

Logical Fallacies

An argument is a chain of reasons that a person uses to support a claim or a conclusion. To use argument well, you need to know 1) how to draw logical conclusions from sound evidence and 2) how to recognize and avoid false arguments, or logical fallacies.

Logical fallacies are the bits of fuzzy or misguided thinking that often crop up in our own speaking and writing, as well as in advertisements, political appeals, editorials, and persuasive essays.

Define the following logical fallacies and provide an example for each.

Appeal to Ignorance:

The fallacy that a proposition is true simply on the basis that it has not been proved false or that it is false simply because it has not been proved true. This error in reasoning is often expressed with influential rhetoric.

The informal structure has two basic patterns:

Statement p is unproved.
 $Not-p$ is true.

Statement $not-p$ is unproved.
 p is true.

B. If one argues that God or telepathy, ghosts, or UFO's do not exist because their existence has not been proven beyond a shadow of doubt, then this fallacy occurs.

C. On the other hand, if one argues that God, telepathy, and so on *do* exist because their non-existence has not been proved, then one argues fallaciously as well.

Appeal to Pity:

An Appeal to Pity is a fallacy in which a person substitutes a claim intended to create pity for evidence in an argument. The form of the "argument" is as follows:

1. P is presented, with the intent to create pity.
2. Therefore claim C is true.

This line of "reasoning" is fallacious because pity does not serve as evidence for a claim. This is extremely clear in the following case: "You must accept that $1+1=46$, after all I'm dying..." While you may pity me because I am dying, it would hardly make my claim true.

Bandwagon (also known as Peer Pressure):

The Bandwagon is a fallacy in which a threat of rejection by one's peers (or peer pressure) is substituted for evidence in an "argument." This line of "reasoning" has the following form:

1. Person P is pressured by his/her peers or threatened with rejection.
2. Therefore person P's claim X is false.

This line of "reasoning" is fallacious because peer pressure and threat of rejection do not constitute evidence for rejecting a claim. This is especially clear in the following example:

Joe: "Bill, I know you think that $1+1=2$. But we don't accept that sort of thing in our group. "

Bill: "I was just joking. Of course I don't believe that."

It is clear that the pressure from Bill's group has no bearing on the truth of the claim that $1+1=2$.

It should be noted that loyalty to a group and the need to belong can give people very strong reasons to conform to the views and positions of those groups. Further, from a practical standpoint we must often compromise our beliefs in order to belong to groups. However, this feeling of loyalty or the need to belong simply do not constitute evidence for a claim.

Appeal to Common Practice:

The Appeal to Common Practice is a fallacy with the following structure:

1. X is a common action.
2. Therefore X is correct/moral/justified/reasonable, etc.

The basic idea behind the fallacy is that the fact that most people do X is used as "evidence" to support the action or practice. It is a fallacy because the mere fact that most people do something does not make it correct, moral, justified, or reasonable.

1. Director Jones is in charge of running a state waste management program. When it is found that the program is rife with corruption, Jones says "This program has its problems, but nothing goes on in this program that doesn't go on in all state programs."
2. "Yeah, I know some people say that cheating on tests is wrong. But we all know that everyone does it, so it's okay." Director Jones is in charge of running a state waste management program.

Appeal to Emotion:

An Appeal to Emotion is a fallacy with the following structure:

1. Favorable emotions are associated with X.
2. Therefore, X is true.

This fallacy is committed when someone manipulates peoples' emotions in order to get them to accept a claim as being true. More formally, this sort of "reasoning" involves the substitution of various means of producing strong emotions in place of evidence for a claim. If the favorable emotions associated with X influence the person to accept X as true because they "feel good about X," then he has fallen prey to the fallacy.

This sort of "reasoning" is very common in politics and it serves as the basis for a large portion of modern advertising. Most political speeches are aimed at generating feelings in people so that these feelings will get them to vote or act a certain way. in the case of advertising, the commercials are aimed at evoking emotions that will influence people to buy certain products. In most cases, such speeches and commercials are notoriously free of real evidence.

This sort of "reasoning" is quite evidently fallacious. It is fallacious because using various tactics to incite emotions in people does not serve as evidence for a claim. For example, if a person were able to inspire in a person an incredible hatred of the claim that $1+1 = 2$ and then inspired the person to love the claim that $1+1 = 3$, it would hardly follow that the claim that $1+1 = 3$ would be adequately supported.

Hasty Generalization:

The fallacy of considering certain exceptional cases and generalizing to a rule that fits them alone.

The informal structure of accident is as follows.

Statement p is true in circumstances x .
Statement p is true in more general circumstances y or is always true.

