

## Logical Fallacies

In order to understand what a fallacy is, one must understand what an argument is. Very briefly, an argument consists of one or more premises and one conclusion. A premise is a statement (a sentence that is either true or false) that is offered in support of the claim being made, which is the conclusion (which is also a sentence that is either true or false).

There are two main types of arguments: deductive and inductive. A deductive argument is an argument such that the premises provide (or appear to provide) complete support for the conclusion. An inductive argument is an argument such that the premises provide (or appear to provide) some degree of support (but less than complete support) for the conclusion. If the premises actually provide the required degree of support for the conclusion, then the argument is a good one. A good deductive argument is known as a valid argument and is such that if all its premises are true, then its conclusion must be true. If all the argument is valid and actually has all true premises, then it is known as a sound argument. If it is invalid or has one or more false premises, it will be unsound. A good inductive argument is known as a strong (or "cogent") inductive argument. It is such that if the premises are true, the conclusion is likely to be true.

A fallacy is, very generally, an error in reasoning. This differs from a factual error, which is simply being wrong about the facts. To be more specific, a fallacy is an "argument" in which the premises given for the conclusion do not provide the needed degree of support. A deductive fallacy is a deductive argument that is invalid (it is such that it could have all true premises and still have a false conclusion). An inductive fallacy is less formal than a deductive fallacy. They are simply "arguments" which appear to be inductive arguments, but the premises do not provided enough support for the conclusion. In such cases, even if the premises were true, the conclusion would not be more likely to be true.

***What this handout is about... This handout is on common logical fallacies that you may encounter in your own writing or the writing of others. The handout provides definitions, examples, and tips on avoiding these fallacies.***

### Arguments

Most academic writing tasks require you to make an argument—that is, to present reasons for a particular claim or interpretation you are putting forward. You may have been told that you need to make your arguments more logical or stronger. And you may have worried that you simply aren't a logical person or wondered what it means for an argument to be strong. Learning to make the best arguments you can is an ongoing process, but it isn't impossible: "Being logical" is something *anyone* can do, with practice! Each argument you make is composed of *premises* (this is a term for statements that express your reasons or evidence) that are arranged in the right way to support your *conclusion* (the main claim or interpretation you are offering). You can make your arguments stronger by

1. **using good premises** (ones you have good reason to believe are both true and relevant to the issue at hand),
2. making sure your premises **provide good support for your conclusion** (and not some other conclusion, or no conclusion at all),
3. checking that you have **addressed the most important or relevant aspects** of the issue (that is, that your premises and conclusion focus on what is really important to the issue you're arguing about), and
4. **not making claims that are so strong or sweeping that you can't really support them.**

You also need to be sure that you present all of your ideas in an orderly fashion that readers can follow. See the handouts on [argument](#) and [organization](#) for some tips that will improve your arguments.

This handout describes some ways in which arguments often fail to do the things listed above; these failings are called fallacies. If you're having trouble developing your argument, check to see if a fallacy is part of the problem!

It is particularly easy to slip up and commit a fallacy when you have strong feelings about your topic—if a conclusion seems obvious to you, you're more likely to just assume that it is true and to be careless with your evidence. To help you see how people commonly make this mistake, this handout uses a number of controversial political examples—arguments about subjects like abortion, gun control, the death penalty, gay marriage, euthanasia, and pornography. The purpose of this handout, though, is not to argue for any particular position on any of these issues; rather, it is to illustrate weak reasoning, which can happen in pretty much any kind of argument! *Please be aware that the claims in these examples are just made-up illustrations—they haven't been researched, so you shouldn't use them as evidence in your own writing.*

## ***What are fallacies again?***

Fallacies are defects that weaken arguments. By learning to look for them in your own and others' writing, you can strengthen your ability to evaluate the arguments you make, read, and hear. It is important to realize two things about fallacies: First, fallacious arguments are very, very common and can be quite persuasive, at least to the causal reader or listener. You can find dozens of examples of fallacious reasoning in newspapers, advertisements, and other sources. Second, it is sometimes hard to evaluate whether an argument is fallacious. An argument might be very weak, somewhat weak, somewhat strong, or very strong. An argument that has several stages or parts might have some strong sections and some weak ones. The goal of this handout, then, is not to teach you how to label arguments as fallacious or fallacy-free, but to help you look critically at your own arguments and move them away from the "weak" and toward the "strong" end of the continuum.

