

Logical fallacy

From Conservapedia

A **logical fallacy** is an error in [logical](#) reasoning. While the common usage of the word *fallacy* would include *any* error in [reasoning](#), in logic a fallacy is defined as a particularly [deceptive](#) argument which seems correct, but upon further examination is found to be incorrect.^[1] The maker of such an argument, however, need not be aware of its fallacious nature.

Logical fallacies fall into two general categories: formal fallacies and informal fallacies. Formal fallacies apply to [deductive arguments](#), and are those which relate to an improper application of a rule, whereas informal fallacies apply to [inductive arguments](#), and are those which involve the improper use of the content of an argument. That is, an informally fallacious argument gives a conclusion which may be true or false, but which the fallacious argument does not prove; a formally fallacious argument gives a conclusion which is always false.

There are four categories of informal fallacies: fallacies of relevance, fallacies of defective or weak induction, fallacies of presumption, and fallacies of ambiguity.

A logical fallacy *is not* the same as [lying](#), although it is still an error if you commit one (and dishonest if you know you are committing one). A *lie* in logic is a [premise](#) that one offers while knowing that it is false.

Fallacies of Relevance

Fallacies of relevance are fallacies which are due to a lack of a relevant logical connection between [premise](#) and [conclusion](#).

Appeal to force

An appeal to [force](#) (Lat: *argumentum ad baculum*) is an argument which uses a threat of [violence](#) or force as a justification for the conclusion. An appeal to force argument follows the form:

- If person A does not accept P, then Q
- Q is a threat of force
- Therefore, P is true

For example: "If you do not pay me \$30 I will break your leg. Therefore you owe me \$30." It is fallacious because no amount of force can change the truth or falsity of the initial proposition.

Appeal to pity

Also called [emotional](#) appeal, (Lat: *ad misericordiam*) this fallacy is characterized by a use of emotion as a justification for the conclusion. An appeal to [pity](#) follows the form:

- Person A argues P
- Person B agrees P, but adds X, where X is an emotional argument unconnected to P

For example: "Yes, [officer](#), I realize I was speeding, but you shouldn't give me a ticket because I was racing to see my wife who is in the [hospital](#)." While this argument uses an emotional appeal to convince the officer not to hand out a citation, there is no logical connection between the conclusion ("you shouldn't give me a ticket") and the premise ("I was racing to see my wife").

Appeals to pity are very commonly seen in business. A factory manager may make the following argument: "our factory's overheads are too high, and we cannot maintain our business if we continue here. Therefore we should relocate to an area where labor is cheaper." An appeal to pity would be of the following type: "but our workers have bills to pay, families to support, we cannot fire them." That statement may be true, but is fallacious because it is not relevant to the manager's argument.

Appeal to Consequences

An *appeal to consequences*, or, more fully, *appeal to adverse consequences* or *appeal to consequences of a belief*,^[2] is an attempt to motivate belief with an appeal either to the good consequences of believing or the bad consequences of disbelieving. This may or may not involve an appeal to force. Such arguments are fallacious because the consequences of believing or disbelieving have no bearing on the truth or falsity of a belief. The following is an example:

- If you believe in evolution, then you'll be miserable, thinking that life is meaningless
- Therefore, evolution is false

This argument commits the *appeal to consequences* fallacy because it provides no evidence for its conclusion; all it does is appeal to the consequences of believing in evolution. Evolution is not disproven because it leads to bad consequences for those who believe in it. The following is a similar example:

- If you believe in evolution, then you'll be more respected in academic circles
- Therefore, evolution is true

This makes an appeal to the positive consequences of believing in evolution, without actually providing any proof of evolution itself. Just because belief in evolution makes you more respected in academic circles, this does not mean that evolution is correct.

A particular form of the appeal to consequences is the [appeal to personal interest](#), which is fallacy of appealing to the personal likes and interests (preferences, prejudices, predispositions, fears, etc.) of others in order to have an argument accepted, when those personal likes and interests are irrelevant to the truth or falsity of the argument.

Argumentum ad hominem

Main Article: [Ad hominem](#)

Ad hominem arguments (Lat: "argument directed toward the man") fall into two forms: *ad hominem* abusive and *ad hominem tu quoque* (circumstantial).

