

Logical Fallacies

There are two ways to prove an argument false: you can attack the premises upon which the argument is based or you can attack the logic by which the premises lead to the conclusion.

Even when the premise of an argument is true, the conclusion may still be invalid if the logic is not correct. These types of errors are called logical fallacies.

1) Formal Logical Errors

Non-Sequitur A conclusion that is not supported by its premise. All formal logical errors are Non-Sequiturs. There are many different types, for example, the error of the undistributed middle:

1. Men are human.
2. Mary is human.
3. Therefore, Mary is a man.

Or the error of affirming the consequent

1. If dogs are bitten by rabid hedgehogs, the dogs die
2. Here is a dead dog
3. Therefore it was bitten by a rabid hedgehog.

2) Informal Logical Errors

Argumentum Ad Antiquitatem That is the way it has always been done. Something is justified because it is part of the status quo.

Argumentum Ad Ignorantiam: Argument from ignorance.

P is true because you can't prove it false

P is false because you can't prove it true

This violates the Burden of Proof. If you make an argument you must prove it correct and not challenge your opponent to prove it false. Example: You can't prove whether there is or there isn't life on Mars, therefore the odds of life on Mars must be fifty fifty.

Argumentum Ad Hominem: Avoid the argument and attack your opponent's character. Example: The Mayor's proposal can't work. He doesn't even know how to shave, or that argument can't be correct because you are stupid.

Slippery slope: The argument that a small first step, or series of small steps will inevitably lead to a significant harm. Example: If you experiment with marijuana you will become a heroin addict. Or, if you increase the price of books no one will be able to afford them and the world becomes populated with illiterates.

False dilemma: The assumption that only two mutually exclusive outcomes exist when others might be possible. Example: You are either for us or against us. A vote for my opponent is a vote for world wide destruction.

Hasty Generalization: A conclusion based on insufficient information. Example: I was almost run over by a guy in a SUV. Therefore all drivers of SUVs are maniacs. Or, Joe Bob was seen in the vicinity of the crime scene, therefore Joe Bob must be guilty of the crime. (Where there is smoke, there is fire).

Post hoc ergo propter hoc: `After this, therefore because of this`. This is a confusion of correlation and causation. Example: in 2007 we saw a 12% increase in violent movies and in the same year, a 3% increase in violent crimes, therefore violent movies cause an increase in crime rates.

Or: We sacrificed a goat and then it rained. Therefore sacrificing goats causes rain.

That two things occur does not imply that one caused the other. Both might be caused by a third factor.

Begging the Question: A question based on an unproved premise. Example:

Do you still beat your wife?

Did the pollution your company caused increase or decrease your profits?

Circular Argument: Supporting an argument based on first accepting that the argument is true. Example: You can't give me a C. I am an A student! Or, the charges of police abuse are false because the police would never abuse someone. Or, God exists because the Bible says so.

False Analogy: Claiming two things are similar when they are not, and arguing from that assumption. Example: Politics is like a body – you need a brain directing it. Therefore, authoritative governments are more efficient. The error is equating political bodies with biological bodies.

Ad populum: If everyone says so, then it must be true. Also known as the Bandwagon Effect. Example: everyone likes Justin Beber, therefore his music must be good. Or, juries operate by majority vote, therefore they must be right.

Red Herring: The use of irrelevant information to divert attention from the argument. Example: It was unfair for the policeman to stop me for speeding. I pay my taxes. My taxes pay his salary. He should be out stopping crime instead of harassing me.

Argument from final consequences: Another confusion of cause and effect. It denies a conclusion simply because it is undesirable. Example: Free will must exist, because if it did not then we would all be machines.

Strawman: Occurs when you deliberately replace an opponent's argument with a ridiculous version and you argue against the ridiculous version. Example: my opponent says that sunny days are good, but without rain we'd all die. Or, My opponent says we should not give ice cream to students every day, but we can't just let them starve!

No True Scotsman: This fallacy is a form of circular reasoning, in that it attempts to include a conclusion about something in the very definition of the word itself. It is therefore also a semantic argument.

The term comes from the example: If Ian claims that all Scotsman are brave, and you provide a counter example of a Scotsman who is clearly a coward, Ian might respond, "Well, then, he's no true Scotsman." In essence Ian claims that all Scotsman are brave by including bravery in the definition of what it is to be a Scotsman. This argument does not establish and facts or new information, and is limited to Ian's definition of the word, "Scotsman."

And finally, my favorite:

Argumentum Ad Hitlerum: A means of discrediting a statement through association with Adolf Hitler, his supporters or policies. *Example:* Richard Wagner was Hitler's favorite composer. If you listen to Wagner then you're a Nazi too!