

PERSUASION



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COMM: 315 (Miller)

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Licensing

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CHAPTER OVERVIEW

1: Why Persuasion

1.1: Why Persuade?

1.2: A Definition of Persuasion

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1.1: Why Persuade?

When your instructor announced on the syllabus or in class that you would be required to give a persuasive speech for this class, what was your reaction? “Oh, good, I’ve got a great idea,” or, “Oh, no!”? For many people, there is something a little uncomfortable about the word “persuasion.” It often gets paired with ideas of seduction, manipulation, force, lack of choice, or inducement as well as more positive concepts such as encouragement, influence, urging, or logical arguments. You might get suspicious if you think someone is trying to persuade you. You might not appreciate someone telling you to change your viewpoints. On the other hand, you might not think you have any beliefs, attitudes, values, or positions that are worth advocating for in front of an audience.

However, if you think of persuasion simply as a formal speech with a purpose of getting people to do something they do not want to do, then you will miss the value of learning persuasion and its accompanying skills of appeal, argument, and logic. Persuasion is something you do every day, in various forms. Convincing a friend to go see the latest movie instead of staying in to watch TV; giving your instructor a reason to give you an extension on an assignment (do not try that for this speech, though!); writing a cover letter and resume and going through an interview for a job—all of these and so many more are examples of persuasion. In fact, it is hard to think of life without the everyday give-and-take of persuasion.

You may also be thinking, “I’ve given an informative speech. What’s the difference?” While this chapter will refer to all of the content of the preceding chapters as it walks you through the steps of composing your persuasive speech, there is a difference. Although your persuasive speech will involve information—probably even as much as in your informative speech—the key difference is the word “change.” Think of it like this:

INFORMATION + CHANGE = PERSUASION

You will be using the information for the purpose of changing something. First, we try to change the audience’s beliefs, attitudes, and actions, and second, possibly the context they act upon. In the next section we will investigate the persuasive act and then move on to the barriers to persuasion.

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1.2: A Definition of Persuasion

Persuasion can be defined in two ways, for two purposes. The first (Lucas, 2015) is “the process of creating, reinforcing, or changing people’s beliefs or actions” (p. 306). This is a good, simple straightforward definition to start with, although it does not encompass the complexity of persuasion. This definition does introduce us to what could be called a “scaled” way of thinking about persuasion and change.

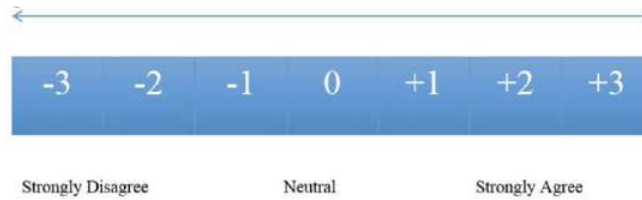


Figure 13.1 - Persuasion Continuum

Think of persuasion as a continuum or line going both directions (see Figure 13.1). Your audience members, either as a group or individually, are sitting somewhere on that line in reference to your central idea statement, or what we are going to call a **proposition** in this chapter. In your speech you are proposing the truth or validity of an idea, one which the audience may not find true or acceptable. Sometimes the word “claim” is used for proposition or central idea statement in a persuasive speech, because you are claiming an idea is true or an action is valuable.

For example, your proposition might be, “The main cause of climate change is human activity.” In this case you are not denying that natural forces, such as volcanoes, can affect the climate, but you are claiming that climate change is mainly due to pollution and other harmful things humans have done to the environment. To be an effective persuasive speaker, one of your first jobs after coming up with this topic would be to determine where your audience “sits” on the continuum in Figure 13.1.

+3 means strongly agree to the point of making lifestyle choices to lessen climate change (such as riding a bike instead of driving a car, recycling, eating certain kinds of foods, and advocating for government policy changes).

+2 means agree but not to the point of acting upon it or only acting on it in small ways.

+1 as mildly in favor of your proposition; that is, they think it’s probably true but the issue doesn’t affect them personally.

0 means neutral, no opinion, or feeling too uninformed to make a decision.

-1 means mildly opposed to the proposition but willing to listen to those with whom they disagree.

-2 means disagreement to the point of dismissing the idea pretty quickly.

-3 means strong opposition to the point that the concept of climate change itself is not even listened to or acknowledged as a valid subject.

Since everyone in the audience is somewhere on this line or continuum, persuasion in this case means moving them to the right, somewhere closer to +3. Thinking about persuasion this way has three values:

- You can visualize and quantify where your audience “sits.”
- You can accept the fact that any movement toward +3 or to the right is a win.
- You can see that trying to change an audience from -3 to +3 in one speech is just about impossible. Therefore, you will be able to take a reasonable approach. In this case, if you knew most of the audience was at -2 or -3, your speech would be about the science behind climate change in order to open their minds to its possible existence. However, that audience is not ready to hear about its being caused mainly by humans or what action should be taken to reverse it.

Your instructor may have the class engage in some activity about your proposed topics in order for you to write your proposition in a way that it is more applicable to your audience. For example, you might have a group discussion on the topics or administer surveys to your fellow students. Some topics are so controversial and divisive that trying to persuade about them in class is inappropriate. Your instructor may forbid some topics or steer you in the direction of others.

You might also ask if it is possible to persuade to the negative, for example, to argue against something or try to move the audience to be opposed to something. In this case you would be trying to move your audience to the left on the continuum rather than to the right. Yes, it is possible to do so, but it might confuse the audience. Also, you might want to think in terms of phrasing your proposition so that it is favorable as well as reasonable. For example, “Elderly people should not be licensed to drive” could be

replaced with “Drivers over the age of 75 in our state of should be required to pass a vision and health test every two years to renew their drivers’ licenses.” The first one is not clear (what is “elderly?”), reasonable (no license at all?), or positive (based on restriction) in approach. The second is specific, reasonable, doable, and positive.

It should also be added that the proposition is assumed to be controversial. By that is meant that some people in the audience disagree with your proposition or at least have no opinion; they are not “on your side.” It would be foolish to give a speech when everyone in the audience totally agrees with you at the beginning of the speech. For example, trying to convince your classroom audience that attending college is a good idea is a waste of everyone’s time since, for one reason or another, everyone in your audience has already made that decision. That is not persuasive.

Those who disagree with your proposition but are willing to listen could be called the **target audience**. These are the members of your audience on whom you are truly focusing your persuasion. At the same time, another cluster of your audience that is not part of your target audience are those who are extremely opposed to your position to the point that they probably will not give you a fair hearing. Finally, some members of your audience may already agree with you, although they don’t know why.

To go back to our original definition, “the process of creating, reinforcing, or changing people’s beliefs or actions,” and each of these purposes implies a different approach. You can think of creating as moving an audience from 0 to +1, +2, or +3. You only really “create” something when it does not already exist, meaning the audience’s attitude will be a 0 since they have no opinion. In creating, you have to first engage the audience that there is a vital issue at stake. Then you must provide arguments in favor of your claim to give the audience a basis for belief.

Reinforcing is moving the audience from +1 toward +3 in the hope that they take action (since the real test of belief is whether people act on it). In reinforcing, the audience already agrees with you but need steps and pushes (nudges) to make it action. Changing is moving from -1 or -2 to +1 or higher. In changing, you must first be credible, provide evidence for your side but also show why the audience’s current beliefs are mistaken or wrong in some way.