Ad hominem abusive

An *ad hominem* is an argument which tries to disprove another argument by attacking the person who made it, rather than by focusing on the actual logical reasoning. The goal of an *ad hominem* argument is usually to take focus off of the actual argument by calling attention to a flaw of the person making it. This form of argument follows the form:

- Person A argues that P
- Person A is Q
- Q is some derogatory description not related to the argument at hand
- Therefore, P is false

Ad hominem tu quoque

A *tu quoque* argument (Lat: "you're another") is one which argues that, because someone does that which they are arguing against, that person must be wrong. This form of argument follows the form:

- Person A argues that P should not happen
- Person A does P
- Therefore, Person A's argument is incorrect

For example: "You can't tell me not to eat cheeseburgers, I just saw you eating one last week!" Another common example is often found in business: "why are you punishing me for dumping waste in the river? My rival does the exact same thing and you don't punish him!" In this case, dumping waste into the river is wrong (and illegal) regardless of how it is enforced for any other company.

"False Causality"

A false causality fallacy is when a person argues that A caused B when there is little

evidence to support the claim. Specifically, a false causality is committed when the basis for A causing B is based on some superficial coincidence.

- "Our house was robbed the day after that family moved in, they must have done it!"

In this example, it is only a coincidence that a new family has moved in at the same time another house has been robbed, and this is not grounds for evidence.

Poisoning the well

Poisoning the well is a particular type of *ad hominem* argument. It consists of attempts to discredit a speaker (and, by extension, their argument) by criticizing unrelated opinions that they hold or, alternatively, by presenting unfavorable information (be it true or false) about the person to discredit in advance any argument that that person may make.^[3] The first variant of the argument follows this form:

- Person A makes argument X.
- Person B counters that person A also believes Y, where Y is something unacceptable, foolish, or easily disprovable, but unrelated to X.
- Person A is wrong about Y.
- Therefore, person A must also be wrong about X.

The second variant follows this form:

- Person B, knowing that person A will make argument X, introduces unfavorable information about person A that is unrelated to X.
- Person A makes argument X.
- Therefore, person A must be wrong about X.

One example of the first variant was by the actor [Matt Damon](#), who attempted to discredit [Sarah Palin's](#) political credibility on the basis that she was a young-earth creationist:

"	You know, the hockey mom, you know, "I'm just a hockey mom from Alaska," and she's the president. And it's like she's facing down Vladimir Putin and you know, using the folksy stuff she learned at the hockey rink, you know, it's just absurd. It's totally absurd, and I don't understand why more people aren't talking about how absurd it is. I...it's a really terrifying possibility. The fact that we've gotten this far and we're that close to this being a reality is crazy. Crazy. I mean, did she really - I need to know if she really thinks dinosaurs were here 4000 years ago. That's an important - I want to know that. I really do. Because she's gonna have the nuclear codes. You know, I wanna know if she thinks dinosaurs were here 4000 years ago, or if she banned books or tried to ban books. I mean, you know, we can't have that. ^[4]	"
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An example of the second variant is to introduce information (true or false) about a distasteful or objectionable aspect of someone's personal life to persuade the listeners

to reject out of hand whatever that person may say, when that aspect of the person's personal life may have nothing to do with the truth or falsity of the positions that that person will take.

When spelled out in the above form, the fallacy is easily seen, but it is used very frequently in political debate where skillful use of rhetoric can mask the underlying fallacy. The argument is fallacious because a person's opinions on one subject do not affect the truth or falsity of their statements on other subjects or because the asserted unfavorable information has no bearing on the truth or falsity of the position being attacked. There is some overlap between poisoning the well and *ad hominem* abusive, although poisoning the well in the second sense is used to mean introducing the irrelevant information preemptively.

Genetic fallacy

In general, this is the attempt to assert or reject a theory by citing its origins as either reputable or disreputable. The usual expression of this fallacy is "consider the source!" Thus it becomes a form either of *argumentum ab auctoritate* or of *argumentum ad hominem*, depending on whether one seeks to verify or disprove the theory by this method. This type of argument follows the form:

- If P then Q
- P is false
- Therefore, Q is false

Formally, the error arises in confusing "If P, then Q" with "If and only if P, then Q."

When the origin of *evidence* or of *premises* is relevant to the reliability of the same, then asking a hearer to "consider the source" is valid. Judges in courts of [law](#), for example, routinely reject as unreliable the testimony of any witness who has demonstrably lied about a point that matters in the case at hand. The facts that such a witness is asserting might still be true, but they cannot stand without corroboration from another, more reliable witness.

But when corroboration is established, the origins of a conclusion, however tainted, become irrelevant.

As an example, [Gregor Mendel](#) established the genetic theory that remains current today, even though Mendel's experimental technique was badly flawed, and he even stands accused of falsifying key data. But succeeding [scientists](#), using accepted methods of verification and statistical assessment, have achieved results consistent with this theory. Thus the theory remains valid even though Mendel's original presentation was fraudulent. Any attempt today to discredit Mendel's theory on account of Mendel's sloppy methods would be an example of a genetic fallacy.^[5]

Proof by numbers

For a more detailed treatment, see [Argumentum ad populum](#).

