

### Definition

**Fallacy is the use of invalid or faulty reasoning**

Some fallacies are committed intentionally to manipulate or persuade by deception, while others are committed unintentionally due to carelessness or ignorance

Aristotle was the first to systematize logical errors into a list, as being able to refute an opponent's thesis is one way of winning an argument

Richard Whately defines a fallacy broadly as, "any argument, or apparent argument, which professes to be decisive of the matter at hand, while in reality it is not"

[https://en.wikipedia.org/wiki/List\\_of\\_fallacies](https://en.wikipedia.org/wiki/List_of_fallacies)

*The first principle is that you must not fool yourself and you are the easiest person to fool*, **Richard P. Feynman**

### Types of Fallacies

**Formal** 🌀 *An error in logic in the argument's form.*

Non Sequiturs

☰ Propositional fallacies

▣ Quantification fallacies

↻ Syllogistic fallacies

**Informal** 🌀 *Reasons other than structural, require examination of the argument's content*

🌀 Faulty generalizations

🌀 Red herring fallacies

**Conditional or questionable** ☹ *Arguments disregard or confusion*

### Other systems of classification

The most famous are those of Francis Bacon and J. S. Mill. Bacon divided fallacies into 4 Idola (Idols, False Appearances), summarize the kinds of mistakes the human intellect is prone to.

**Offendicula** of Roger Bacon

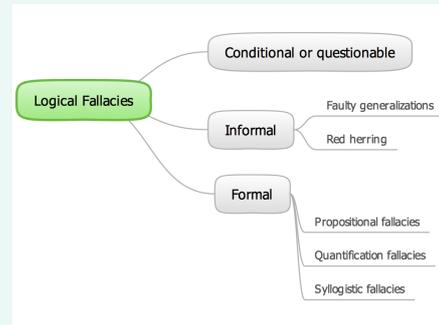
Opus maius, J. S. Mill book of his Logic,

Jeremy Bentham's Book of Fallacies (1824).

Whately's Logic, A. de Morgan, Formal Logic (1847)

Sidgwick, Fallacies (1883)

### Mindmap



### Formal fallacies 🌀

**Appeal to probability** Takes something for granted because it would probably be fore, something will go wrong (invalid conciliability)

**Argument from fallacy** Aka fallacy fallacy, assumes that if an argument is fallacious argument. Therefore, Q is false fallacy



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### Formal fallacies § (cont)

**Base rate fallacy** Making a probability judgment based on conditional probabilities, without taking into account the effect of simple probabilities satisfying multiple conditions. To find the correct answer, one should use Bayes's theorem together.

### Formal fallacies § (cont)

**Masked-man fallacy** Substitution of identical designators in a true statement can be a fallacy.

**Propositional fallacies** A propositional fallacy is an error in logic that concerns compound propositions.



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Formal fallacies § (cont)		Informal Fallacies (cont)	
Affirming a disjunct	Concluding that one disjunct of a logical disjunction must be true because the other is false. Max is a mammal. Therefore, Max is not a cat.	<b>Argument from ignorance</b>	Because the other disjunct is known to have the moral advancement of the
Affirming the consequent	The antecedent is claimed to be true because the consequent is true. If A, then B; B, therefore A. Bill Gates is rich. Therefore, Bill Gates owns Fort Knox.	<b>Argument from incredulity</b>	If someone owns Fort Knox, it is common sense "I cannot imagine how this could be otherwise."
Denying the antecedent	The consequent is claimed to be false because the antecedent is false. If A, then B; not A, therefore not B. You are not a ski instructor, therefore, you do not have a job.	<b>Argument from repetition</b>	If you are a ski instructor, you have a job. Therefore, you have a job.
<b>Quantification fallacies</b>		<b>Argument from silence</b>	
A quantification fallacy is an error in logic where the quantifiers of the premises are in contradiction to the quantifier of the conclusion.		argumentum ex silentio conclusion is based on the absence of evidence	
Existential fallacy	An argument that has a universal premise and a particular conclusion.	Argument to moderation	every unicorn definitely has a horn on its forehead. <i>ad temperantiam</i> false compromise, middle ground, fallacy
<b>Informal Fallacies</b>		Argumentum verbosum	See: by verbosity
<b>Informal fallacies</b>		Argumentum verborum	See: by verbosity
Arguments that are fallacious for reasons other than structural (formal) flaws.		Argumentum verborum	See: by verbosity
Appeal to the stone	<i>argumentum ad lapidem</i> Dismissing a claim as absurd without demonstrating proof for its absurdity. A: Infectious diseases are spreading. B: What a ridiculous idea! A: How so? B: It's ridiculous. See: <i>onus probandi</i>	Argumentum verborum	See: by verbosity



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Informal Fallacies (cont)		Informal Fallacies (cont)	
Circular reasoning	<i>circulus in demonstrando</i> when the reasoner begins with what he is trying to prove	Double counting	Counting the same items twice, as in the case of probabilistic reasoning, which leads to the sum of the probabilities of all cases exceeding unity
Circular cause and consequence	The consequence of the phenomenon is claimed to be its root cause.	Correlation does not imply causation	
Continuum fallacy	Improperly rejecting a claim for being imprecise	Fred is clean-shaven now. If a person has no beard, one more erefore Fred can never grow a beard	<b>Misleading use of a term with more than one meaning</b> <i>Ambiguous middle term</i> a common ambiguity in syllogisms in which the middle term is equivocated <i>Definitional retreat</i> changing the meaning of a word to deal with an objection raised against the original wording.
Correlative-based fallacies	<b>Correlation proves causation</b> <i>post hoc ergo propter hoc</i> a faulty assumption that because there is a correlation between two variables, one causes the other <b>Suppressed correlative</b> where a correlative is redefined so that one alternative is made impossible	Version 1.0	March, 25 2022
Divine fallacy	Argument from incredulity. Because something is so incredible / amazing / ununderstandable, it must be the result of superior, divine		



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