Many believe that because we have reasons for why we do or believe something, that we have sound reasoning. Unfortunately, reasons are not the same as reasoning. Good reasoning is the foundation to any speech, and in this chapter, we will explore how to organize ideas logically within a speech so they maximize their ability to connect your message with the audience. We also will illustrate some common errors of reasoning, or fallacies, that creep into our justifications and attempts to persuade others, thus tricking us to believe someone’s reasons are of sound judgment.

We begin our discussion by differentiating between the two different types of reasoning that exist: deductive and inductive. We then explore some common forms of reasoning used to make arguments every day. Finally, we will detail a number of common reasoning fallacies that infect our speech.

**Types of Reasoning**

The reasoning process is different from providing reasons for something. It explains how the reasons you supply connect to the conclusion that you make, and there are generally two ways these connections can be accomplished. One of these, deductive reasoning, deals with providing structurally certain conclusions. The other, inductive reasoning, focuses more on probability.

**Deductive Reasoning**

Deductive reasoning uses specific premises to reach an unavoidable and certain conclusion. Deductive reasoning relies upon a formal structure that comes in three parts. That formal structure is a syllogism, which lays out claims that build upon each other to reach a conclusion.

The first part of the syllogism is the major premise that is the statement of a general truth, or fact. After the major premise, a minor premise, or specific instance of the general truth in action, is provided. Taken together, the major and minor premises result in the third statement, the conclusion, which is the logical result of both the major and minor premises. Here is an example of perhaps the most famous syllogism:

**Major premise:** All men are mortal.

**Minor premise:** Socrates is a man.

**Conclusion:** Socrates is mortal.

This syllogism illustrates that Socrates, the specific instance, is a manifestation of the major premise, man, and thus like all members of that group, is mortal. This conclusion is both logical and certain, as the only way for this to fall apart would be for someone to prove Socrates was not properly categorized as a man. This is an example of what is called a **categorical syllogism**, because it deals with minor premises belonging to a category stated in the major premise.

A second form of syllogism that is also deductive in nature is the **disjunctive syllogism**. Rather than making claims about categorical membership, disjunctive syllogisms provide either-or scenarios. For instance:

**Major premise:** This key will unlock either my house or my car.

**Minor premise:** The key does not unlock my house.

**Conclusion:** Therefore, this key unlocks my car.

Notice that this syllogism still deduces the proper conclusion by excluding one of two alternatives stated in the major premise. It is called disjunctive because the two aspects of the major premise are mutually exclusive and cannot coexist.

A third and final type of syllogism found in deductive reasoning is the **conditional syllogism**, which proposes “if-then” scenarios in the major premise. Usually, this is used for hypothetical situations or planning in the future. Let's look at an example:

**Major premise:** If I take the bus home, then I will save money on transportation.

**Minor premise:** I will take the bus home.
Conclusion: Therefore, I will save money on transportation.

Here we see an alternative in a hypothetical situation eliminated in the minor premise. The “if-then” statement provided the conditions resulting from the stated action in the minor premise. When used correctly, each of the three syllogisms we discussed provides structurally certain conclusions. Unfortunately, in life few things are certain, so we deal more often in probabilities, and that is where the other type of reasoning comes into play.

Inductive Reasoning

**Inductive reasoning** is much different from deductive reasoning because it is based upon probabilities rather than absolutes. In inductive reasoning, you begin with particular pieces of evidence and use them to construct probable conclusions. This is the inverse of deductive reasoning, which begins with general certainties and applies them to specific cases.

One of the more common applications of inductive reasoning is the use of polling data to make assumptions about group behaviors. For example, if you know that 75% of students support a fee for a new recreation center on campus, and you are in a class with twenty students, then it is probable that five of them disagree with that position. This is not certain, because you might be in a class in which everyone supports, or does not support the fee, but it is likely given the evidence. With inductive reasoning, the more evidence we provide in support of a claim, the stronger the probability that claim is accurate—but we can never be certain.