Also known as "appeal to the people" (Lat: *ad populum*), this is an argument that a person bases on the numbers of people holding to its conclusion, rather than on the premises that might support that conclusion. An appeal to the people follows the form:

Most people believe P

Therefore P is true

"Ninety nine point nine percent of all respondents can't be wrong" is the classic phraseology of this fallacy. One does not effectively disprove such an argument by challenging the numbers. Instead, one reminds the other person that the numbers of people holding to any given conclusion are irrelevant to establishing the truth or falsehood of that conclusion. [History](#) is in fact replete with multiple examples of conclusions that memorable [scientists](#) and other great discoverers have shown to be false even though large numbers of people believed them. [Antoine Lavoisier](#), who disproved "phlogiston" as the principle of fire, was one such person. [Christopher Columbus](#) and [Ferdinand Magellan](#) are two others. After all, millions of people believed in the roman gods, but they were proven wrong.

Special pleading

Main Article: [Special pleading](#)

[Special pleading](#) means applying to other people a set of standards that one is not willing to apply to oneself, without offering sufficient grounds, called the *relevant difference*, to support such exemption. Special pleading follows the form:

- If Person X is in set P then Q happens to person X
- Person A is in set P
- Person A cites R circumstance, unrelated to P or Q
- Therefore, Person A is not subject to Q

For example: a political or military leader who urges his subjects (or those under his command) to observe "iron rations" without similarly depriving himself leaves himself open to a charge of special pleading.

Fallacies of relevance based on the age of an idea

The **appeal to antiquity**, also known as the **appeal to tradition**, holds that an idea must be right just because it is old.^[6] Its opposite is the **appeal to novelty**, which holds that an idea must be right just because it is new.^[7] Both are fallacies of relevance because the mere age of an idea does not tell us whether it is true. For example, an old idea could be a time-tested and sound concept, or it could be an ancient [superstition](#)

like [astrology](#). Similarly, a new idea could be the result of new [information](#) or an intellectual fad like [postmodernism](#).

Fallacies of Defective or Weak Induction

Fallacies of defective or weak induction are fallacies which are due to a lack of understanding for how well premises lead to a conclusion.

Argument from silence

Argument from silence (in [Latin](#), *argumentum ab silencio*) or *argument from ignorance* (Lat: *ad ignorantium*) is an assertion which states that, because there is no evidence to support a given argument, the opposite must be true. The fallacy follows the form:

- If P then Q
- P cannot be shown true
- Therefore, Q is false

For example: "Nobody has ever seen God, so clearly he doesn't exist".

This fallacy is often associated with and best remembered by the phrase: "the absence of evidence does not constitute evidence of absence." However, sometimes, absence of evidence can be so overwhelming that it constitutes strong evidence of absence. Such a situation arises when we have good reason to believe that the absent evidence would have been uncovered by now if it existed. For example, since evidence of the existence of the [Loch Ness Monster](#) would surely have come to light by now, but has not done so, it is reasonable to assume that the Loch Ness Monster does not exist, i.e., that the [null hypothesis](#) is true. In such cases, absence of evidence, while perhaps not conclusive, is strong evidence of absence.

A particular form of the argument from silence is the *argument from personal incredulity*, which takes the form "I cannot believe/understand/explain *P*; therefore, not-*P*." For example, someone who does not understand why [God](#) would condemn [homosexuality](#) or condemn sinners to eternal [hell](#) may commit this fallacy and conclude that the relevant Bible passages should be [rejected](#). Another particular form is the [black-swan fallacy](#).

The argument from silence often results from a misplaced [burden of proof](#).^[8]

False cause

False cause (Lat: *non causa pro causa*) is a fallacy which arises when a poor cause/effect link is used within an argument, especially if coincidence or chance are not taken into account. The fallacy follows the form:

- P is true.
- Q is true.
- Therefore, P causes Q .

For example: "I used to be a well paid teacher until I started being a tougher grader. When my students' grades went down, so did my salary. Therefore, I must have been paid based on my students' grades." While this sounds like a logical explanation, not all factors are taken into account. For example, the teacher's school could have been subject to budget cuts, or maybe the teacher was overpaid at first and now his salary corrects his true worth.

Post hoc ergo propter hoc

For a more detailed treatment, see [Post hoc ergo propter hoc](#).