However, this simple definition from Lucas, while it gets to the core of “change” that is inherent in persuasion, could be improved with some attention to the ethical component and the “how” of persuasion. For that purpose, let’s look at Perloff’s (2003) definition of **persuasion**:

A symbolic process in which communicators try to convince other people to change their attitudes or behavior regarding an issue through the transmission of a message, in an atmosphere of free choice. (p. 8)

There are several important factors about this definition. First, notice that persuasion is symbolic, that is, uses language or other symbols (even graphics can be symbols), rather than force or other means. Second, notice that it is an attempt, not always fully successful. Third, there is an “atmosphere of free choice,” in that the persons being persuaded can choose not to believe or act. And fourth, notice that the persuader is “trying to convince others to change.” Modern psychological research has confirmed that the persuader does not change the audience directly. The processes that the human mind goes through while it listens to a persuasive message is like a silent, mental dialogue the audience is having with the speaker’s ideas. The audience members as individuals eventually convince themselves to change based on the “symbols” used by the speaker.

Some of this may sound like splitting hairs, but these are important points. The fact that an audience has free choice means that they are active participants in their own persuasion and that they can choose whether the speaker is successful. This factor calls on the student speaker to be ethical and truthful. Sometimes students will say, “It is just a class assignment, I can lie in this speech,” but that is not a fair or respectful way to treat your classmates.

Further, the basis of your persuasion is language; even though “a picture is worth a thousand words” and can help add emotional appeal to your speech, you want to focus on communicating through words. Also, Perloff’s definition distinguishes between “attitude” and “behavior,” meaning that an audience may be persuaded to think, to feel, or to act. Finally, persuasion is a process. Successful persuasion actually takes a while. One speech can be effective, but usually other messages influence the listener in the long run.

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CHAPTER OVERVIEW

2: Ethos, Pathos, and Logos

An Introduction to Ethos, Logos, and Pathos



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CHAPTER OVERVIEW

3: Elaboration Likelihood Model

Persuasion, attitude change, and the elaboration likelihood model



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SECTION OVERVIEW

4.1: How to Evaluate Information and Judge Credibility

Suppose a friend of yours says she just read that several soldiers who were lost in action during the most recent U.S. war in the Middle East have been discovered in graves in Antarctica. She is making an unusual claim. In this chapter you will learn more about assessing the credibility of claims, especially unusual ones, and assessing the credibility of people and sources that might be used in justifying those claims. A person's credibility on some issue is their ability to offer solid grounds for deciding the issue. Credibility is a matter of degree, and it involves both the honesty of the person and how much of an authority they are. The more general knowledge you have about life and the world the better able you are to judge who is an authority on what. For example, we all know that a man who is loud is usually an authority, and someone who is louder is even more of an authority. Oops! Cancel that last point. The kernel of truth in that last joke is that there is some correlation between someone's outwardly appearing confident and their actually being an authority, but too often the listener over-emphasizes the outward appearance.

4.1.1: The Principles of Charity and Fidelity

4.1.2: When Should You Accept Unusual Statements?

4.1.3: Assessing a Source's Credibility

4.1.4: Seeking a Second Opinion

4.1.5: Trust Me, I Know It on Good Authority

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4.1.1: The Principles of Charity and Fidelity

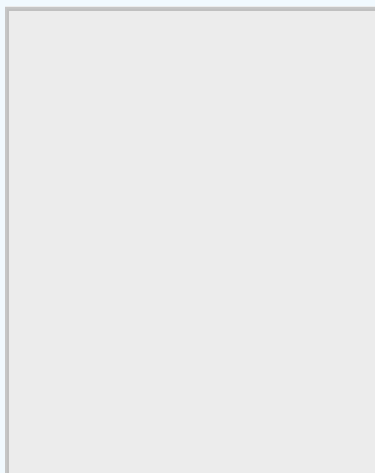
When someone says something that is obviously false, the logical reasoner will look deeper and not be too quick to find fault. Maybe the person meant something true but simply slipped up. "I collided with a stationary truck coming the other way," a male driver wrote in an insurance statement, attempting to summarize the details of an accident. Because a truck cannot simultaneously be moving and be stationary, you note the inconsistency but are charitable and assume that the person didn't literally mean what he wrote. Maybe he meant that he collided with a truck carrying paper stationery, or, more probably, he meant that the truck was stationary but that he, himself, was coming the other way.

By trying to make sense of apparent inconsistencies, and by trying to make sense of false statements that are too obviously false, we are applying the principle of charity or the principle of charitable interpretation. This principle is really a request to be kind and to try to make reasonable sense of odd statements and not to be in "attack mode."

Besides applying the principle of charity, we want to respect the principle of fidelity. That is, we should preserve the intended meaning of the speaker's original statements when interpreting them or analyzing them. We don't want to twist the original so that the speaker would react with, "Hey, I didn't mean that." Nor should we be so charitable that we are blind to real falsehoods and real inconsistencies.

? Exercise 4.1.1.1

Suppose you are trying to interpret what someone meant by saying, "You will have some good luck." Which of the following interpretations would violate the principle of fidelity?



- a. You will have some good luck today, or soon.
- b. You will have something positive happen to you.
- c. You will cause somebody to have some good luck.
- d. Eventually good luck will happen to you, but it won't be that far off.

Answer

Answer (c). It twists the original statement by changing who the good luck will happen to, whereas statements (a), (b), and (d) are all reasonable interpretations of what the original statement might have meant

It is important to accurately represent what people are intending to say. If they intend to say something that turns out to be false or inconsistent, they are being false or inconsistent, and that is that. It's their confusion, not yours. But what do you do when faced with a statement that is blatantly inconsistent? For example, suppose a friend of yours says, "I don't believe in God's existence; nevertheless, God exists." Perhaps your friend intended to say something consistent, so you ask yourself, "What else could the sentence mean?" Maybe (but just maybe) it means "I find it hard to believe in God's existence; nevertheless, I actually do believe in

God's existence." That would not be inconsistent. When you are in doubt about apparent inconsistencies or weirdness, ask the speaker to clarify, if you can. The burden is on the speaker not to confuse you.

Tension may occur between the principles of fidelity and charity. To maintain fidelity, the analyst will say that a sentence that appears to make a false statement is in fact false, yet to be charitable the analyst will try to find a way to interpret it to be true. Consequently, applying the principles is an art that requires a delicate sensitivity.

? Exercise 4.1.1.1

Applying the principles of charity and fidelity to the sentence "The musician Tommy Tutone is dead, but alive," it would be best to say what?

- a. Tommy Tutone is probably not a musician but a detergent.
- b. "Dead" means "not alive."
- c. "Alive" means "his music is still listened to."
- d. There are some people who are biologically both dead and alive.
- e. If a person is dead, then the person cannot be a musician.

Answer

Answer (c). If you say that a person is physically dead but that his music is still listened to, you are not being inconsistent. Answer (a) also is consistent, but that answer violates the principle of fidelity

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4.1.2: When Should You Accept Unusual Statements?

