

A GUIDE TO LOGIC FOR WRITERS OF ENGLISH PAPERS
ENGLISH 125.068

Argument is the method by which we prove our assertions. A good argument generally has three stages. First, a claim is made. Second, reasons in support of that claim are offered. Third, the rhetor shows why the support proves the initial point.

In the second stage of argument, the rhetor may choose to offer outside sources (quotes, figures, statistics, and the like). The rhetor may also choose to offer a series of subclaims. In either case, the rhetor's goal of proving his or her assertion is only accomplished when the reasons provided support the claim made. When these reasons do not support the claim, the rhetor is said to have made a *logical fallacy*.

Students need not learn logic as a discipline in order to successfully engage in academic discourse (though few who take rhetoric seriously would find a better supplement to their English coursework than a semester or two of symbolic logic). They do, however, need to learn to recognize and avoid common fallacies. The following list is by no means exhaustive; it does, however, outline the most common logical fallacies found in argumentative writing.

In logic, a series of claims are made. These claims are called *premises*. From them, a *conclusion* is drawn. Logic determines if a given conclusion follows from the given premises. If the conclusion follows, the argument is said to be *valid*. If the conclusion does not follow, the argument is *invalid*. Any argument with contradictory premises is automatically invalid.

This document draws heavily from *Stephen's Guide to Logical Fallacies* by Stephen Downes. The complete text, which is licensed for academic use, is available online at <http://www.datanation.com/fallacies/>. It also makes use of Kalish and Montague's *Logic: Techniques of Formal Reasoning*, published in 1980 by Harcourt Brace Jovonovich College Publishers.

COMMON LOGICAL FALLACIES

I. FALLACIES OF DISTRACTION

These fallacies occur when the rhetor refuses or fails to admit the complexity of their topic into the discussion at hand. They all involve illegitimate use of a logic operator to distract the reader from the falsity of a given proposition.

a. FALSE DILEMMA

A limited number of options, usually two, is given, when in reality more options exist. This fallacy is a type of oversimplification and involves misusing the *or* operator.

“Either support America or get out.”

b. ARGUMENT FROM IGNORANCE (*ARGUMENTUM AD IGNORANTIAM*)

Since a given assertion has not been proven false, it must be true. Conversely, if something has not been proven true, it must be false. This is a special case of a false dilemma, since it assumes all propositions must either be known true or known false. This fallacy involves misuse of the *not* operator.

“Since scientists cannot absolutely prove global warming exists, it isn't happening.”

c. COMPLEX QUESTION

Two unrelated points are conjoined and treated as a single point. The reader is expected to accept or reject them as a whole rather than individually, when in reality one is acceptable and the other is not. This involves illegitimate use of the *and* operator.

“Do you support individual freedom and the right to bear arms?”

d. SLIPPERY SLOPE

In order to show that a proposition P is unacceptable, a sequence of increasingly unacceptable events is shown to follow from P, when in fact the subsequent events do not follow. This fallacy involves misusing the *if-then* operator.

“If we pass a law against assault rifles, we'll have to ban all guns. What's next, banning kitchen knives?”

II. APPEALS TO MOTIVES IN PLACE OF SUPPORT

These fallacies rely on emotion rather than reason. These arguments appear persuasive on their face, but since emotions cannot be evaluated for validity in the context of logic, the arguments cannot substantiate a claim.

a. APPEAL TO EMOTION

The rhetor relies upon fear, liking, pity, guilt, or some other emotion in place of reason.

“The US owes reparations to all children of slaves because slavery was an unspeakable evil.”

b. APPEAL TO FORCE (*ARGUMENTUM AD BACULUM*)

The reader is told unpleasant consequences will follow if they do not agree with the rhetor.

“If you don’t agree with the new policy, you’d better look for another job.”

III. MISSING THE POINT

These are general fallacies that occur when the premises do not prove the conclusion.

a. BEGGING THE QUESTION

The premises from which a given conclusion is drawn assume the truth of the conclusion. Either the conclusion is merely a restatement of the premises, or the premises are a consequence of the conclusion. This can be a form of the *WRONG DIRECTION* fallacy (VII.c).

“God is infallible. God wrote the Bible, which says that God exists. Therefore God exists.”

b. STRAW MAN

The rhetor attacks an argument which is different from and weaker than their opponent’s best argument.

“People don’t want to enter the military because of convenience. There are more important things than convenience, therefore we should have conscription.” (The question of whether conscription is a fundamental betrayal of human rights is much more compelling than whether conscription is inconvenient.)

c. IRRELEVANT CONCLUSION (*IGNORATIO ELENCHI*)

An argument which purports to prove one thing instead proves another.