- A. Thus, a general statement is made on the basis of insufficient evidence or on the basis of only a few examples.
1. *E.g.*, "Wow! Did you see that teenager run that red light? Teenage drivers are really pathetic."
 2. *E.g.*, The following argument is raised to oppose the view that boys have greater inherent mathematical ability. "When I was four, my father taught me the beauty

of numbers, and I have excelled in mathematics ever since. My conclusion? The males who grew up with a high aptitude for math are not spending enough time with their daughters." Nancy Whelan Reese, "Letters," *Time*, (Vol. 117, No. 1), 6.

- B. The generalization is sometimes made on the basis of carelessly selected evidence
1. *E.g.*, "I interviewed ten people on Main Street in Greenwood on Friday night, and they all stated they would rather be there than watching TV. I conclude that the folks in Greenwood don't like to watch TV on Friday night."

Circular Thinking:

Circular reasoning is an attempt to support a statement by simply repeating the statement in different or stronger terms. In this fallacy, the reason given is nothing more than a restatement of the conclusion that poses as the reason for the conclusion. To say, "You should exercise because it's good for you" is really saying, "You should exercise because you should exercise."

It shares much with the false authority fallacy because we accept these statements based solely on the fact that someone else claims it to be so. Often, we feel we can trust another person so much that we often accept his claims without testing the logic. This is called blind trust, and it is very dangerous. We might as well just talk in circles.

EXAMPLE 1

A confused student argues: "You can't give me a C. I'm an A student!"

Circular reasoning is problematic because the claim is made on grounds that cannot be accepted as true — because those very grounds are in dispute. How can a student claim to be an A student when he just earned a C?

To clarify, no one is an "A student" by definition. Grades are earned in every class and are derived from a variety of different methods. The requirements in one class are set by the school and the instructor, so the same class taught by a different teacher or in a different location should yield two very different results (final grades). Merely claiming to be an A student does not make the claim valid.

False Dichotomy:

A False Dilemma is a fallacy in which a person uses the following pattern of "reasoning":

1. Either claim X is true or claim Y is true (when X and Y could both be false).
2. Claim Y is false.
3. Therefore claim X is true.

This line of "reasoning" is fallacious because if both claims could be false, then it cannot be inferred that one is true because the other is false. That this is the case is made clear by the following example:

1. *Either $1+1=4$ or $1+1=12$.*
2. *It is not the case that $1+1=4$.*
3. *Therefore $1+1=12$.*

"You are either with us or against us." -- George W. Bush, November 6, 2001

If taken literally, this neglects neutrality and mixed allegiance for different elements of a set. When taken as a rhetorical device, this quote has also been attributed by another source to a fallacy: Appeal to Emotion and Appeal to Fear.

Appeal to Fear:

The Appeal to Fear is a fallacy with the following pattern:

1. Y is presented (a claim that is intended to produce fear).
2. Therefore claim X is true (a claim that is generally, but need not be, related to Y in some manner).

This line of "reasoning" is fallacious because creating fear in people does not constitute evidence for a claim.

"You must believe that God exists. After all, if you do not accept the existence of God, then you will face the horrors of hell."

Appeal to Tradition:

Appeal to Tradition is a fallacy that occurs when it is assumed that something is better or correct simply because it is older, traditional, or "always has been done." This sort of "reasoning" has the following form:

1. X is old or traditional
2. Therefore X is correct or better.

This sort of "reasoning" is fallacious because the age of something does not automatically make it correct or better than something newer. This is made quite obvious by the following example: The theory that witches and demons cause disease is far older than the theory that microorganisms cause diseases. Therefore, the theory about witches and demons must be true.

This sort of "reasoning" is appealing for a variety of reasons. First, people often prefer to stick with what is older or traditional. This is a fairly common psychological characteristic of people which may stem from the fact that people feel more comfortable about what has been around longer. Second, sticking with things that are older or traditional is often easier than testing new things. Hence, people often prefer older and traditional things out of laziness. Hence, Appeal to Tradition is a somewhat common fallacy.

1. Sure I believe in God. People have believed in God for thousands of years so it seems clear that God must exist. After all, why else would the belief last so long?
2. Of course this mode of government is the best. We have had this government for over 200 years and no one has talked about changing it in all that time. So, it has got to be good.

Appeal to Authority:

The fallacy of appealing to the testimony of an authority outside his special field. Anyone can give opinions or advice; the fallacy only occurs when the reason for assenting to the conclusion is based on following the improper authority.

Many advertising campaigns are built on this fallacy. Popular sports figures, musicians, or actors endorse products and, in proper context, this fact is offered as a reason we should use those products.

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Ad Hominem:

The fallacy of attacking the character or circumstances of an individual who is advancing a statement or an argument instead of trying to disprove the truth of the statement or the soundness of the argument. Often the argument is characterized simply as a personal attack.

I.

Informal Structure of *ad Hominem*

Person *L* says argument *A*.

Person *L*'s circumstances or character is not satisfactory.

Argument *A* is not a good argument.