## ***So what do fallacies look like?***

For each fallacy listed, there is a definition or explanation, an example, and a tip on how to avoid committing the fallacy in your own arguments. Here is a list of the **15** most commonly used logical fallacies. **LEARN THEM!!!!**

### **1. Hasty generalization**

**Definition:** Making assumptions about a whole group or range of cases based on a sample that is inadequate (usually because it is atypical or just too small). Stereotypes about people ("frat boys are drunkards," "grad students are nerdy," etc.) are a common example of the principle underlying hasty generalization.

**Example:** "My roommate said her philosophy class was hard, and the one I'm in is hard, too. All philosophy classes must be hard!" Two people's experiences are, in this case, not enough on which to base a conclusion.

**Tip:** Ask yourself what kind of "sample" you're using: Are you relying on the opinions or experiences of just a few people, or your own experience in just a few situations? If so, consider whether you need more evidence, or perhaps a less sweeping conclusion. (Notice that in the example, the more modest conclusion "*Some* philosophy classes are hard for *some* students" would not be a hasty generalization.)

### **2. Missing the point**

**Definition:** The premises of an argument do support a particular conclusion—but not the conclusion that the arguer actually draws.

**Example:** "The seriousness of a punishment should match the seriousness of the crime. Right now, the punishment for drunk driving may simply be a fine. But drunk driving is a very serious crime that can kill innocent people. So the death penalty should be the punishment for drunk driving." The argument actually supports several

conclusions—"The punishment for drunk driving should be very serious," in particular—but it doesn't support the claim that the death penalty, specifically, is warranted.

**Tip:** Separate your premises from your conclusion. Looking at the premises, ask yourself what conclusion an objective person would reach after reading them. Looking at your conclusion, ask yourself what kind of evidence would be required to support such a conclusion, and then see if you've actually given that evidence. Missing the point often occurs when a sweeping or extreme conclusion is being drawn, so be especially careful if you know you're claiming something big.

### 3. Post hoc (also called false cause)

This fallacy gets its name from the Latin phrase "*post hoc, ergo propter hoc*," which translates as "after this, therefore because of this."

**Definition:** Assuming that because B comes after A, A caused B. Of course, sometimes one event really does cause another one that comes later—for example, if I register for a class, and my name later appears on the roll, it's true that the first event caused the one that came later. But sometimes two events that seem related in time aren't really related as cause and event. That is, correlation isn't the same thing as causation.

**Examples:** "President Jones raised taxes, and then the rate of violent crime went up. Jones is responsible for the rise in crime." The increase in taxes might or might not be one factor in the rising crime rates, but the argument hasn't shown us that one caused the other.

**Tip:** To avoid the *post hoc* fallacy, the arguer would need to give us some explanation of the process by which the tax increase is supposed to have produced higher crime rates. And that's what you should do to avoid committing this fallacy: If you say that A causes B, you should have something more to say about how A caused B than just that A came first and B came later!

### 4. Slippery slope

**Definition:** The arguer claims that a sort of chain reaction, usually ending in some dire consequence, will take place, but there's really not enough evidence for that assumption. The arguer asserts that if we take even one step onto the "slippery slope," we will end up sliding all the way to the bottom; he or she assumes we can't stop halfway down the hill.

