

Informal Fallacies

Fallacies are frequent mistakes people make in argumentation. Some fallacies concern false or doubtful premises (e.g., Dubious Dilemma, Slippery Slope). But each fallacy given here is a type of [deductively invalid](#) argument (except *petitio principii*; see below). Regardless, a fallacious argument never rationally *compels* you to accept the conclusion.

Warning: If an argument is fallacious, it does not follow that its conclusion is *false*. (To say otherwise is to commit the so-called “fallacy fallacy.”) After all, I can give a bad argument for a conclusion that happens to be true. (“The moon is made of ranch dressing. So, Mexico is in North America.”) So if you find a fallacy, it doesn’t show the conclusion is false. Rather, it means that the argument does not effectively *prove* its conclusion.

1. Fallacies of Relevance

The Appeal to Emotion

Instead of giving reasons, this kind of argument just uses expressive language for provoking sympathy or antagonism toward a particular claim.

You should not oppose President Obama. It is Unamerican.

This isn’t a good argument; it’s just rhetoric. If we were to try to construct some sort of valid argument out of this, it would be patently absurd. The argument would rest on the premise that you cannot be a patriot if you do not agree with everything Obama says.

Some appeals to emotion have their own label to indicate the emotion they try to exploit. (*Ad in terrorem* incites fear; *ad misericordiam* rouses pity; *ad odium* provokes spite...)

The Appeal to the Majority: Argument *Ad Populum* (or sometimes *Ad Majoritatum*)

Instead of giving reasons, this kind of argument just cites popular opinion in order to compel your acceptance of a conclusion.

You should love High School Musical 3. Everyone else does.

This is trying to intimidate you into accepting an opinion, by identifying it as the majority opinion. But of course, the majority can be wrong.

Yet sometimes appealing to majority opinion is legitimate, as when the opinion of the majority bears directly on the truth of the conclusion. Consider:

Most of the electoral college voted for Obama. Therefore, Obama won the presidency.

Note also the *inverted ad populum* argument—where popular opinion is cited so to cause your *rejection* of a conclusion. Example:

You should major in art instead of finance. Otherwise, you're just a conformist.

The argument is trying to turn you against the finance major, merely because finance is viewed favorably by society. But the majority may well be right that finance is a better major. The argument doesn't provide any real evidence on the matter.

Naturally, blind conformity is never a virtue. But while "Taking the road less travelled" may be a good idea sometimes, it is not always. (It's for a *good reason* that no one undergoes elective surgery to amputate their arms!) Usually, whether an idea is good depends on *other* things—not merely on how popular or unpopular it is.

The Appeal to Force: Argument *Ad Baculum*:

This fallacy occurs when there is a threat of some kind (e.g. brutality) if one does not accept the conclusion.

Communism is wrong. If you disagree, I'll prosecute you as a traitor.

This is just trying to scare you into accepting the conclusion. The threat here does not *show* that communism is wrong.

Character Assassination: Argument *Ad Hominem*

This is the fallacy attacks a view by attacking the person's character who holds it.

Clinton's views on conducting domestic affairs can't be right. After all, he can't even conduct himself.

It is quite possible for someone to be a brilliant at domestic policy, yet be a lousy person. (There have in fact been some U.S. presidents like this.) Thus, the details of the person's character, in this case, are irrelevant.

Of course, sometimes character traits are relevant. For example, the fact that Clinton cheats on his wife would support the claim that he is not a great *moral* leader (though it may not *show* this). So not all arguments *ad hominem* are completely wrong-headed.

The Appeal to Authority: Argument *Ad Verecundiam*

When an argument appeals to something said by an authority.

You should vote for McCain. Brett Favre endorsed him, after all.

No matter whom you cite, the truth of a claim *never* follows from someone's saying so.

BUT: If you cite a legitimate authority, you then have *some* reason for believing her/his claim. Yet often the trick is deciding when you have such an authority. The rule of thumb is that someone is a legit authority to the extent that she is in a better position than “the person on the street” to discern the truth of the matter.

The Argument from Ignorance: Argument *Ad Ignorantiam*

When a proposition is argued to be true because it has not been proven false OR when a proposition is argued to be false because it has not been proven true

There are no alien life forms because no one has proven that there are.

The fact that we have not proven anything about aliens does not show either way whether there are aliens. Our ignorance just shows our ignorance about the existence of aliens.

BUT: An argument from ignorance is not always inappropriate. Consider:

The defendant did not commit the murder, because no one has proven otherwise.