We all know that observations are not infallible. In ancient Egypt at the time of the pharaohs and their pyramids, a group of magicians would walk into the marketplace and begin displaying their powers. The lead magician would hold up a walking stick that had been carved in the shape of a snake and pass it around the audience. Soon after getting it back, the magician would hold up the stick, call on the supernatural powers of the Egyptian gods, and throw the stick on the ground. There the stick would turn into a live snake and crawl away into the crowd, leaving the audience stunned and even more in awe of the power of the pharaoh and his magicians.

Did the stick really turn into a snake? "No, that's impossible," you are apt to say, "because it's got to be a trick." That is right. Unknown to most people, there is a certain Egyptian snake that can be temporarily paralyzed by applying well-placed pressure to the back of its neck. A physical shock to its head can un-paralyze it. The lead magician's stick looked like this snake. After the stick had been passed around and while other magicians were performing other tricks, the lead magician switched sticks with a magician who had been carrying the paralyzed snake. When the lead magician threw the snake down head first, it woke up and crawled away—naturally, not supernaturally.

The magician's audience accepted the performance as a straightforward demonstration of the powers of magic and the supernatural. The typical Egyptian did not approach the demonstration with the critical attitude of the modern logical reasoner. Instead, he or she was more gullible and already predisposed to accept supernatural explanations for surprising phenomena. A logical reasoner such as yourself would demand better evidence before accepting the magician's explanations, because you have a better feeling for what is a likely explanation and what is not. You know that it's more probable that sleight of hand is behind the snake trick or that some natural but little-known phenomenon is the secret.

Being logical requires the ability to identify strange events, and it requires a knowledge of the best way to go about explaining why the events appear to be happening. A strange event is an improbable one, and probability is **always assessed against a base of background knowledge and available evidence**. Strange events or statements are improbable because they conflict with what else you believe.

The core of background knowledge that you use in making judgments of improbability is called **common sense**. It is the knowledge that most of us acquire in the normal process of growing up in our society, that cars need a steering wheel, that sticks don't become snakes, and all that. The common sense of today's logical reasoner is quite different from the common sense of the ancient Egyptian.

Because of your common sense, you probably won't believe an email from Nigeria offering to pay you to help launder some money, and you wouldn't believe the following headline if it were to appear in a supermarket tabloid:

DYING MAN'S BRAIN PUT IN COMA WOMAN

You probably know a few people who could use a good brain transplant. The gullible person will buy the newspaper to learn more details about the world's first successful brain snatch. However, you as a logical reasoner will first ask yourself, "Why am I finding out about this in the supermarket checkout line?" If it is true, why haven't you heard about it on the TV news, or from your friends? This headline is inconsistent with your background knowledge about the state of medicine today. You don't have to be a doctor to know that brain transplants have yet to be attempted. At most, small bits of brain tissue have been transplanted. If a brain transplant were even going to be attempted, there would have been a lot of advance publicity. A person who did not know these facts of medicine could easily be conned by the headline. For the rest of us, the most it should do is sensitize us to noticing whether other newspapers or the TV news mention any recent brain transplant attempts. Reading the article in the tabloid would be unlikely to provide the logical reasoner with any good reason to believe the original headline.

Acceptance is a matter of degree. Even for claims you accept, you will accept some more strongly than others.

Can you spot the faulty assumption underlying the following word problem in this fifth-grade mathematics book? Look at it from the perspective of a book editor who is trying to decide whether to publish the book and is checking the quality of the math problems.

Dr. Richard Feynman and his daughter Melissa visit a glass factory that makes marbles. Marbles are stored in different colored bins, and there are signs about the colors and temperatures of the marbles:

green bin marbles: 215 degrees
yellow bin marbles: 150 degrees
blue bin marbles: 70 degrees.

Melissa collects one marble from the green bin and three from the yellow bin. Richard collects one marble from the blue bin and two from the green bin. What is the total of the temperatures of the marbles collected by the father and daughter?

This is a very strange question, isn't it? The ridiculous assumption is that adding these temperatures gives a total worth knowing.

The critical thinker, unlike the naive thinker, is on guard against accepting stupid assumptions. Yet there are situations in which, even though they are ridiculous, you might still need to accept them, at least temporarily. For example, if you are a student in an arithmetic class, and your teacher seems to be serious about wanting you to answer the question above about adding the temperatures of marbles, then you apply your critical thinking skills and think, "OK, it's a dumb question, but I'll do the math computation and get the right answer."

We are continually asked to accept assumptions in arguments, definitions, explanations, and interpretations of the world around us. As critical thinkers, we need to be aware of those assumptions and consider whether we really want to make them.

? Exercise 4.1.2.1

Suppose you are having dinner with a married couple from your apartment building. You pass the husband the rice, but he declines and says he doesn't like to eat rice because this was almost the only thing he had to eat for a month while he was captured and held as a P.O.W. (prisoner of war) in the last war. That's an understandable reason to avoid rice, but then his wife comments that she doesn't like to eat rice because she was force fed rice while kidnapped by space aliens. Oops! When you laugh, and she responds that she's not kidding and that four years ago she was captured and held for three days in an alien spaceship that was hiding in a trench in the middle of the Pacific Ocean, then what should you think? You probably should think that she's a little crazy or very foolish. Why are you justified in making this evaluation of your neighbor?

Answer

First off, her claim about kidnapping by aliens from outer space is an extraordinary claim. Really odd. Common sense says that no one has ever been kidnapped by space aliens. If someone actually were, it would be the biggest news you've ever heard in your life, and everyone you've ever met would know about it, even if the abduction were to have occurred in some obscure country. The experts all say that creatures from outer space have never visited our planet. There's no evidence, and all significant claims that it occurred did not check out. They say serious claims of alien abduction are just the product of foolish misunderstanding or an insane mind. So, that's why it's perfectly OK to evaluate your neighbor as being a little crazy or very foolish. Yes, you have to be open to the possibility that she has access to information that no one else has, but the burden of proof is on her to produce extraordinarily good evidence that what she's saying is correct. Her passing a lie detector test wouldn't count as good evidence, would it?

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4.1.3: Assessing a Source's Credibility

Our most reliable source of information is our own observations, but when these are not available, then we turn to other sources of information. When we don't have access ourselves to information about whether a claim is credible, we can look at the source of the claim, at where it's coming from, at who's saying we should believe it. Some sources are more credible than others.

If the claim is not unusual and it comes from someone you have a reason to trust, then go ahead and believe it. If your friend says he ran out of gas in his car last week, then go ahead and believe it. It is not always unwise to accept unsupported claims if they are not extraordinary and nothing much turns on whether you believe it or not. But if he says he met the Prime Minister of England last week and was invited to speak at a session of their Parliament next Monday, then ask for more evidence before you believe this unusual claim very strongly.

