

- **When no evidence at all (or only the appearance of evidence) is used in reasoning.**
  
  **Evidence/Assumption** → **Conclusion**

  If this is nonexistent... ...how likely is this to be true?

**Subcategories:**
- Fallacy of Negative Proof
- Contrary-to-Fact Hypothesis
- Unsuitable Use of a Cliché
- Neglect of Relevant Evidence

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Fallacies of Missing Evidence

- **Fallacy of Negative Proof (Appeal to Ignorance/Ad ignorantium)** – assumes that a claim is true simply because it has not been proven false. Moreover, it assumes that a claim is true because of the inability or refusal of an arguer to present convincing evidence against it. Conversely, it assumes that a claim is false because of the inability or refusal of an arguer to present convincing evidence for it.

  "I cannot prove that X exists, so you prove that it doesn’t. If you can’t, X exists."

  "You can’t prove global warming is caused by humans."

  Sheila: I know Elvis’ ghost is visiting me in my dreams.
  Ron: Yeah, I don’t think that really is his ghost.
  Sheila: Prove that it’s not!

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Fallacies of Missing Evidence

- **Contrary-to-Fact Hypothesis** - a poorly supported claim about what might have happened in the past if other conditions had been present, or about an event that might occur in the future.

  "If you had studied a little harder, you would have passed the exam."

- **Unsuitable Use of a Cliché** - using a cliché in place of relevant evidence for a claim.

  "I don’t have time to study for this exam. If I don’t know it now, I never will."

- **Neglect of Relevant Evidence** - arguing in a way that ignores, suppresses, or unfairly minimizes the importance of obvious evidence unfavorable to one’s position.

  "Motorcycles are ... dangerous; they are noisy; only two people can ride on them at a time; you can’t ride them in cold or rainy weather; in most states, you are required to wear an uncomfortable helmet; and the grease from the motor can completely ruin your clothes. I can’t see why anyone would want to buy one."
Causal Fallacies (AKA: False Cause)

Faulty reasoning about the causal relationships between events.

**Cause** ➔ **Effect**

**Superstitions?**

Subcategories:
- Post Hoc (post hoc ergo propter hoc)
- Alternative Causation
- Causal Oversimplification
- Neglect of a Common Cause
- Confusion of a Necessary with a Sufficient Cause
- Domino Fallacy (Slippery Slope)

**Post Hoc (post hoc ergo propter hoc):**
"After this, therefore because of this." Just because something happened after something else, doesn’t mean that one "caused" the other.

"Since my election, Ford, Fiat-Chrysler, General Motors, Sprint, Softbank, Lockheed, Intel, Walmart, and many others have announced that they will invest billions of dollars in the United States and will create tens of thousands of new American jobs."
—President Trump (02/28/17)

"...some of the decisions were made long before his election. Softbank, for example, announced its expansion plans weeks before the November election. Fiat’s chief executive has said the companies decision to expand was made long ago and had nothing to do with Trump."
—Los Angeles Times (03/02/17)

**Alternative Causation** (can also be Oversimplification or Neglect of a Common Cause)
There may be other factors involved OR the "cause" may not be the cause at all OR not as big of a cause as claimed

“I wish they didn’t turn on that seatbelt sign so much! Every time they do, it gets bumpy.”
Causal Fallacies (False Cause)

- **Causal Oversimplification** - oversimplifying the relevant antecedents of an event or series of events. (Definition of antecedent: anything prior to something)
  
  Marriage would be greatly helped if husband and wife would read the Scriptures together and pray together every day.

  No wonder divorce abounds when family worship has dropped over 90% and, in some cases, almost 100%.

- **Neglect of a Common Cause** - fails to recognize that two seemingly related events may not be causally related at all, but rather effects of a common cause.

- **Confusion of a Necessary with a Sufficient Cause** - assumes a necessary condition of an event is also sufficient one.
  
  “You said that I would have to run the mile in less than 5 minutes, and I did. So why is it that I got cut from the team?”

Alternative Causation

- **Domino Fallacy (Slippery Slope)** - assumes without appropriate evidence, that a particular action or event is just one (usually the first) in a series of steps that will inevitably lead to some specific consequence.

Fallacies/Appeals of Irrelevance

- **Employing premises that are logically irrelevant to their conclusions (non sequiturs or argumentative leaps).**
  
  - Can also be an appeal to emotions, used as a substitute for evidence.