Both inductive and deductive reasoning are useful, but the far more commonly used reasoning process is inductive. Few things in life are certain; after all, we are not even certain the sun will rise tomorrow. We know it is highly probable, but we are not totally certain. In the next section, we will explore some specific argumentative structures that employ both deductive and inductive reasoning.

Forms of Reasoning

Whether you are delivering an informative or persuasive speech, you will always need to make strong connections between the information you provide and the claims you make. Properly employing solid reasoning enables your audience to understand the points you are making, while also bolstering your credibility with the audience. On the contrary, not using sound reasoning will cause the audience to disregard much of what you say and will damage your credibility. In this section, we will discuss four different reasoning forms: cause, example, analogy, and sign.

Reasoning by Cause

The first type of reasoning we will go over is by cause. **Reasoning by cause** occurs when you claim that one occurrence creates a specific effect. When making a claim such as this you must keep several things in mind. First, consider if the cause you present is necessary and sufficient for the effect to be produced. A necessary cause is one that must be present for the effect to happen, such as it must be lower than thirty-two degrees Fahrenheit for water to freeze. That temperature is necessary to produce freezing. A sufficient cause is one that can produce the effect in question, such as decapitation is sufficient to produce death. It is not necessary to produce death, as there are many causes that can produce death, but decapitation is sufficient for the effect to take place.

Causal reasoning is also one of the foundations for many superstitions we hold. In sports, athletes will often wear the same clothing or perform the same rituals during a game because they believe they have a causal relation to a positive outcome. There is little to no evidence to support these beliefs, yet they believe them nonetheless.

Reasoning by Example

Another way to reason is by example. This form of reasoning is quite common, as we often look for instances that help us make more general conclusions. When reasoning by example, you take a number of specific realities and arrive at an overall conclusion about them. For example:

- **Example one:** My biology class was tough.
- **Example two:** My chemistry class was hard.
- **Example three:** My astronomy class was difficult.

**Conclusion:** Science classes present a real challenge to me.
When reasoning by example, the occurrences must be related. This argument, for instance, would not be as strong if we replaced biology with art and chemistry with philosophy. The reason for this is that the examples then lose their relationship to each other. The more relevant examples you provide, the stronger the conclusion.

Reasoning by Analogy

Reasoning by analogy occurs when we use analogies to support a claim. An analogy is when you argue that what is true in one situation is true in another. Analogies differ from examples because they do not need to have more than one similar instance. Essentially, reasoning by analogy tries to argue for common elements between different cases. These analogies also can be either literal or figurative.

Literal analogies take place when the two cases being compared are from the same classification. For example, you might argue that a certain crime prevention tactic effectively used at one school should be adopted at your school because the student population and campus environments are similar. This analogy takes a real occurrence in a similar classification and applies it to another real situation, trying to emphasize the commonalities between the two situations to argue for similar results in both cases.

Figurative analogies are different from literal analogies in that they compare cases from entirely different classifications. For example, an argument that a successful businessperson would make a good elected official is a figurative analogy. The reason it is figurative is because the business world and the political realm are two entirely different classifications, with very few similarities. Business is not policy making, but the figurative analogy seeks to make the comparison based on leadership experience in two different classifications. Just because the two examples are from different classifications, however, does not make the analogy false or even illogical—it requires you to be more explicit about the areas of comparison and reasons why they are relevant. Both of these types of analogies are effective means of making a reasoned argument for an audience.

Reasoning by Sign

The final type of reasoning we will discuss is reasoning by sign, which occurs when the presence of one thing indicates the presence of another. The classic example of this type of reasoning is when you see smoke in the air, it is a sign there is a fire somewhere. Or, if you see footprints in newly fallen snow, it is a sign that someone has walked across the area since the snowfall ended.

Reasoning by sign also can be more than observation of simple natural occurrences, as it can apply to characteristics as well. For example, to run for president you must be at least thirty-five years old. Therefore, being president is a sign that the person in the office is at least thirty-five years old. Be careful with this type of reasoning, however, because the inverse when reasoning by sign is not always true: being thirty-five or older is not a sign that you are president.