The Weekly World News, The Star, and The National Enquirer, are popular tabloids whose headlines shout out from the racks near the checkout lines of supermarkets and drug stores. Too often they will exaggerate their stories and will print almost anything anybody says, so long as it is entertaining. They will portray the stories as being true without checking whether they are. The editor of the Weekly World News, when asked about the reliability of the stories he prints, admitted this when he said, "Of course we are skeptical about some of the stories, but we wouldn't question ourselves out of a story, particularly when it has no health-related ramifications." The editor added, "If we got a fellow who said he was taken aboard a UFO, for instance, we would really see no reason to check it out if it was entertaining, a good story. If we did some probing, we could find out that he'd been in a mental hospital for the past 60 days and then [have to] kill the story." When the reporters locate a person who calls himself or herself an "expert on UFOs," the reporters are not apt to question the person's credentials and will merely report that "experts on these matters have said...."¹

Tabloids are notorious for trying to convince readers by appeal to **anecdotes**. Anecdotes are reports of individuals' own experiences. There is nothing wrong with gathering information from individuals, but a few unsystematically acquired anecdotes do not constitute a scientific proof. For example, Lupe says to you, "Forget about seatbelts. They do more harm than good. I was in a car accident once, and the doctor said it was lucky that I wasn't wearing one. If I had been wearing one, I would have been burned up with the car. Instead I was thrown through the windshield and only broke my neck and back." This anecdote may support the generalization that car seatbelts shouldn't be used, but it cannot stand up to statistics showing that, overall, people with seatbelts suffer fewer injuries. It is understandable that you might want to pay more attention to your friend Lupe than to some statistical report from people you do not know, but it is more reasonable to pay attention to the statistics. By the same token, if Lupe had asked her doctor, no doubt the doctor would have said she was lucky not to have had the seatbelt buckled in this special case but that in the future she should buckle up. The doctor's own views about seatbelts will probably have been acquired by paying attention to the statistics, not to the anecdotes of his own few patients.

Although the "coma woman" headline in the Weekly World News isn't a good enough reason for you to change your beliefs about brain transplanting, the same headline in more reputable publications should cause you to change your beliefs. The same information backed up by a "Yes, it's true" comment from your doctor, also would be a good reason to believe the story.

Some of our most valuable knowledge is knowledge about which sources are credible sources and which are not.

Let's consider a more credible source of information than a grocery store tabloid, namely the president of the United States. How credible is the president when he tells you something? Well, it depends on what he tells you, doesn't it? If he says Manila in the Philippines has just suffered a 7.0 earthquake, then he's a very credible source of information. If he says the candidate from the opposition party doesn't deserve your vote, he is a much less credible source of information.

Most people think their own observations are a completely reliable source of information. If you saw it, then it's so, right? Not necessarily. Think about magicians and optical illusions. And then there's always the problem of faulty memory. When James says he remembers shaking the hand of the president when he was four years old, does the adult James really remember shaking the hand of the president when he was four years old, or does James just remember being told that he did? Sometimes what someone wishes to be true can affect what they observe as when they report observing the Madame at the séance talking to their recently

deceased grandmother. Memories can be tricky. Logical reasoners know that there's always some small possibility that what they remember observing may not be quite as they remember it.

When you assess a person's credibility as, say, an expert on tropical medicine, you'll not want to make this judgment on the basis of whether they are friendly and smile and give you eye contact and a sincere handshake. That's irrelevant to whether they can speak reliably about tropical medicine, but it's not irrelevant to whether you want to invite the person to lunch tomorrow. If your local doctor were to say, "She is an expert on tropical medicine," that would be much more helpful to you than your noticing that she has a copy of *The Journal of Tropical Medicine* in her hand. Of course, if you were to find out that this copy contained an article written by her, then that would go a long way in telling you she really is an expert and should be trusted when she is speaking about tropical medicine.

But be cautious. Many TV viewers were convinced by this remark in the commercials: "More doctors smoke Camels than any other cigarette." The implicit conclusion is that Camels are safe to smoke.

? Exercise 4.1.3.1

If you wanted to know whether electricity will flow through certain kinds of plastic, who would be the most credible source of information?

- a. A friend of yours who has invented and patented three kinds of plastic toys.
- b. The county librarian who specializes in government documents.
- c. A professional proofreader who has just worked on a new textbook about plastics and electricity.
- d. Your neighbor who is an electrical engineer.
- e. The sales representative of the largest plastics manufacturer in your state.

Answer

Answer (d). The electrical engineer would be required to learn this sort of thing as part of his or her professional training. Proofreaders need not know anything about what they are reading. Librarians might be able to find the right book, but they themselves wouldn't necessarily be able to understand the book. The inventor might know about electrical flow in some plastics used in some plug-in toys, but the inventor would look to an electrical engineer for advice.

Logical reasoners discriminate among sources of information. They trust information from a reputable scientific journal over information from a daily newspaper. They trust the newspaper over their neighbor. Here is a ranking; they trust *The New York Times*, *The Wall Street Journal*, *The Washington Post*, *The Los Angeles Times*, and perhaps *Newsweek* magazine, followed by network TV news, the local daily paper, and then local TV stations. They are cautious about believing TV docudramas, political blogs and even their friends' tweets, and even less so do they trust grocery store tabloids and political leaflets left at their front door.

¹ From Eddie Clontz, Reuters dispatch, reprinted in *The Sacramento Bee* newspaper, November 26, 1988, p. A2.

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4.1.4: Seeking a Second Opinion

Suppose you see this headline in the Weekly World News: "Tot Falls 5,000 Feet and Lives!" Should you believe it? Well, that depends on what it means. Does it mean that the tot fell from a plane without a parachute? If so, you'd expect this stunt tot to be a flat tot, wouldn't you? But maybe the tot did have a parachute. If so, the story could well be true. When you see such a headline, you are sensitized, or should become sensitized, to wonder whether some crucial information has been left out.

Even if you were to stop and read the story and find out that the tot did not have a parachute but still lived, you should be cautious about believing it because your common sense says this feat is highly improbable. Before you put much faith in a story like this, you should get some independent verification. That is, you should get a reliable second opinion that supports the story.

What is a reliable second opinion? An expert's opinion would be one. Getting the information from an independent, credible source will help with the reliability. For example, the opinion of an eyewitness interviewed by your local newspaper's reporter, and not by the supermarket tabloid's reporter, should be a good enough second opinion for you to believe the story about the tot's fall. A videotape would also be independent verification. Remember, though, that the more improbable the belief you are considering adopting, the better the evidence has to be. Without the better evidence, then your belief should be lukewarm. A video camera file can be doctored; even three eyewitnesses sometimes can be mistaken about interpreting what they saw. There are videotapes and eyewitnesses who have seen a sea monster in Loch Ness in Scotland, but the experts still believe there is no sea monster there.

Three testimonials of UFOs from members of the UFO Society should be given considerably less credibility than testimonials from three independent people who have no special interest in promoting UFOs.

Time is also an important factor. Verifying the falling tot story is much easier than verifying whether St. Matthew wrote down the Gospel while visiting Mt. Ararat two thousand years ago. Verifying current events is easier than verifying most historical events, because the trail isn't so cold. There are more traces of current events, more eyewitnesses, more available data, more evidence to find, less need to rely on faith.

Suppose the following were another headline from the Weekly World News:

**CASHIER FIRED BECAUSE OF HER BIG BUST
WINS BACK PAY**

Is this headline inconsistent with anything you know? No, and it is not especially improbable, only mildly surprising. So you should believe the headline. It is unlikely that the newspaper is wrong about everything. Still, the tabloid is not a sufficiently reliable source for you to believe anything of importance without first checking elsewhere. If it were important to you to get the facts right about the big bust story, you should not rely solely on this paper's report. Try harder to verify it. Get more information from more reliable and independent sources. Would six more copies of the same issue of the Weekly World News make the story six times more likely to be true?