Subcategories:

- Attacking the Person (Ad Hominem)
- Abusive Ad Hominem
- Tu Quoque
- Poisoning the Well
- Coincidental
- Irrelevant/Questionable Authority
- Appeal to Tradition
- Ad Misericordiam
- Appeal to Public Opinion (Bandwagon)
Fallacies/Appeals of Irrelevance

- Attacking the Person (Ad Hominem)
  - Abusive Ad Hominem - attacking one's opponent in a personal and abusive way, rather than responding to the claim of the argument. ("ad hominem" is Latin for "the man")
    - Mr. Smith says crime is on the rise.
    - Mr. Smith is a @#S%$! jerk.
    - Therefore, crime is not on the rise.
  - Tu Quoque Argument - responding to an attack on one's actions or ideas by accusing one's critic of thinking or acting in a similar way. ("tu quoque" means "you also, but who's talking") or in a way that is equally hard to defend. (attacks a "do as I say, not as I do" argument.)
  - Poisoning the Well - rejecting a claim defended by another because of that person's special circumstances or improper motives, or because of a negative evaluation of that person. (Discrediting the source so that it precludes any consideration of the evidence/argument.)
  - Circumstantial - guilt by association

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“When the debate is lost, slander becomes the tool of the loser.”
-- Socrates

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Fallacies/Appeals of Irrelevance

- Genetic Fallacy - evaluating a thing/idea in terms of its earlier context, and then carrying that evaluation over to that thing/idea in the present.

- Irrelevant or Questionable Authority (argumentum ad verecundiam) - attempting to support a claim by quoting the judgment of one who is not an authority in the field, the judgment of an unidentified authority, or the judgment of an authority who is likely to be significantly biased in some way.

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Fallacies/Appeals of Irrelevance

- **Appeal to Tradition** (argumentum ad antiquitatem): attempting to persuade others of one's point of view by appealing to their feelings or reverence or respect for some tradition that supports that view, rather than presenting appropriate evidence or reasoning.
  
  "We've always done it that way."

- **Missing the Point**: drawing a conclusion that purports to follow from the evidence which misses the point of the evidence; or presenting evidence that does not support a stated conclusion. (could also be a non-sequitur)

- **Ad Misericordiam** (Special Pleading / Appeal to Sympathy) = appeal to pity or misery
  
  "Oh, Officer, There's no reason to give me a traffic ticket for going too fast... … because I was just on my way to the hospital to see my wife who is in serious condition to tell her I just lost my job and the car will be repossessed."

Irrelevant Appeals

- **Appeal to Public Opinion** (Bandwagon Philosophy/Appeal to the People): urging the acceptance of a position simply on the grounds that most (or at least great numbers of) people accept it. (Go ahead, jump on the bandwagon.)

Fallacies of Diversion

- Maneuvering to a more advantageous or less embarrassing position by directing attention away from the actual point at issue in an argument.
  
  Main (Actual) Argument ─ Opponent
  
  Alternative Argument
  
  Subcategories:
  - Diversion
  - Attacking a Straw (Straw Man)
  - Red Herring
  - Appeal to Ridicule

- Not dealing with the argument
Fallacies of Diversion

- **Distortion** - stating an opponent's point of view or argument in a distorted form, usually for the purpose of making it easier to attack.

- **Attacking a Straw (Straw Man)** - attacking an opponent's position by focusing critical attention on some point less significant than the main point or basic thrust of the argument.

- **Red Herring** - attempting to hide the weakness of an advocate's position by drawing attention away from the real issue to a side issue.

- **Appeal to Ridicule (reduction ad ridiculum)** - Presenting the argument in such a way that makes the argument look ridiculous, usually by misrepresenting the argument or the use of exaggeration.

It takes faith to believe in God just like it takes faith to believe in the Easter bunny — but at least the Easter bunny is based on a creature that actually exists!

Statistical Fallacies

- Improper use of statistical data.

Subcategories:

- Insufficient sample
- Unrepresentative Statistics
- Fallacy of False Precision
- Gambler's Fallacy

Statistical Fallacies

- **Insufficient Sample (also Hasty Generalization)** - drawing an inductive generalization from too small a sample.

- **Unrepresentative Statistics** - drawing an inductive generalization based upon unrepresentative data.

- **Fallacy of False Precision** (Unknowable Statistics) - making a claim with a kind of mathematical precision that is impossible to obtain.

- **Gambler’s Fallacy** - arguing that, because a chance event has had a certain run in the past, the probability of its occurrence in the future is significantly altered.
Multiple Fallacies May Exist in a Single Argument

- Appeal to Emotions (ad misericordiam)
- Appeal to Public Opinion (ad populum)