As speakers, we must ensure our reasoning is sound so it can have the desired impact on the audience. It is easy for speakers to err when reasoning, and some unethical speakers all too often employ reasoning fallacies to convince the audience to believe or do something. Additionally, as audience members, we have a responsibility to detect errors in reasoning so we can better assess the messages we receive. In the next section, we will examine several different examples of errors in reasoning, or reasoning fallacies.

Reasoning Fallacies

A fallacy is an error in reasoning. Some are easy to detect, yet others are more elusive to identify. In this section, we will cover ten of the more common reasoning fallacies speakers use in presentations. You will also undoubtedly recognize that many of these fallacies are exhibited in advertisements and our interpersonal interactions.

Ad Hominem

The first fallacy we will address is the ad hominem, which is attacking the opposing person's character instead of his or her argument. An ad hominem attack is simply name calling and does not address the ideas and reasoning of the attacked person. When we refute another person's position by calling him or her names or focusing on personal history when it is irrelevant, we employ an ad hominem attack. These types of attacks are unethical, inappropriate, and not grounded in logic, but unfortunately society uses them quite often.

Ad Vericundium

Another reasoning fallacy with a Latin name is the ad vericundium fallacy, which is an appeal to authority. This fallacy asserts that positional authority, such as being a parent or a boss, makes someone's argument correct and accurate. When a child asks a parent why he or she should take out the trash, and the parent responds “because I am your mother/father,” the parent is using a reason based on an appeal to authority instead of giving a logical reason. Authority-based appeals can be made using parents, bosses, God, teachers, doctors, or any other position of authority as the reason that someone should do something. These do not assert logical
reasons, but rather assume that authority equals correctness. This is not to say that we should not follow instructions from people in authority, because refusing them can carry heavy consequences, but an argument based on an appeal to authority is not a logical argument and is not a good type of argument to use in your speech.

The Slippery Slope

Perhaps the most famous logical fallacy is that of the slippery slope. This fallacy relies on the belief that once a course of action is taken, then other unavoidable events will inevitably occur. More succinctly, once we start down a path then there is no turning back. You can think about a slippery slope as being similar to a domino effect—the speaker is arguing that once an initial event or action takes place, others will follow, just like pushing over the first domino can cause the others behind it to fall. These fallacies are often very subtle and seem to make sense, but they make unsupported assumptions about an end outcome based on an initial action. The slippery slope is a perversive version of a conditional syllogism in which there is a series of unsupported assumptions made with either explicit or implicit “if-then” statements. Politicians often make such cases to pressure public support for certain policies, but if we are more attuned to the structure of the slippery slope, then we can avoid being misled.

Non Sequitur

The next fallacy we will explain is yet another Latin term, non sequitur. Non sequitur means “not in sequence,” and the fallacy thus refers to making an unjustified move from one idea to another. This is a very common fallacy and some are harder to detect than others. Assuming that someone is wealthy because he or she owns expensive furniture or drives a nice car is an unwarranted jump from one idea to another. While it is possible that someone who has nice furniture or drives an expensive car is wealthy, it is also possible that someone inherited the furniture, is renting the car for a day, or bought an expensive-looking car by accruing a lot of debt while barely making ends meet. There is not enough data to make that assertion logical, and thus the conclusion does not follow from the observation. Think of all the times you may have made an unwarranted assumption about a person or an idea without enough evidence.

Straw Man

The fifth type of fallacy is that of the straw man, which happens when the speaker distorts the actual position of an opponent. In a straw man fallacy, the speaker misrepresents the opponent's position by oversimplifying that position, taking the opponent's comments out of context so that they don't represent the opponent's position at all, or representing an entire group's position with really bad arguments from one person in that group (who might be real or fictitious). The speaker then attacks this misrepresented position or one piece of problematic evidence, and then claims that the entire argument or position must be thrown out. However, even if one piece of evidence that is used in an argument is problematic, it does not necessarily mean the entire argument is wrong. For example, some people who believe that warnings about climate change are a hoax might use an example of a single study that was found to have flawed data as evidence that the entire theory that the climate is changing is wrong, despite the mountains of evidence scientists around the world have collected indicating that climate change is a real, serious concern. Buying into a straw man argument is evidence of a lazy thinker who does not pay attention to the larger case being made.