In 2016, the Stanford University History Education Group published their study of whether American high school students could assess the strength of the evidence offered in support of a news story. Here is one of their famous examples. The students were informed that on March 11, 2011, there was a large nuclear disaster at the Fukushima Daiichi Nuclear Power Plant in Japan. The students were then told that four years later the following image of misshapen flowers with the accompanying comment was posted on a public photo sharing website:

Fukushima Nuclear Flowers

Not much more to say, this is what happens when flowers get nuclear birth defects.

The Stanford Group asked high school students to assess whether the post is strong evidence of Fukushima Daiichi causing an environmental problem. Too many students said it was. Only 20% of the students viewing the picture thought to ask whether the picture was really from that area of Japan or even from Japan at all, how it was determined that nuclear radiation caused the unusual shape, or whether there are flowers like this at places far from nuclear power plants. In short, too many high school students were uncritical thinkers.

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4.1.5: Trust Me, I Know It on Good Authority

When a woman says you should believe her because she knows it on good authority, you need to mentally ask yourself these four questions. If you get the right answers, then it is OK to believe her.

- Is her authority, an authority on the proper subject?
- Would she know if the authorities disagreed on this subject?
- Can you trust her to have quoted the authority correctly?
- Can the authority be trusted to have told her the truth?

The Defense Minister of Iran may be the world's best authority on whether his country is stockpiling bio-terror weapons, but he may also be the last person to tell the truth about the weapons.

If you get yes answers to your four questions, then you should believe what she has to say, and you are justified in saying you know it, too. Too often you have to answer one of the questions with “I don’t know,” and then you should withhold your belief in what she says or else believe it only tentatively until you can get your questions answered.

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4.1.6: Suspending Belief

When it comes to improbable claims, the first principle is that the burden of proof in producing the good evidence is on the shoulders of whoever makes the claim or adopts the belief. If you decide to adopt a belief, you should have found enough evidence to justify your doing so. It is not good enough to say, "Well, it's never been proved false, so I believe it." Without the evidence, you should suspend your belief. That is, if you are in a situation in which somebody makes an improbable claim but doesn't supply good evidence to back it up, don't believe it until somebody gives you enough evidence or until you get it for yourself. Don't believe it even if you might like to believe it. I'd like to believe that my sweet Aunt Emma is telling me the truth when she introduces her new friends as aliens from beyond our galaxy, but rationally I should not believe her until they show me some ID.

Just kidding. If someone says, "I saw a green alien from outer space," you properly should ask for some proof. If the person responds with, "Prove I didn't," then they are not accepting their burden of proof and are improperly trying to place it on your shoulders. This kind of error in reasoning is called the "fallacy of misplaced burden of proof."

? Exercise 4.1.6.1

Here are three reports from a friend of yours, Ramone let's say. All are bizarre, but some are more improbable than others. Which report is the most improbable, and why? The focus of these questions is not on whether Ramone is being truthful but on whether what he says is actually true.

1. I saw my uncle die because he threw salt on the ground. He did it when he and I were camping. My grandmother told us never to throw salt away or else something bad would happen soon. The very next day after the camping trip he was hit by that truck on the freeway.
2. Hey, you won't believe this. Less than ten minutes ago, I saw Mary, the one who moved away to Germany last year. Remember she went to be a gymnastics coach in Berlin? Well, she was running into the grocery store as I drove past on the freeway. She's changed a lot. She looks ten years older, and she has a plastic, prosthetic leg.
3. I swear it's true. The president of the United States called at 3 a.m. this morning. He asked me to join the Defense Intelligence Agency and spy on Bulgarian businessmen visiting Toronto. What a surprise; I've never done any spying in my life, and I don't even know where Bulgaria is. I'm just a shoe salesman, but today is my special day. My brother Bill was home when he called. Ask him.

Answer

Answer (a) is the strangest. Although all three stories are unusual, the spy story and the plastic leg story are not as unusual as the salt story because the salt story violates our basic understanding about what can cause what in the world; the spy story and the plastic leg story are merely about unusual human actions. Answer (a) is unlikely because our background knowledge about what causes death tells us that throwing salt isn't the kind of thing that will easily hurt anybody. Regarding (b), Ramone probably didn't get a very good look at Mary if he was zipping by on the freeway and Mary was running, but this event is not as impossible as a death caused by salt thrown down on the ground the day before. Mary's return from Germany would not be that big of a deal; people do change their plans. Losing her leg could have caused her to lose the gymnastics coaching job. The remark about Mary running with a plastic leg is odd. Answer (c) is probably an unreliable report, too. If spy agencies want someone to spy for them, they don't usually call on the phone, they don't give the candidate a specific assignment without first making sure he (or she) can keep his mouth shut, and they don't have the president make the call. So this whole story is very unusual. Ramone is joking, or he takes you for a fool. His brother is probably in on the joke, or else he is naive

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4.1.7: Getting Solid Information about Whom to Vote For

A leaflet shows up in your apartment mailbox a week before the election. It says, "David Marr will be the ONE judge accountable to the people, not the politicians." The flyer says Marr will be a "judge for the people" and that "YOU should decide who serves in this courthouse." On the basis of this solid information, you are ready to vote for or against David Marr. Wait, there's more. The leaflet contains two pictures of him smiling. OK, now you are ready to vote. Hmmm.

Suppose an election is coming up and you want to make an informed choice about the ballot measures and candidates. How do you do it? You might ask your parents or friends for advice, then follow their recommendations if they agree. But if you want to think things through for yourself, you should seek out other sources of information. Would it help to reserve one evening before the election and sit down with all the campaign leaflets you have collected during the previous month? If you use these leaflets to figure out who stands where on the issues, you will get frustrated. All candidates sound good, too good, in their own literature. You won't even be able to figure out what the important issues are this way, although you may get some inkling when one candidate's literature attacks the opposition. The government's voter pamphlets that are mailed free to all registered voters can be more helpful. They let the candidates speak to whatever issues they desire, and the statements are fairly informative, given their short length.

Are there better sources of information? Yes. Consider television, their news, not their ads. The advantage of TV is that you can see the candidate in action and get some emotional connection. TV information comes in two forms: paid ads and news. The paid TV advertisement is mostly junk food for the eye and mind—fast and appealing, but nutritionally barren. In fact, the techniques used to sell senators are practically the same as those used to sell soft drinks. Any political advertiser worth a sound bite is aiming for your heart strings.

Commenting on this point, President Nixon's advisor William Gavin wrote, "Voters are basically lazy, basically uninterested in making an effort to understand what we're talking about." In another memo he said,

Reason requires a higher degree of discipline, of concentration; impression is easier. Reason pushes the viewer back, it assaults him, it demands that he agree or disagree; impression can envelop him, invite him in, without making an intellectual demand.... When we argue with him, we demand that he make the effort of replying. We seek to engage his intellect, and for most people this is the most difficult work of all. The emotions are more easily roused, closer to the surface, more malleable.¹

TV news is a better source of political information than TV ads—which is not to say it is a good source. It's more nutritional, but still junk food. The average bloc of uninterrupted speech by presidential candidates in the TV news is only ten seconds. Ten seconds is enough time for a slogan, but not enough for thoughtful argumentation. TV commentators use these ten-second "sound bites" of the candidate to provide flavor, although they know it is not much information. Commentators believe they can say it better than the candidate; they give themselves a good twenty seconds, and the candidate ten. Their primary fear is that the public, with its short attention span, will click the channel changer once the candidate starts going on and on.