**Example:** "Animal experimentation reduces our respect for life. If we don't respect life, we are likely to be more and more tolerant of violent acts like war and murder. Soon our society will become a battlefield in which everyone constantly fears for their lives. It will be the end of civilization. To prevent this terrible consequence, we should make animal experimentation illegal right now." Since animal experimentation has been legal for some time and civilization has not yet ended, it seems particularly clear that this chain of events won't necessarily take place. Even if we believe that experimenting on animals reduces respect for life, and loss of respect for life makes us more tolerant of violence, that may be the spot on the hillside at which things stop—we may not slide all the way down to the end of civilization. And so we have not yet been given sufficient reason to accept the arguer's conclusion that we must make animal experimentation illegal right now.

Like post hoc, slippery slope can be a tricky fallacy to identify, since sometimes a chain of events really can be predicted to follow from a certain action. Here's an example that doesn't seem fallacious: "If I fail English 101, I won't be able to graduate. If I don't graduate, I probably won't be able to get a good job, and I may very well end up doing temp work or flipping burgers for the next year."

**Tip:** Check your argument for chains of consequences, where you say "if A, then B, and if B, then C," and so forth. Make sure these chains are reasonable.

## 5. Weak analogy

**Definition:** Many arguments rely on an analogy between two or more objects, ideas, or situations. If the two things that are being compared aren't really alike in the relevant respects, the analogy is a weak one, and the argument that relies on it commits the fallacy of weak analogy.

**Example:** "Guns are like hammers—they're both tools with metal parts that could be used to kill someone. And yet it would be ridiculous to restrict the purchase of hammers—so restrictions on purchasing guns are equally ridiculous." While guns and hammers do share certain features, these features (having metal parts, being tools, and being potentially useful for violence) are not the ones at stake in deciding whether to restrict guns. Rather, we restrict guns because they can easily be used to kill large numbers of people at a distance. This is a feature hammers do not share—it'd be hard to kill a crowd with a hammer. Thus, the analogy is weak, and so is the argument based on it.

If you think about it, you can make an analogy of some kind between almost any two things in the world: "My paper is like a mud puddle because they both get bigger when it rains (I work more when I'm stuck inside) and they're both kind of murky." So the mere fact that you draw an analogy between two things doesn't prove much, by itself.

Arguments by analogy are often used in discussing abortion—arguers frequently compare fetuses with adult human beings, and then argue that treatment that would violate the rights of an adult human being also violates the rights of fetuses. Whether these arguments are good or not depends on the strength of the analogy: do adult humans and fetuses share the property that gives adult humans rights? If the property that matters is having a human genetic code or the potential for a life full of human experiences, adult humans and fetuses do share that property, so the argument and the analogy are strong; if the property is being self-aware, rational, or able to survive on one's own, adult humans and fetuses don't share it, and the analogy is weak.

**Tip:** Identify what properties are important to the claim you're making, and see whether the two things you're comparing both share those properties.

## 6. Appeal to authority

**Definition:** Often we add strength to our arguments by referring to respected sources or authorities and explaining their positions on the issues we're discussing. If, however, we try to get readers to agree with us simply by impressing them with a famous name or by appealing to a supposed authority who really isn't much of an expert, we commit the fallacy of appeal to authority.

**Example:** "We should abolish the death penalty. Many respected people, such as actor Guy Handsome, have publicly stated their opposition to it." While Guy Handsome may be an authority on matters having to do with acting, there's no particular reason why anyone should be moved by his political opinions—he is probably no more of an authority on the death penalty than the person writing the paper.

**Tip:** There are two easy ways to avoid committing appeal to authority: First, make sure that the authorities you cite are experts on the subject you're discussing. Second, rather than just saying "Dr. Authority believes x, so we should believe it, too," try to explain the reasoning or evidence that the authority used to arrive at his or her opinion. That way, your readers have more to go on than a person's reputation. It also helps to choose authorities who are perceived as fairly neutral or reasonable, rather than people who will be perceived as biased.