Hasty Generalization

The hasty generalization is the next type of fallacy we will address, and these happen when we draw conclusions about broad principles or categories based upon a small sample of evidence. Basing a decision about an entire group or category on just one or even a few examples of it is not a valid, logical argument, yet we do this all the time. Consider how many times you have tried one dish from a particular ethnic cuisine, or one movie from a specific genre, and did not enjoy it. Then as a result of that experience, you refused to try anything from that cuisine or genre because you did not enjoy that one instance. These are examples of hasty generalization because you made a judgment about an entire large group or category based on a ridiculously small sample. Similarly, if you asked five students on your campus whether they think The Daily Show is the best show on TV, and then use this to claim that everyone on your campus thinks The Daily Show is the best show on TV, then you have used hasty generalization.

Either-Or

The seventh fallacy we will cover takes place when we assume there are only two alternatives, when in reality there are more. This is called the either-or fallacy, and people sometimes use it to limit alternatives and force choices in a specific direction. These arguments, which are erroneous applications of a disjunctive syllogism, assume the audience must “either” do this, “or” do that. The argument proceeds to eliminate one of the two alternatives, leaving the audience to believe the other action is the only one left, when really there are more possibilities to consider. For example, when then-President George W. Bush said, “Either you are with us, or you are with the terrorists” in his address to a joint session of Congress following the September 11 attacks, he was committing an either-or fallacy. Eventually, one of the two options that you present might be a good choice, but limiting the options to only two from the beginning is not the best manner in which to make a decision, and arguing that only two options exist is not a valid way to make an argument.
False Cause

The eighth fallacy is the false cause, which assumes that one event causes another unrelated event to occur. Remember, earlier in the chapter when we discussed reasoning by cause we mentioned superstitions. Superstitions are the result of false cause, which is an error in the application of that reasoning form. This is why it is always important to seek a connection between an event and what the speaker believes causes the event. If evidence cannot support that there is a necessary or sufficient relationship between the two, then we determine that false cause has been applied.

The Red Herring

Ninth in our list of reasoning fallacies is the red herring, which happens when the speaker introduces irrelevant ideas to focus attention away from the real issue. This fallacy is very common on political news programs when a commentator questions a politician or candidate for office about prior actions or statements and the politician tries to avoid responding. This type of reasoning fallacy essentially tries to change the topic of discussion from one matter to another. When people cannot, or do not, want to respond to an argument, they will try to change the topic to more favorable ground by introducing a red herring to the discussion. In doing so, they hope to avoid directly confronting what they have been asked. There is no logical connection between the red herring and the topic under discussion, but they can be introduced in a fashion that makes it seem like a connection is there.

Begging the Question

The tenth and final fallacy we will address is begging the question. We beg the question when we assume certain facts that have not been proven. These types of fallacies often are prefaced by statements such as “it begs the question,” “it goes without saying,” “everyone agrees,” and “let’s just say for the sake of argument.” All of these phrases tell the audience to assume things to be true without offering proof of their accuracy. They then are followed with a series of other claims built from that false understanding, until the end when the audience agrees to the entire proposition without evidence supporting its foundation.

As speakers, you should carefully craft your messages to ensure that the reasoning supporting your claims is sound and fallacy-free. If audience members detect fallacious reasoning, then you will lose credibility. Even if the audience does not detect the fallacy, it is unethical to use a fallacy to gain agreement. As audience members, we should pay close attention not just to the evidence provided and the claims made, but also to how the evidence and claims relate to each other. That is the fundamental characteristic of a good consumer of information.