The big-budget campaign managers know the territory. For example, they may have crafted an excellent strategy for getting their candidate on TV without the candidate having to answer tough questions. Suppose a TV station has a well-informed reporter who knows just what hard-ball questions to ask, given the chance. When the campaign manager learns that particular reporter is out in the field covering some event, the campaign manager calls the station manager to say that the candidate is nearby and can be at the station in 15 minutes. The station manager cannot resist the opportunity. He calls over to his news staff and says, "Andy, get ready; you're on in 15 minutes in a one-on-one with the senator." This reporter in the station will be more apt to treat the senator as a visiting dignitary and will throw more softball questions and fewer of the hardball questions than the well-informed reporter would have. In the next news broadcast an hour or so later, the senator probably will look great during those crucial ten seconds. Another victory for the campaign manager and another loss for the viewing public.

TV news is dangerous for the public in other ways. After having watched nightly news stories about a candidate, too many viewers falsely believe they know enough to make a decent choice.

TV occasionally does provide high-quality reporting; but watch out for the ordinary TV news.

OK, if you can't rely on the ordinary TV news you are most apt to watch, how about the newspaper? There you go. But what part of the newspaper? How about the list of recommendations in the newspaper's editorial page? This list usually appears in the days before the election. To be safe in adopting your paper's recommendations, you need to know the political ideology of the publisher

that drives the recommendation process. Is your ideology the same as his or hers? Can you read a newspaper and figure out its ideology? That takes a great deal of skill. Better to ask someone who knows more about this than you do.

Like computer blogs, the newspaper columns written with a columnist's byline are another source of information. The writer of a newspaper column is like an editorial writer—opinions can be mixed in with the facts. Libel laws are looser for columnists; often they can get away with saying what a regular news story cannot. Columns can be helpful sources of information if the columnist is careful to give reasons for his or her opinions and is careful to distinguish the reasons from the opinions. The problem with editorials and columns that offer advice is that even if they give you reasons for the advice, you always have to worry that they are covering up other reasons that weigh against their advice.

New stories, on the other hand, are supposed to be more sanitized, cleansed of opinions, full of facts, and more reliable. Very often they are. The best news stories are usually the ones that appear early in the campaign. In these, the writers interview the candidates and probe for positions on the important campaign issues. Writers of these early stories are usually the best informed of all the reporters on a newspaper's staff. Early on, the candidate isn't slinging so much mud and is trying to show the highly politicized voters, especially those who give campaign contributions or volunteer in campaigns, that he or she has significant positions on key issues and is a credible candidate. Later in the campaign, the atmosphere changes. The least politicized voters, those who are undecided as the election nears and those whose decision to vote for a candidate or ballot measure could be easily changed, are the primary target of the bulk of the campaign's media blitz. For these voters, the campaign will create short, memorable slogans plus blasts at the opposition. The newspapers (and web pages) then react and give primary attention to these slogans, to the mudslinging, and to the rise and fall of the polls. The issues take a back-burner.

When Arkansas Governor Bill Clinton was campaigning for the U.S. presidency, much of the early coverage of his campaign was about whether he had slept with a woman who had been paid for her story to appear on the front page of a supermarket tabloid. The average voter kept thinking, "I want to hear about the issues," but the news reporters kept covering the sex angle. "This is all inane, stupid and insulting, and I hope the American people jam it down you-all's throat," said Bob Slagle, the chairman of the Democratic Party in Texas, when speaking to the press. "The national press corps is acting like a common street gossip in a small town." Meanwhile, the nation's top newspapers were trying to set things straight. On the same day, The Boston Globe's frontpage headline said, "Poll Shows Clinton's Lead Undiminished," while across town The Boston Herald's main headline said, "Clinton on the Run." Each paper frames the issues according to its publisher's politics. We get inconsistent headlines. So, we voters have a tough time, don't we?

The searching reader will have to look back on page fourteen in the newspaper for any in-depth reporting of the issues, and, even then, we readers need to be aware that story placement can be affected by the paper's editorial policy. Busy readers usually read only the headlines, and a story's favorable treatment of a candidate can be torpedoed by an editor's unfavorable headline, regardless of what the reporter put into the story.

Other significant barriers block the sincere, interested reader who tries to use news stories as a source of information. Reporters too often fail to write stories that take the trouble to explain the issues, and it's not just that those stories aren't viewed by readers and editors as sufficiently entertaining. Explaining the news is harder work than simply stating what is new—the news. Also, there is little reward for writing in-depth reports. The reporter rarely gets a pat on the back from fellow reporters with the accompanying remark, "Beautiful piece of writing." There is no glamour in this part of the business.

In addition, a different factor obscures the public's vision of what is going on. The reporter's notion of objectivity gets in the way. When there are two candidates in an election, reporters often believe they must give equal weight and equal column space to both sides. The idea is to present the facts, then back off and let the voters decide for themselves. Unfortunately, this notion of fairness gets in the way when a campaign gets dirty and one candidate starts making false accusations about the opponent. The reporter sees what is going on but rarely will tell the public directly. Instead, when the attacked candidate tries to respond and say that the accusations are not true, the reporter will treat this reaction on a par with the smears themselves and will run the story with a headline "Mud flies," falsely suggesting to the public that both sides are engaging in negative campaigning. Paul Krugman once joked that "if one party declared that the earth was flat, the headlines would read Views Differ on Shape of Planet." The reporters are reluctant to tell what is really going on because they believe doing so would be putting their own judgment into a story, which it would be. However, the reporters often really are the only experts in touch with the readers, so if the experts won't tell the readers what is really going on, who will? Perhaps that is where the columnists and editors come in. Hmmm.

All in all, though, more good information is available than we are likely to take the trouble to use. The five best sources of information, not ranked in order of importance, are (1) the newspaper stories and magazine articles that profile the candidates and discuss the issues long before election day; (2) government voter pamphlets; (3) extended TV news programs; (4) public debates (but not the thirty-second TV summaries of the debates); and (5) the arguments of editors, columnists, and well-informed friends. All these are better than TV ads, campaign leaflets, blog entries, and sound bites on the ordinary TV news.

¹ From “The Lie Factory” How Politics Became a Business” by Jill Lepore, The New Yorker, September 24, 2012, p. 59.

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4.1.8: Fake News and Misinformation

Too often what looks like news is not news. It has been faked, and we have been misinformed. Someone wants us to believe it even though they know it is not true. We critical thinkers, need to keep up our defenses and not be naïve.

. This was published as a news photo,
but the original photo did not contain a flag.

In Chicago back in 2017, four black teenagers kidnapped and tortured a white teenager. Although the teenagers who committed this terrible act had no connection to the organization Black Lives Matter, an opponent of that organization quickly created a social network posting with the hashtag #BLMKidnapping about how the organization kidnapped and tortured a white person in Chicago. This led to a very large conversation about the topic, and the size of the conversation led other news organizations to repeat the claim that Black Lives Matter was thought to be involved. Repeating misinformation in new places made the misinformation more believable to many persons. The high interest in the story became news itself. Comments that BLM might not have been involved were little noticed among the noise in the tweetstorm. In fact, BLM was not involved.