## 7. Ad populum

**Definition:** The Latin name of this fallacy means "to the people." There are several versions of the *ad populum* fallacy, but what they all have in common is that in them, the arguer takes advantage of the desire most people have to be liked and to fit in with others and uses that desire to try to get the audience to accept his or her argument. One

of the most common versions is the bandwagon fallacy, in which the arguer tries to convince the audience to do or believe something because everyone else (supposedly) does.

**Example:** "Gay marriages are just immoral. 70% of Americans think so!" While the opinion of most Americans might be relevant in determining what laws we should have, it certainly doesn't determine what is moral or immoral: There was a time where a substantial number of Americans were in favor of segregation, but their opinion was not evidence that segregation was moral. The arguer is trying to get us to agree with the conclusion by appealing to our desire to fit in with other Americans.

**Tip:** Make sure that you aren't recommending that your audience believe your conclusion because everyone else believes it, all the cool people believe it, people will like you better if you believe it, and so forth. Keep in mind that the popular opinion is not always the right one!

## **8. Ad hominem and tu quoque**

**Definitions:** Like the appeal to authority and *ad populum* fallacies, the *ad hominem* ("against the person") and *tu quoque* ("you, too!") fallacies focus our attention on people rather than on arguments or evidence. In both of these arguments, the conclusion is usually "You shouldn't believe So-and-So's argument." The reason for not believing So-and-So is that So-and-So is either a bad person (*ad hominem*) or a hypocrite (*tu quoque*). In an *ad hominem* argument, the arguer attacks his or her opponent instead of the opponent's argument.

**Examples:** "Andrea Dworkin has written several books arguing that pornography harms women. But Dworkin is an ugly, bitter person, so you shouldn't listen to her." Dworkin's appearance and character, which the arguer has characterized so ungenerously, have nothing to do with the strength of her argument, so using them as evidence is fallacious.

In a *tu quoque* argument, the arguer points out that the opponent has actually done the thing he or she is arguing against, and so the opponent's argument shouldn't be listened to. Here's an example: Imagine that your parents have explained to you why you shouldn't smoke, and they've given a lot of good reasons—the damage to your health, the cost, and so forth. You reply, "I won't accept your argument, because you used to smoke when you were my age. You did it, too!" The fact that your parents have done the thing they are condemning has no bearing on the premises they put forward in their argument (smoking harms your health and is very expensive), so your response is fallacious.

**Tip:** Be sure to stay focused on your opponents' reasoning, rather than on their personal character. (The exception to this is, of course, if you are making an argument about someone's character—if your conclusion is "President Clinton is an untrustworthy person," premises about his untrustworthy acts are relevant, not fallacious.)

## **9. Appeal to pity**

**Definition:** The appeal to pity takes place when an arguer tries to get people to accept a conclusion by making them feel sorry for someone.

**Examples:** "I know the exam is graded based on performance, but you should give me an A. My cat has been sick, my car broke down, and I've had a cold, so it was really hard for me to study!" The conclusion here is "You should give me an A." But the criteria for getting an A have to do with learning and applying the material from the course; the principle the arguer wants us to accept (people who have a hard week deserve A's) is clearly unacceptable. The information the arguer has given might *feel* relevant and might even get the audience to consider the conclusion—but the information isn't logically relevant, and so the argument is fallacious. Here's another example: "It's wrong to tax corporations—think of all the money they give to charity, and of the costs they already pay to run their businesses!"

**Tip:** Make sure that you aren't simply trying to get your audience to agree with you by making them feel sorry for someone.

## 10. Appeal to ignorance

**Definition:** In the appeal to ignorance, the arguer basically says, "Look, there's no conclusive evidence on the issue at hand. Therefore, you should accept my conclusion on this issue."

