Have you ever heard of Plato, Aristotle, Socrates? Morons!

—Vizzini, The Princess Bride

So far we have looked at how to construct arguments and how to evaluate them. We've seen that arguments are constructed from sentences, with some sentences providing reasons, or premises, for another sentence, the conclusion. The purpose of arguments is to provide support for a conclusion. In a valid deductive argument, we must accept the conclusion as true if we accept the premises as true. A sound deductive argument is valid, and the premises are taken to be true. Inductive arguments, in contrast, are evaluated on a continuous scale from very strong to very weak: the stronger the inductive argument, the more likely the conclusion, given the premises.

**What We Will Be Exploring**

* **We will look at mistakes in reasoning, known as fallacies.**
* **We will examine how these kinds of mistakes occur.**
* **We will see that errors in reasoning can take place because of the structure of the argument.**
* **We will discover that different errors in reasoning arise due to using language illegitimately, requiring close attention be paid to that language.**

Generally, we want our arguments to be "good" arguments—sound deductive arguments and strong inductive arguments. Unfortunately, arguments often look good when they are not. Such arguments are said to commit a **fallacy**, a mistake in reasoning. Wide ranges of fallacies have been identified, but we will look at only some of the most common ones. When trying to construct a good argument, it is important to be able to identify what bad arguments look like. Then we can avoid making these mistakes ourselves and prevent others from trying to convince us of something on the basis of bad reasoning!

**What Is a Fallacy?**



The French village of Roussillon at sunrise. Roussillon is in Vaucluse, Provence. It would be a fallacy to assume that because someone lives in France, he or she lives in Paris.

Most simply, a fallacy is an *error in reasoning*. It is different from simply being mistaken, however. For instance, if someone were to say that "2 + 3 = 6," that would be a *mistake*, but it would not be a *fallacy*. Fallacies involve *inferences*, the move from one sentence (or a set of sentences) to another. Here's an example:

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| If I live in Paris, then I live in France. |
| I live in France. |
| Therefore, |
| I live in Paris. |

Here, we have two premises and a conclusion. The first sentence is a conditional, and we can accept it as true. Let's assume the second sentence is also true. But even if those two premises were true, the conclusion would not be true. While it may be true that if I live in Paris then I live in France, and it may be true that I live in France, it *does not follow* that I live in Paris, because I could live in any number of other places in France. Thus, the inference from the premises to the conclusion is *fallacious* because of a mistake in the reasoning. Technically, this argument is said to commit the formal fallacy of "affirming the consequent" of the conditional. In a conditional sentence, "If P then Q," P is the **antecedent**—it provides the condition—and Q is the **consequent**, or what follows from that conditional. So in this sentence, "If I need to get cash, then I can go to an ATM," "I need to get cash" is the antecedent, and "I can go to an ATM" is the consequent.

We can see the difference in the arguments here by looking at a very similar one that does not commit this fallacy (because it affirms the *antecedent*) and is in fact *valid*:

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| If I live in Paris, then I live in France. |
| I live in Paris. |
| Therefore, |
| I live in France. |

In learning to spot fallacies, we must be very careful to see whether the conclusion actually follows from the premises; if it does not, we need to determine why. Sometimes, as in our first argument here, the mistake is structural, or formal. At other times, the mistake is more subtle, and we have to examine the content of the argument—its meaning—to determine why it commits the fallacy; these kinds of mistakes in reasoning are often called "informal fallacies." Here again is the famous informal fallacy we looked at in Chapter 2:

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| Nothing is better than eternal happiness. |
| A ham sandwich is better than nothing. |
| Therefore, |
| A ham sandwich is better than eternal happiness. |

The fallacy involved here is *not* structural; an argument with this structure actually can provide a valid inference, as in this example:

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| Mary is taller than Susan. |
| Susan is taller than Amanda. |
| Therefore, |
| Mary is taller than Amanda. |

This is an example of what is known as the **transitive property**, as in arithmetic: if 10 is less than 20, and 20 is less than 30, then we know—just from these two sentences—that 10 is less than 30.