Post hoc ergo propter hoc (Lat: "after this; therefore, because of this") is a subcategory of false cause fallacies. In this type of argument, a close temporal proximity is used as a justification of a cause/effect relationship. *Post hoc ergo propter hoc* arguments follow the form:

- P happened, and then Q happened
- Therefore, P caused Q

For example: "Right around the time the sun goes up my alarm clock goes off, so the sun causes my alarm clock to go off." Clearly this is not the case.

Texas sharpshooter fallacy

Another form of false cause is the **Texas sharpshooter fallacy**. The name comes from a failed marksman who shoots at a barn, draws a bullseye around the biggest cluster of bullet holes, and proclaims himself to be a skilled marksman. In the fallacy, a cluster of data points is assumed to be caused by an apparent cause at that location. The assumption is fallacious because the clustering could be random, or there could be some other cause.^[9] Other ways of explaining the fallacy are that the hypothesis is constructed after the fact to conform to the very data that are used to "test" the hypothesis^[10] and that the same data are used to formulate and test the hypothesis.^[11]

Non sequitur

Main Article: [Non sequitur](#)

A *non sequitur* (Lat: "It does not follow") is an argument which moves from a premise to a conclusion without showing a valid connection, or sometimes any connection at all. This form of argument follows the form:

For example: "Crime rates are high, so we should increase the penalty for drug

possession."

Overgeneralization

Overgeneralization (also called hasty generalization, converse accident, or painting with too broad a brush) is an error in reasoning which comes about by making a logical leap far greater than what the data allow. Overgeneralization follows the form:

- P is/does Q.
- P is a member of the set R.
- Therefore, everyone/everything in the set R is/does Q.

For example: "I just read that three kids were arrested yesterday for drug possession. Teens in this country are really going downhill!"

Overgeneralization the central problem in trying to conclude something about a population from a non-representative sample, or about a larger group from a non-representative subset of that group.

Proving too much

Proving too much is a form of overgeneralization in which one attempts to use a set of premises to sustain more conclusions than he can reasonably sustain using the argument presented. Proving too much includes reaching a conclusion that contradicts either things known to be true or [the premises used to reach that conclusion](#). The term comes from the medieval saying, "What proves too much proves nothing."

Proof by authority

Also known as *argumentum ab auctoritate* ("argument proceeding from clout") or *argumentum ad verecundiam* ("appeal to unqualified authority"), this is an argument that a person bases on authority, either his own or that of another person, rather than on the merits of the position. When the authority involved is a relevant source who has access to more information about the topic than the people discussing it, then the argument becomes a *citation*. However, a valid citation must be in an area of study, research, or mental discipline in which the authority being cited is a recognized [expert](#).

- P says Q
- P is an authority in his field
- Therefore, Q is true

A classic example of argument from unqualified authority is a reference to a celebrity or religious leader for their opinion on a matter of science or public policy, when that celebrity or cleric has never adequately studied the subject. A standard argument from authority is often used by evolutionists. A notable scientist claims that evolution is true,

and based on that the average person is expected to believe in it as well. This becomes fallacious if the "notable scientist" has never considered alternatives which also provide the answers to the asked questions.

Fallacies of Presumption

Fallacies of presumption are fallacies in which an unstated or shaky presumption is made.

Accident

The fallacy of accident occurs when a generalization is inappropriately applied to an individual. A fallacy of accident follows the form:

- Some P are Q
- R is in P
- Therefore, R is Q

For example: "You are from [Ohio](#), which is a [red state](#), so you must be a [Republican](#)".

Contradiction

For a more detailed treatment, see [Contradiction](#).

A contradiction is a statement that contradicts its own terms. [Aristotle](#) famously stated that contradictions cannot exist. In any case of a contradiction, some of the premises must be false. A contradiction is an argument which includes in its reasoning:

Loaded question

Main Article: [Loaded question](#)

A [loaded question](#) is a question that assumes facts, usually unflattering, that are not in evidence, with the intent of trapping the other person into admitting those facts. The classic loaded-question example is "When did you stop beating your wife?" Another example is, "Do you disbelieve in [global warming](#), which 99.9 percent of all reputable scientists now accept?"

Proof by assertion

Proof by assertion is an argument that states something as true without offering supporting evidence or attempting to construct a valid argument. This form of argument follows the form:

Often the argument is simply [repeated over and over](#), and no evidence for support is given. Statements beginning with [expressions](#) such as "It goes without saying that ..."

or "Everyone knows ..." are commonly proofs by assertion.

Proof by assertion can also be broken down into several subcategories of fallacies: circular reasoning, infinite regression, manufacturing facts from a theory, and your theory does not work under my theory, so your theory must be wrong.

Circular reasoning

For a more detailed treatment, see [Circular reasoning](#).