**Example:** "People have been trying for centuries to prove that God exists. But no one has yet been able to prove it. Therefore, God does not exist." Here's an opposing argument that commits the same fallacy: "People have been trying for years to prove that God does not exist. But no one has yet been able to prove it. Therefore, God exists." In each case, the arguer tries to use the lack of evidence as support for a positive claim about the truth of a conclusion. There is one situation in which doing this is not fallacious: If qualified researchers have used well-thought-out methods to search for something for a long time, they haven't found it, and it's the kind of thing people ought to be able to find, then the fact that they haven't found it constitutes some evidence that it doesn't exist.

**Tip:** Look closely at arguments where you point out a lack of evidence and then draw a conclusion from that lack of evidence.

## 11. Straw man

**Definition:** One way of making our own arguments stronger is to anticipate and respond in advance to the arguments that an opponent might make. In the straw man fallacy, the arguer sets up a wimpy version of the opponent's position and tries to score points by knocking it down. But just as being able to knock down a straw man, or a scarecrow, isn't very impressive, defeating a watered-down version of your opponents' argument isn't very impressive either.

**Example:** "Feminists want to ban all pornography and punish everyone who reads it! But such harsh measures are surely inappropriate, so the feminists are wrong: porn and its readers should be left in peace." The feminist argument is made weak by being overstated—in fact, most feminists do not propose an outright "ban" on porn or any punishment for those who merely read it; often, they propose some restrictions on things like child porn, or propose to allow people who are hurt by porn to sue publishers and producers, not readers, for damages. So the arguer hasn't really scored any points; he or she has just committed a fallacy.

**Tip:** Be charitable to your opponents. State their arguments as strongly, accurately, and sympathetically as possible. If you can knock down even the best version of an opponent's argument, then you've really accomplished something.

## 12. Red herring

**Definition:** Partway through an argument, the arguer goes off on a tangent, raising a side issue that distracts the audience from what's really at stake. Often, the arguer never returns to the original issue.

**Example:** "Grading this exam on a curve would be the most fair thing to do. After all, classes go more smoothly when the students and the professor are getting along well." Let's try our premise-conclusion outlining to see what's wrong with this argument:

Premise: Classes go more smoothly when the students and the professor are getting along well.

Conclusion: Grading this exam on a curve would be the most fair thing to do.

When we lay it out this way, it's pretty obvious that the arguer went off on a tangent—the fact that something helps people get along doesn't necessarily make it more fair; fairness and justice sometimes require us to do things that

cause conflict. But the audience may feel like the issue of teachers and students agreeing is important and be distracted from the fact that the arguer has not given any evidence as to why a curve would be fair.

**Tip:** Try laying your premises and conclusion out in an outline-like form. How many issues do you see being raised in your argument? Can you explain how each premise supports the conclusion?

### 13. False dichotomy

**Definition:** In false dichotomy, the arguer sets up the situation so it looks like there are only two choices. The arguer then eliminates one of the choices, so it seems that we are left with only one option: the one the arguer wanted us to pick in the first place. But often there are really many different options, not just two—and if we thought about them all, we might not be so quick to pick the one the arguer recommends!

**Example:** "Caldwell Hall is in bad shape. Either we tear it down and put up a new building, or we continue to risk students' safety. Obviously we shouldn't risk anyone's safety, so we must tear the building down." The argument neglects to mention the possibility that we might repair the building or find some way to protect students from the risks in question—for example, if only a few rooms are in bad shape, perhaps we shouldn't hold classes in those rooms.

**Tip:** Examine your own arguments: If you're saying that we have to choose between just two options, is that really so? Or are there other alternatives you haven't mentioned? If there are other alternatives, don't just ignore them—explain why they, too, should be ruled out. Although there's no formal name for it, assuming that there are only three options, four options, etc. when really there are more is similar to false dichotomy and should also be avoided.

### 14. Begging the question

**Definition:** A complicated fallacy; it comes in several forms and can be harder to detect than many of the other fallacies we've discussed. Basically, an argument that begs the question asks the reader to simply accept the conclusion without providing real evidence; the argument either relies on a premise that says the same thing as the conclusion (which you might hear referred to as "being circular" or "circular reasoning"), or simply ignores an important (but questionable) assumption that the argument rests on. Sometimes people use the phrase "beg the question" as a sort of general criticism of arguments, to mean that an arguer hasn't given very good reasons for a conclusion, but that's not the meaning we're going to discuss here.