II. Examples of the *ad hominem*:

- A prosecutor asks the judge to not admit the testimony of a burglar because burglars are not trustworthy.

Red Herring:

A Red Herring is a fallacy in which an irrelevant topic is presented in order to divert attention from the original issue. The basic idea is to "win" an argument by leading attention away from the argument and to another topic. This sort of "reasoning" has the following form:

1. Topic A is under discussion.

2. Topic B is introduced under the guise of being relevant to topic A (when topic B is actually not relevant to topic A).

3. Topic A is abandoned.

This sort of "reasoning" is fallacious because merely changing the topic of discussion hardly counts as an argument against a claim.

Examples of Red Herring

"We admit that this measure is popular. But we also urge you to note that there are so many bond issues on this ballot that the whole thing is getting ridiculous."

"Argument" for a tax cut:

"You know, I've begun to think that there is some merit in the Republican's tax cut plan. I suggest that you come up with something like it, because if we Democrats are going to survive as a party, we have got to show that we are as tough-minded as the Republicans, since that is what the public wants."

"Argument" for making grad school requirements stricter:

"I think there is great merit in making the requirements stricter for the graduate students. I recommend that you support it, too. After all, we are in a budget crisis and we do not want our salaries affected."

Straw Man:

The Straw Man fallacy is committed when a person simply ignores a person's actual position and substitutes a distorted, exaggerated or misrepresented version of that position. This sort of "reasoning" has the following pattern:

Person A has position X.

Person B presents position Y (which is a distorted version of X).

Person B attacks position Y.

Therefore X is false/incorrect/flawed.

This sort of "reasoning" is fallacious because attacking a distorted version of a position simply does not constitute an attack on the position itself. One might as well expect an attack on a poor drawing of a person to hurt the person.

Examples of Straw Man

Prof. Jones: "The university just cut our yearly budget by \$10,000."

Prof. Smith: "What are we going to do?"

Prof. Brown: "I think we should eliminate one of the teaching assistant positions. That would take care of it."

Prof. Jones: "We could reduce our scheduled raises instead."

Prof. Brown: " I can't understand why you want to bleed us dry like that, Jones."

"Senator Jones says that we should not fund the attack submarine program. I disagree entirely. I can't understand why he wants to leave us defenseless like that."

Obfuscation:

The Obfuscation Fallacy occurs when someone adopts a position after hearing, or presenting, an argument containing unnecessarily complex language that either impresses (when it shouldn't), confuses or deceives. "To obfuscate: to make obscure, unclear or unintelligible"

Black and white swans?

Here is an example of deliberate obfuscation:

"I cannot say that I do not disagree with you."
(American comedian Groucho Marx, 1890–1977)

It allows you to say "you're wrong" but leaves your victim thinking you said "you're right".

Deliberately clouding the message to help press home a point or to avoid answering a difficult question means you are committing the Obfuscation Fallacy. But, falling for the argument due to a clouding of the facts means you're guilty of committing the fallacy too.

Obfuscation is not, in itself, a logical fallacy. It can only be described as a fallacy if it forms part of an argument. Here's an example. Firstly, without the obfuscation:

Lee: "Swans can be black or white. Jack is a swan. Therefore, Jack is white."
Mark: "I disagree. Jack could be black."

Here is the same argument with obfuscation:

Lee: "Whilst the pigment particles embedded in some swans' plumage will reflect the vast majority of electromagnetic radiation from ~700 nanometers to ~400 nanometers, the plumage and structures in others' feathers will absorb a high proportion of the wavelengths perceivable as white light. Jack is a swan. Therefore, Jack is white."

Mark: "Yeah, whatever. Sounds like you know your onions."

A Practical Application for Obfuscation Fallacy

Attack with obfuscation

If it suits you, obfuscate like crazy if it's the only way to negotiate an obstacle impeding your progress. The best and easiest way to obfuscate is to present lots pages of detailed work on a subject that isn't the decision-maker's top priority. He won't read it. This significantly improves your chances of the decision-maker being governed by his [status quo bias](#) (and allowing the current situation to continue unchanged) because that's the easiest thing for him to do, and he'll think it's reasonably safe.

This is great news if you want the decision-maker to do nothing (e.g., not cancel your contract). However, if the status quo being maintained doesn't suit you (e.g., you need him to write you a new contract), then you would do well to notify the decision-maker of the dangers of continuing without you before obfuscating about what you bring to the party. It's an underhanded strategy, but if the benefits you bring are not that strong, you might want to think about it.

"The secret of life is honesty... if you can fake that, you've got it made."
(Groucho Marx)

Another Practical Application for Obfuscation Fallacy

Defend against obfuscation

If you have an important decision to make based on a long document that you don't understand or haven't got time to read, tell the author to get it all on one page. Not two pages. One.

"Nothing cuts through obfuscation cleaner than a brutal word limit."