This rests on the plausible background-assumption that one should be seen as innocent until proven guilty.

The Naturalistic Fallacy

This type of argument concludes something about the value of *x*—based only on non-normative or natural facts (esp. the fact that *x* is naturally occurring).

It is better to treat depression with St. John’s Wort than with the anti-depressants from pharmaceutical companies. After all, only St. John’s Wort is all-natural.

If St. John’s Wort is better, that is not shown from its being all-natural. After all, tornados and earthquakes are “all-natural,” while air conditioning and indoor plumbing are not.

In ethics, the naturalistic fallacy is a central concern. Very often, ethicists want to justify a claim about the value of something, based on the non-prescriptive or natural facts about it. For instance:

Sex between consenting adults is morally permissible. That’s because it brings more pleasure into the world.

If consensual sex is permissible, that does not *follow* from facts about pleasure. After all, sometimes sex constitutes marital infidelity. Even if it is the most pleasurable sex ever (and even if the wronged party never finds out), this does not *show* that the act was morally permissible.

NOTE: It is ok if *some* of your premises cite natural facts. The fallacy occurs only when *all* of your premises concern non-evaluative or natural facts. In the last example, the naturalistic fallacy is avoided if we further assume the value-judgment that “anything which tends to bring more pleasure into the world is morally permissible.” Of course, that extra premise is controversial, but at least the conclusion would follow in this case.

Red Herring

An argument is a “red herring” when it introduces an irrelevant or secondary subject, and thereby diverts attention from the main issue. Usually, the red herring is an issue about which people have strong opinions, so that people are less likely to notice how their attention is being diverted.

Look officer, I wasn't speeding—after all, I'm on my way to volunteer at the homeless shelter.

In this case, *where* I am going is clearly irrelevant to *how fast* I was going there.

It is plausible to see *all* of the preceding fallacies as special cases of the “red herring” fallacy. (So for example, an argument *ad hominem* introduces an irrelevant matter, viz., the character of the opponent, and thereby diverts attention from the main issue.)

However, the speeding example would be an example of a “red herring” which is not classifiable as an *ad hominem*, nor an *ad ignorantium*, nor an *ad majoritatum*, [etc].

2. Fallacies of Causation

Cum hoc; ergo, propter hoc “With the thing; therefore, because of the thing”

This is the fallacy of inferring that x caused y, from the premise that x and y are correlated. Thus, the fallacy assumes falsely that “Correlation implies causation”

Our study finds that people with clinical depression are more likely to be vegetarian. Therefore, depression influences someone's decision to be a vegetarian.

The conclusion does not follow from the premise, since it is possible that the correlation here is accidental. Alternatively, it may be that being a vegetarian causes you to be depressed (rather than the other way around). Or possibly, there is some **THIRD** thing which is simultaneously causing both the depression and the vegetarianism.

Note, however, that some cases of *cum hoc; ergo, propter hoc* are legitimate as *abductive* arguments. Depression and suicide are correlated, for example, and it is plausible to infer abductively that this is because depression causes suicide.

Genetic Fallacy

To commit the genetic fallacy is to reject (/endorse) an idea, because of its ignoble (/venerable) origins, i.e. its genesis.

Taxation by the government is wrong. After all, in the Middle Ages, the practice was used by the ruling class to exploit working peasants.

Taxation may have a shady history, but it is still could be the best policy, all things considered. Its dubious history in some cases *may* serve as defeasible *evidence* of its wrongness—but its wrongness does not strictly follow from its history. (After all, even bad circumstances can cause good things.)

Another example:

The founding fathers owned slaves—that’s why slave ownership should be allowed in the United States.

Many times people justify U.S. public policy by appeal to the founding fathers. But just because the United States was founded by slave-owners does not mean the United States should permit slave-ownership.

HOWEVER: Some instances of the genetic fallacy are not actually fallacious. Consider an example within constitutional law:

“Freedom of religion” originated in the founding fathers’ desire to avoid an official state religion. Therefore, it is unconstitutional to make Christianity the official state religion.

If the premise captures the intention originally behind the first amendment, then it indeed follows that such a thing is unconstitutional (assuming no amendment to the contrary has been added). Though notably, the argument bears only on the *legality* of a state religion; nothing yet follows about *morality*.

3. Part-Whole Fallacies

The Fallacy of Division

This is the fallacy of inferring that the parts of x must have a certain feature, from the premise that x as a whole has that feature.

Big Corporation lost a lot of money this year. And that means each financial advisor in the company is responsible for losing money.