Misinformation goes beyond the occasional hoax. It is a systematic attack on our brains. We critical thinkers seek the news, not the fake news. It is not always easy for us to tell the difference, but the more we know about fake news and how it is created, and the more pro-active we are, the easier it will be for us.

? Exercise 4.1.8.1

Here is a critical thinking question about the following newspaper report.

In May 2016, a Facebook page called Heart of Texas urged its nearly 254,000 followers to rise up against what it considered to be an urgent cultural menace. A mosque in Houston (Texas) had opened up a new library, and Heart of Texas planned to protest. "Stop Islamization of Texas," it warned.

Word of the protest spread quickly, but supporters of the mosque were also ready to mobilize. "Bigots are planning to intimidate through weaponized fear this Saturday at noon," one of them wrote on Reddit. The post linked to a Facebook page for United Muslims of America, a group that said it was planning a counter-protest for the same time and place.

...Heart of Texas wasn't a real group, as Business Insider later reported. United Muslims of America is a real organization, but the Facebook page promoting the counter-protest was not run by the actual group, as The Daily Beast found. Instead, according to documents made public last week by the Senate Intelligence Committee, both the pro- and anti-mosque protests had been planned and promoted by Russian trolls.

...A few dozen real Americans did protest that Saturday in Houston. videos of the protest show real emotion—people on opposite sides of the street screaming, swearing and truly angry to have to share the country with the bozos on the other side.

...In response to Heart of Texas' "Stop Islamization" post, a Facebook user upset with the Houston mosque posted a comment suggesting that it be blown up.

—By Farhad Manjoo, "The Drama of Reality TV, Brought to You by Russia," The New York Times, November 9, 2017, pp. B1 and B9. Photo by Jon Shapley, Houston Chronicle.

Trolls are people paid to spread comments on social media platforms such as Facebook. Now for the question about all this: Were news reports of the feelings of the Houston demonstrators an example of fake news?

a. yes b. no

Answer

No, the protesters' actions and emotions were genuine. What was fake news were the postings by the Russian trolls who were engaged in an online disinformation campaign. It is a cost-effective strategy for Russia, says U.S. Senator Angus Stanley King, Jr. of Maine: "For the price of one F-35 airplane, the Russians can hire 5,000 hackers."

We learned today that the Jefferson County sheriff is part owner of a brothel in nearby South Chesterton, and he seems to be behind the training of high school girls to be prostitutes. Now he's running for Congress. No surprise that the Democratic Party is funding

his campaign. Oh, I forgot to mention that a manager of Burger Queen in Florida admitted that her company has been using 20% Vietnam dog meat and 5% Kenya zebra meat in all its burgers. Not just this year, but for the last twenty years! Yuk!

Interesting? Yes. True? No. Tweets with false news spread faster and spread to more people than real news, according to researchers at the Massachusetts Institute of Technology Media Lab who did a large study of Twitter stories spanning 2006 to 2017. "It's sort of disheartening at first to realize how much we humans are responsible," said Sinan Aral, a professor at the M.I.T. Sloan School of Management and an author of the study. His point: we humans are inclined to prefer false news to real news. To quote from this study by the M.I.T. researchers,

The data comprise ~126,000 stories tweeted by ~3 million people more than 4.5 million times. We classified news as true or false using information from six independent fact-checking organizations that exhibited 95 to 98% agreement on the classifications. Falsehood diffused significantly farther, faster, deeper, and more broadly than the truth in all categories of information, and the effects were more pronounced for false political news.

- "The Spread of True and False News Online," by Vosoughi, Roy, and Aral, *Science*, 09 Mar 2018, page 1146.

Real news tends to be less interesting than fake news. It's exciting to read that a famous sports star burned the American flag in the locker room and the Secretary of State had a pedophilia group hidden in a room in a pizza restaurant. Interesting but fake.

If you cannot quickly sort the real from the fake because it is not about your area of expertise, then you are apt to look for help. Most persons do not know an expert who can tell the difference between genuine and fake, so they usually look to the groups they already identify with for what to believe about a story. They ask, "What are my people saying about this?" or "What do the places I trust say about it?" Most persons will not check for themselves. Who has the time? The powers behind the fake news know this, and they exploit it. They design fake news that is especially interesting to special groups of social media users, news that the users would wish were true. Who doesn't want their enemy to look bad?

The most effective creator of fake news is someone who successfully slips fake news in among the genuine news at news sites. News sites sometimes find the news for themselves, but because doing original journalistic research is expensive, very often a news site will pick up news from another news site and publish it on their own site. In this way a fake news story that was embedded into one of those news sites will more likely to spread across the news media, and occasionally to news sites we, or "our people," use and trust.

Luckily for us critical thinkers, the very best sources of news have their own defenses up and do not re-broadcast fake news. At the very least they will precede the news item with the phrase, "According to so and so," or "As reported in...." Also, they will be clear about when they are offering news and when they are offering advertising and when they are offering more disguised advertising that is usually called "sponsored content." Ads do not come to us with a tag that says, "Hey, I am an ad," do they? So, it takes some critical thinking to separate them from the news.

Think about that last Twitter message you read. How do you know whether it came from a real human user or from a re-tweeting bot [that is, a software robot, an automated account] that automatically generates spam to make an issue seem to be more popular than it really is? A bot can turn a minor hashtag into a trending hashtag that catches the eye of journalists who re-mention the issue on more mainstream news sites. A trending item is one that gets the clicks, and the trending items spread more easily to a bigger audience. The bot-maker thinks, "Create a trend, and you create believers."

Here are some very unreliable sources of information in the United States: the newspaper *National Enquirer*, the newspaper *Weekly World News*, and the website *World News Daily Report*. Here are some very reliable sources of information: peer-reviewed scientific journals, the magazine *The Economist*, and these four daily newspapers: *The Wall Street Journal*, *The New York Times*, *The Los Angeles Times*, and *The Washington Post*. There are, of course, many reliable sources of information that are not American. "Peer reviewed" means that other experts in the relevant field act as referees who must approve in advance the publication of the article. The best peer reviewing is via blind refereeing, which means that, during the referee process or decision process about whether to publish, the author is never told the names of the referees, and the referees are never told the name of the author. This promotes objectivity. Unfortunately, no method will absolutely guarantee objectivity.

Why should Americans believe that their traditional news organizations are trustworthy? The reporter Steve Inskeep at National Public Radio answered this question:

Many news organizations produce stories that are checked before publication. Others don't. It's a big deal. Hiring an editorial staff shows the publication's respect for you.... The *New York Times* and the *Wall Street Journal*, for example, have different owners, audiences, stories, perspectives and obsessions. Both have made mistakes and omissions; but both send reporters out into the world

and back them up with an editorial process that catches and corrects many errors. This means both can be informative, regardless of your politics or theirs.

When we say a traditional news source backs up its reporters with an editorial process that catches errors, what does this mean? It means that the editors press their reporters to double check the reports, and it means the editors recommend the reporter get at least a second, independent source for any unusual claims about situations that the reporter is not a direct witness to. Unlike so many blogs, the mainstream news organizations employ professionals who are devoted to separating fact from fiction. And for them, making up sources is a great sin.