**Examples:** "Active euthanasia is morally acceptable. It is a decent, ethical thing to help another human being escape suffering through death." Let's lay this out in premise-conclusion form:

Premise: It is a decent, ethical thing to help another human being escape suffering through death.

Conclusion: Active euthanasia is morally acceptable.

If we "translate" the premise, we'll see that the arguer has really just said the same thing twice: "decent, ethical" means pretty much the same thing as "morally acceptable," and "help another human being escape suffering through death" means "active euthanasia." So the premise basically says, "active euthanasia is morally acceptable," just like the conclusion does! The arguer hasn't yet given us any real reasons *why* euthanasia is acceptable; instead, she has left us asking "well, really, why do you think active euthanasia is acceptable?" Her argument "begs" (that is, evades) the real question.

Here's a second example of begging the question, in which a dubious premise which is needed to make the argument valid is completely ignored: "Murder is morally wrong. So active euthanasia is morally wrong." The premise that gets left out is "active euthanasia is murder." And that is a debatable premise—again, the argument "begs" or evades the question of whether active euthanasia is murder by simply not stating the premise. The arguer

is hoping we'll just focus on the uncontroversial premise, "Murder is morally wrong," and not notice what is being assumed.

**Tip:** One way to try to avoid begging the question is to write out your premises and conclusion in a short, outline-like form. See if you notice any gaps, any steps that are required to move from one premise to the next or from the premises to the conclusion. Write down the statements that would fill those gaps. If the statements are controversial and you've just glossed over them, you might be begging the question. Next, check to see whether any of your premises basically says the same thing as the conclusion (but in other words). If so, you're begging the question. The moral of the story: You can't just assume or use as uncontroversial evidence the very thing you're trying to prove.

## 15. Equivocation

**Definition:** Equivocation is sliding between two or more different meanings of a single word or phrase that is important to the argument.

**Example:** "Giving money to charity is the right thing to do. So charities have a right to our money." The equivocation here is on the word "right": "right" can mean both something that is correct or good (as in "I got the right answers on the test") and something to which someone has a claim (as in "everyone has a right to life"). Sometimes an arguer will deliberately, sneakily equivocate, often on words like "freedom," "justice," "rights," and so forth; other times, the equivocation is a mistake or misunderstanding. Either way, it's important that you use the main terms of your argument consistently.

**Tip:** Identify the most important words and phrases in your argument and ask yourself whether they could have more than one meaning. If they could, be sure you aren't slipping and sliding between those meanings.

### ***So how do I find fallacies in my own writing?***

Here are some general tips for finding fallacies in your own arguments:

- 1. Pretend you disagree with the conclusion you're defending.** What parts of the argument would now seem fishy to you? What parts would seem easiest to attack? Give special attention to strengthening those parts.
- 2. List your main points;** under each one, **list the evidence** you have for it. Seeing your claims and evidence laid out this way may make you realize that you have no good evidence for a particular claim, or it may help you look more critically at the evidence you're using.
- 3. Learn which types of fallacies you're especially prone to,** and be careful to check for them in your work. Some writers make lots of appeals to authority; others are more likely to rely on weak analogies or set up straw men. Read over some of your old papers to see if there's a particular kind of fallacy you need to watch out for.
- 4. Be aware that broad claims need more proof than narrow ones.** Claims that use sweeping words like "all," "no," "none," "every," "always," "never," "no one," and "everyone" are sometimes appropriate—but they require a lot more proof than less-sweeping claims that use words like "some," "many," "few," "sometimes," "usually," and so forth.
- 5. Double check your characterizations of others,** especially your opponents, to be sure they are accurate and fair.