Just because Big Corporation lost money doesn’t mean that each financial advisor in the company lost the company money. Possibly some financial advisors might have even made quite a bit for the company, if the losses incurred by others were greater.

Nevertheless. In some cases, one *can* infer a property of the parts from a property of the whole. This is especially so when the argument concerns *quantities* of stuff. For instance:

Big Corporation earned no more than \$100M in profits last year. And that means each financial advisor earned no more than \$100M for the company last year.

This second argument is perfectly deductive, thanks to what ‘no more than’ means when applied to such quantities. Still, it is not as if *every* division inference with quantities is deductive. (That’s what the first example shows.)

The Fallacy of Composition

This is the fallacy of inferring that *x* as a whole must have a certain feature, from the premise that its parts individually have that feature.

Each individual in Big Corporation has a right to free speech. Therefore, Big Corporation itself has a right to free speech.

The argument here is invalid. Although the premise may be true, corporations generally do *not* have a civil or human right to say whatever they want in selling their products.

But as with the division fallacy, in some cases the composition fallacy is non-fallacious. Again, that can occur especially when quantities are involved. E.g.,

Each individual in Big Corporation needs at least 10 cups of coffee per day. Therefore, Big Corporation itself needs at least 10 cups of coffee per day.

Here too, a normally fallacious inference is deductive, because the meaning of the phrase ‘needs at least’ effectively “takes up the slack” where such quantities are involved.

4. Other Informal Fallacies

Nirvana Fallacy

This is the fallacy of inferring that *x* is bad (/good), from the premise that *x* has a flaw (/benefit).

Affirmative Action should be abolished, since it causes animosity between the races and the sexes.

Just because affirmative action has a downside does not prove that it is better to forego it. After all, the downside of abolishing affirmative action may be much worse. Though again, a downside to affirmative action can possibly serve as *evidence* that it should be discontinued. (But of course, one would need to weigh the evidence on the other side of the issue as well, before making up your mind.)

Similarly, it is fallacious to argue:

Affirmative Action should be instituted, since it counter-acts the negative effects of racism and sexism.

This too commits the Nirvana fallacy. Even though the conclusion is true (say I), the conclusion does not deductively follow *merely* from a single benefit of the practice.

All too often, political debate in America (when it has any argumentation at all) consists in both sides committing the Nirvana Fallacy. One side emphasizes the pros of their position; the others emphasize the cons. However, one-sided emphasis is not sufficient to justify either side. One must ultimately *weigh the pros against the cons*, and do so in a convincingly fair manner. That of course is no easy task. This is one reason why political disputes persist (though not necessarily the main reason.)

Equivocation

To equivocate is to switch between at least two meanings of a single word or phrase—accidentally or deliberately—so that the argument appears sound.

I see that there is no greatest prime number. Since seeing is done with the eyes, it is with my eyes that I see there is no greatest prime number.

Here the argument is invalid due to the equivocation on “seeing.” One can see with the eyes, but also we sometimes use ‘see’ to mean (roughly) “understand” or “recognize.”

“Straw-Man” Argument

To give a “straw man” argument is to argue against a mere caricature of your opponent’s view. In such an argument, you build your opponent out of “straw” so that she or he is easily knocked down.

It is silly to oppose cloning technology. Anyone who does so is telling us to “go back to the caves” and live in ignorance.

Straw man arguments are fallacious, since if you only discredit a simplified version of a view, it doesn’t follow that the more sophisticated version is absurd.

Circular Argument, or “Begging the Question”: *Petitio Principii*

To beg the question is to assume the truth of what one seeks to prove, in the effort to prove it.

God exists, since the Bible says so. After all, every word of the Bible is true, since the Bible was revealed to us by God.

This argument assumes there is a God who has revealed the Bible to us. But that is what the argument is trying to prove, i.e. that God exists. So the argument won't convince anyone who doesn't already believe in God. The argument goes in a circle: It starts from the very claim it wants as a conclusion.

[Note: The mass media has developed a bastardized use of the phrase “to beg the question” where it means roughly “to raise the question.” This is *not* how the phrase is used in academic philosophy.]

N.B. Begging the question is a unique fallacy in that, technically speaking, question-begging arguments *are deductively valid*. In a circular argument, if all the premises are true, then—trivially—so is the conclusion. (After all, the conclusion would be assumed in the premises.) Nevertheless, circular arguments are still fallacious because they are *ineffective* in proving their conclusions. A “proof” that appeals to its conclusion as a premise does not really function to *prove* that conclusion.