[Circular reasoning](#), also called begging the question (Lat: *petitio principii*), is a form of proof by assertion in which one asserts a premise, then asserts a conclusion from that premise (directly or indirectly), and then tries to show that the last conclusion *supports* the original premise.

Infinite regression

Main Article: [Infinite regression](#)

An infinite regression results when one asserts that a given event caused another, and yet that first event requires another, identical event, to cause *it*. An infinite regression follows the form:

- P_1 causes Q_1
- Q_2 causes P_1
- P_3 causes Q_2
- Q_4 causes P_3
- And so on, forever

For example: [Panspermia](#), an alternative to [abiogenesis](#) as a proposition about the origin of life, suffers from the infinite-regression flaw so long as it fails to state positively what conditions could have brought about an origin of life on a planet other than the earth, *other than* the alleged mechanism of the "seeding" of life on the earth itself.

Manufacturing facts from a theory

Manufacturing facts from a theory is the assertion as fact of an undemonstrated, unobserved idea for no better reason than that a given theory requires that fact. In law, it is called assuming facts not in evidence. It should not be confused with formulating a prediction to test a hypothesis

In the early stages of formulating a model, this sort of behavior is acceptable. But when repeated efforts to demonstrate such a new fact have failed, the proper logical response is to discard or revise the theory, and not merely to assume that the "fact"

still exists and someone hasn't tried hard enough to find it. This is especially true when someone develops evidence that the inferred "fact" could not possibly exist.

Your theory does not work under my theory, so your theory must be wrong

Main article: [Your theory does not work under my theory, so your theory must be wrong](#)

This fallacy occurs when one theory is judged by the premises and assumptions of another theory, rather than against its own premises and assumptions. This form of fallacy follows the form:

- Theory A says that if P then Q
- Theory B says that if P then R
- Q and R are mutually exclusive
- Therefore, theory A is wrong

For example: "Dinosaurs died 65,000,000 years ago, so the earth couldn't have been created 6,000 years ago." It should be noted that although the above argument by itself is a fallacy, strong evidence supporting the death of dinosaurs 65 million years ago, as well as other evidence, would result in the argument being a proof by contradiction, not necessarily a fallacy.

A similar fallacy is [No true Scotsman](#), which in effect says, "Your facts do not work under my theory, so your facts must be wrong."

Straw man

For a more detailed treatment, see [Straw man fallacy](#).

A straw man fallacy occurs by first incorrectly attributing an argument to someone, disproving this argument, then claiming that the person was wrong. A straw man argument follows the form:

- If P then Q
- Person A says P
- Therefore, Q

Straw man arguments can sometimes be hard to detect, because a valid statement may be used in a distorted fashion. For example:

- Person A believes that a military program should be cut
- Person B argues that since Person A wants to cut military funding, he wants to leave the country defenseless to attack

This is fallacious reasoning, because there is no way to know *why* person A believes

what he does, and Person B has used one reason which suits his own purpose. For example, it's quite possible that Person A wants to cut the program because he wants to change the funding to something which he thinks does a *better* job at defending the country.

Tautology

For a more detailed treatment, see [tautology](#).

A [tautology](#) (Greek **ταυτο-** *tauto-*, "the same") is an argument that becomes a repetition of a definition. Literally it means "the study of the same." Such an argument, or statement, can prove nothing beyond itself and is useless as a premise.

Fallacies of Ambiguity

Fallacies of ambiguity are fallacies which arise from ambiguity in language used.

Amphiboly

Amphiboly is an ambiguity which arises through loose or awkward phrasing:

For example: "Save soap and waste paper".

Composition

The fallacy of composition occurs when the parts of a whole are incorrectly used to describe the whole.

For example: "Since one of the battleships is ready to deploy, the whole fleet is ready to deploy".

Conflation

Conflation is the treatment of two different concepts as one.

For example: "Comparing apples to oranges".

Division

The fallacy of division occurs when it is argued that what is true for the whole must be true for its parts.

For example: "That company is very important. Since Joe works at that company, he must be very important."

Equivocation

Equivocation is the use of word with multiple meanings, and then using a different meaning in the conclusion than in the premise.

For example: "The coach said we should eat light, so take your heavy coat off."

Moving the Goalposts

[Moving the goalposts](#) is jargon used almost exclusively by evolutionists to decline to answer a question that is the logical next step in their argument. This next step is avoided by evolutionists by claiming that their critics are "moving the goalposts."

For example, Darwinists claim that asking how the theory of evolution explains the origin of life is "moving the goalposts," even though it is a logical question to ask.

References

See also

- [Atheism and logical fallacies](#)

Debate:

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