The transitive property allows us to infer that if Billy is taller than Sally, and Sally is taller than Jeff, then Billy must be taller than Jeff.

In contrast, the mistaken inference in the argument about the ham sandwich involves the *meaning* of the words, specifically the word "nothing." In the first premise, to say there is nothing better than eternal happiness is to say there exists no thing better. But in the second premise, "nothing" seems to change meaning in order to say it is better to have a sandwich than to have nothing (as in the phrase "well, it's better than nothing"). The word "nothing" subtly changes meaning from one sentence to the next, but the argument treats them as if "nothing" means the same thing. This then appears to allow us to draw the conclusion, but the mistake should be clear, and so we see why we cannot, on the basis of these premises, accept the conclusion that a ham sandwich is better than eternal happiness. Thus, the inference is made illegitimately, and that illegitimate inference is what results in a fallacy. While the ham sandwich argument is a bit silly, it is a good example of how, even if we are sure that there is a mistake in the reasoning, it can be a bit tricky to say what, precisely, that mistake is.

There are many formal fallacies, mistakes in reasoning that occur due to the *structure* of the argument (the fallacy of affirming the consequent is, therefore, a formal fallacy). There are also hundreds of informal fallacies. In this chapter, we look at some of the best-known informal fallacies, and a couple of the most common formal fallacies. It is obvious why we want to avoid fallacies as a general rule; after all, fallacies are mistakes, and we want to avoid making mistakes. But here we also consider why we want to avoid the specific kinds of errors committed by fallacious reasoning.

**Why Should We Avoid Fallacies?**

We have already seen that philosophers use the term *argument* differently from how we use it in everyday conversation: to a philosopher, an argument simply provides reasons for accepting a conclusion. As we have also seen, our everyday reasoning usually includes a mixture of both deductive and inductive arguments. Obviously enough, when we try to establish a conclusion on the basis of evidence and reasoning, we want our arguments to be *good* arguments: valid (and sound) deductive arguments and strong inductive arguments. Fallacies are, in this context, somewhat like a virus, or a disease. That is, fallacies infect our reasoning and can give an argument the appearance that its conclusion should be accepted when it really shouldn't be. We may never be able to "cure" our reasoning of the fallacies that threaten to infect it, but the more we are aware of the problem, the better our chance of being able to avoid it. Healthy reasoning, then, always requires that we be on the lookout for fallacies; in this case, as the old saying goes, an ounce of prevention is worth a pound of cure.



Fallacies can be like cracks in a building, undermining the strength of our arguments.

One clear result of studying and understanding fallacies is that we become aware of the problems they can cause in our own reasoning. Presumably, when we give an argument of our own, we want it to be the best argument we can construct; we assume, that is, that we aren't willing to abandon sound principles of reasoning to win the argument. (There are contexts, of course, where this might not be the case, and we will look at some of these later.) We want to win our arguments, of course, but we also want to construct them correctly. Being aware of the various fallacies will improve our arguments and make them more difficult to defeat. After all, if our opponent in an argument can expose our reasoning as fallacious, our opponent will win, or at least show that our argument fails.

We also, of course, don't want to be fooled by our opponent into accepting reasoning that is not legitimate. Perhaps you are in a debate with someone who argues that raising taxes is bad for the economy. Your opponent points out that the last time taxes were raised, the economy did badly; therefore, raising taxes caused the bad economy. You may want to resist this conclusion, and being aware of fallacies allows you to point out that this argument commits the fallacy of the "false cause": just because some event follows another event, it does not necessarily mean that the first event *caused* the second event. To make this fallacy clear to your opponent, you may provide a counterexample that uses the same kind of logic. "I took my dog for a walk, and then it rained. But walking my dog didn't *cause* it to rain, did it?" Revealing the flawed reasoning in this case doesn't mean that we have established that raising taxes is good for the economy, or that it is bad for the economy. But by demonstrating that the argument commits this fallacy, you can reject this argument as given, and you and your opponent can move on, in order to look for *better* arguments.