“White males have dominated industry and government for hundreds of years in the United States. You cannot deny that this sort of discrimination is a grave injustice. Therefore, you must support affirmative action.” (The rhetor has proven that discrimination exists, but not that affirmative action will address the discrimination.)

IV. *NON SEQUITUR*

This class of fallacies occurs as a consequence of invalid arguments. The Latin translates as “it does not follow.”

a. AFFIRMING THE CONSEQUENT

Modus ponens is one of the fundamental theorems in logic. It states the following: if A is true, B is true. A is true, therefore B is true. For example, you may argue thus: “Socrates is a man. All men are mortal. Therefore, Socrates is mortal.” This argument is valid.

Affirming the consequent occurs when this is done in reverse: if A is true, B is true. B is true. Therefore A is true. This is invalid.

“If the mill is polluting the river, then we will see an increase in fish deaths. We are seeing an increase in fish deaths. Therefore, the mill is polluting the river.” (This argument is invalid; there could be something else killing the fish.)

b. DENYING THE ANTECEDENT

Modus tollens is another fundamental logic theorem. It states the following: if A is true, then B must be true. B is not true; therefore A is not true. This is a valid argument.

Denying the antecedent, which is invalid, occurs when this is done in reverse: if A is true, then B must be true. A is not true, therefore B is not true.

“If I am in Ann Arbor, then I am in Michigan. I am not in Ann Arbor; therefore I am not in Michigan.”

c. INCONSISTENCY

The rhetor asserts contradictory premises. Since any conclusion follows from a contradiction, any argument with contradictory premises is invalid.

“John is taller than Jake. Jake is taller than Fred. Fred is taller than John.” (Nothing useful can be drawn from these premises.)

V. INDUCTIVE FALLACIES

a. HASTY GENERALIZATION

The size of a given sample is too small to support a conclusion.

“I find mathematical proofs aesthetically pleasing. Therefore, they have aesthetic value.”

b. FALSE ANALOGY

A and B are similar. A has property P; therefore B has property P.
“Government is like a business. Businesses must think about the bottom line before all else. Therefore, so must governments.”

c. FALLACY OF EXCLUSION

Relevant evidence that does not support the rhetor’s point is excluded from the discussion. In the example below, excluded information is included in parentheses.

“The Leafs won nine out of their last ten games, so they will win today.” (All the games the Leafs have played so far were against low-ranking teams, while today they play the first-ranked team.)

VI. ATTACKING THE PERSON (*ARGUMENTUM AD HOMINEM*)

The *ad hominem* class of fallacies occurs when the rhetor attacks the person making an argument rather than refuting the argument itself. This mistake often seen in political discourse.

a. *AD HOMINEM* (ABUSIVE)

Instead of attacking the assertion, the argument attacks the person who made the assertion.

“We shouldn’t listen to what the president has to say about taxes because he’s an alcoholic.”

b. *AD HOMINEM* (CIRCUMSTANTIAL)

Instead of attacking the assertion, the argument points to the relationship between the person making the assertion and the person’s circumstances.

“We shouldn’t listen to what the president has to say about the tax situation because he’ll make lots of money off the proposed changes.”

c. *AD HOMINEM* (*TU COQUE*)

Instead of attacking the assertion, the argument attacks the person making the assertion by calling them a hypocrite.

“My doctor says my smoking will give me cancer, but he smokes a pack a day.”

VII. CAUSAL FALLACIES

This class of fallacies occurs when the rhetor improperly attributes a causal relationship between a set of events. It most often involves *if-then* statements, and often results in oversimplification. Cause is difficult to establish.

a. CONFUSING CHRONOLOGY WITH CAUSATION (*POST HOC, ERGO PROPTER HOC*).

The argument assumes that because event B happened after event A, event A caused event B. The Latin name of this fallacy translates as “after this, because of this.”

“Immigration spiked in 1995. Shortly thereafter, welfare roles increased. Therefore, the increase in immigration caused the increase in welfare spending.”

b. JOINT EFFECT

B is held to be the cause of C, where in truth both B and C are caused by A. In the example below, cause A is given in parentheses.

“You have a fever which is causing you to break out in spots.” (Both the fever and the spots are caused by the measles.)

c. WRONG DIRECTION

The relation between cause and effect is reversed.

“The increase in AIDS was caused by increased sex education.” (In fact, the increase in AIDS cases prompted the increase in sex education.)

d. COMPLEX CAUSE

A given effect has multiple causes. One of these causes is cited as the only cause of the effect. The selected cause is genuine and relevant, but it is nonetheless an oversimplification.

“The Challenger explosion was caused by the cold weather.” (True, but the cold weather would have been irrelevant if the O-rings had been properly constructed.)