We critical thinkers need to be alert to the difference between claims that are backed up by reasons and claims that are not. If we are given reasons, we should ask ourselves whether those reasons are good enough. Also, we should ask ourselves, “Am I forwarding this twitter feed to my friends because it is interesting and because I know it to be true, or only because it is interesting?” Think before pressing the “share” button. Does that tweet you received about “breaking news,” even contain a link to a credible news source, or is it just an interesting claim?

Some news stories that we suspect could be fake can be checked by us for accuracy by our visiting the websites Snopes.com or FactCheck.org or Politifact.com. They specialize in verifying which interesting news stories are true and which are misleading or totally false. Be alert that some fake news stories might say, “as verified by Snopes.com,” even though Snopes.com actually has done no such thing, and the faker is saying this just to discourage any attempt by us to do more checking.

Nobody can check regularly on hundreds of news sources, nor even read or view them. Most people will find one or two news sources they trust, and then put their investigative skills on cruise control and just absorb whatever those news sources say. This procedure can be very efficient time-wise, but it occasionally can be dangerous. We need to do our own checking once in a while, even with the news sites we usually trust, especially for the really important news that might cause us to say, “That news means my congressperson is a criminal,” or “If that’s true, then it was their country who provoked our country, not the other way around, so we need to retaliate now,” or “That means that what he did is the reason why people like me don’t have a better job.”

Unfortunately, there are news organizations who have decided that profit is their main goal and that it is more profitable to get their audience to feel informed than to be informed. As noted above, acquiring information is expensive. Having their own professional, investigative reporters rather than just writers or “news anchors” is a large, extra expense. It is much cheaper simply to re-broadcast some other organization’s news, and to re-shape it so that one’s own audience is told what to believe. The audience leaves feeling informed without being informed. We critical thinkers cannot usually spot this behavior with just a few interactions with the news organization. It takes many interactions and a great deal of sophisticated critical thinking on our part in order to tell which specific news organizations emphasize cost-effective re-shaping of news and which organizations gather news themselves or are very careful about which news sources they themselves use.

If we are checking on a political news item for ourselves, it can be helpful to see whether the item is considered to be news by sources that do not have our own politics. Regarding American TV news organizations, MSNBC is left-wing, CNN is middle of the road, and Fox News is right-wing. If all three report it, then it is probably true, but if it appears on MSNBC News, let’s say, and not Fox News, that isn’t a good reason to believe it is not true. It might be true but not be reported on by Fox simply because it is less interesting to them or goes against their politics.

It can be an eye-opening experience to see how the very same story is treated so differently by the above three news organizations. No news source is value-free. Their politics intrude in the phrasing, in what headline is chosen, and in what information is not mentioned—in how they “frame” the news.

The spread of fake news from fraudulent sources has been a problem ever since civilization began, but it is only a symptom: The larger problem is that too many people will doubt a claim simply because it does come from establishment sources—governments, scientists, daily newspapers, TV news programs—when in fact these are reliable authorities. These skeptical people are being naïve when they dismiss real news from traditional sources that are trustworthy. Their alienation from “the establishment” makes them easy receptacles for accepting fake news and rejecting real news.

On the other hand, in many countries the government is too often involved in promoting propaganda and misinformation. The government in turn pressures the newspapers and TV stations they control. If you are living in this situation, then there is good reason to be alienated from the establishment and to be less trustful of its news. Here is a BuzzFeed [link](#) to a video showing the Egyptian Minister of Culture telling a crowd that the U.S. Secretary of State Hillary Clinton admitted to creating the terrorist organization ISIS (Islamic State). Lebanese media were spreading the same story. How do you know she didn’t create ISIS? Were you there to see for yourself?

Well, you can go to [FactCheck.org](https://factcheck.org) | Search | Clinton ISIS, and read what FactCheck has to say about whether she did.

Over the years, the U.S. has had its share of corruption within its news establishment, but a smaller share than in the average country.

Critical thinkers should be on the alert for reports containing denunciations of "the right" or "the left" or "Washington" or "the media" or "their supporters." These denunciations should be viewed with suspicion and greatly discounted. Good reporters do not appeal to these vague terms and are more specific about who is making a claim about what.

To repeat the point made earlier about double checking, we critical thinkers have a responsibility to occasionally do some checking ourselves on the reporters and their sources. If we check the occasional claim by viewing the reporter's own sources for ourselves and by trying to find an independent source who covered the same issue, then we can assign more trust to this reporter in the future.

Critical thinkers should follow President Ronald Reagan's advice: "trust but verify." That is, do not always mistrust what someone says, but do demand verification of their claim before we buy it hook, line, and sinker—especially if the claim is surprising and, if we were to trust it, then we would have to reject many of our other beliefs.

A single fact seems puny compared to our ideology—the large set of our beliefs that helps define our worldview. Unfortunately, too many of us, when confronted with a fact that runs counter to our ideology, will immediately discount that fact as our opponent's partisan opinion. We will not take the trouble to do any of our own fact checking. It is always easier to hunker down secure with our ideology than to take a challenging comment seriously and check on it for ourselves.

What about confronting the person you believe is responsible for promoting fake news? This can be a dangerous thing to do depending on the political situation in which you live. In some countries you could get arrested just for confronting that person. But let's suppose you are in the United States. In the U.S., the powers behind the fake news, the people who employ bloggers and newscasters to push false news at you, never will be able to have you arrested even if they would like to, but they never will confess to what they are doing when confronted. Most likely they will ignore you. However, sometimes they will attack you. They will yell back; or, in a more public setting, instead of yelling back, they will respond in flowery, formal language such as, "It is clear that absurdity is no prohibition on the actions of you and your sources." The counter from the faker is very often to say that your facts are just partisan opinions. The faker will try to turn the tables. If that happens, you two are not having a reasoned interchange, and you probably should follow the advice of the American Revolutionary and colonist Thomas Paine:

To argue with a man who has renounced the use and authority of reason, and whose philosophy consists in holding humanity in contempt, is like administering medicine to the dead.

But if you have no effect on the faker, at least your discoveries will have a positive effect on you, yourself. You will learn better how to separate the genuine news from the fake. You will better understand that facts are something more solid than mere opinions of the people who hold microphones.

You can learn a bit about fake news by looking at the publishing situation from the perspective of the originator of the fake news. Put yourself in the shoes of the faker. Why do you produce fake news? Because you believe the end justifies the means. You believe that achieving your goal justifies using unethical methods to achieve it.

Once you have created your fake news, which is, let's say, an article smearing a political candidate who is opposed by the people who hired you, the best way to get it out there circulating among the news outlets is to send it to a news organization that has low investigative standards and that will see your story as good news, or as the sort of story that entertains their intended audience. They will accept your story without checking on it very much, so long as it seems plausible to them. Then, hopefully, other news organizations will pick up your story from that first news organization and use it for their sites. Now your story has momentum. Another successful day for you. If it goes viral, you might get a raise.

However, suppose later that some self-styled critical thinker or some other media people come back at you and demand to know your evidence. You don't have any. So, what do you do? The only rational response is to stop talking to those people, isn't it? Or you call your doctor—your spin doctor whose primary skill is deflection of criticism and counterattack against the critic.

OK, step back out of the shoes of the faker, and now ask yourself, "Would I take a high-paying job as the creator of fake news?"

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4.1.9: Review of Major Points

Most of what we can legitimately claim to know is based on what other people tell us because we have not verified the information for ourselves. Legitimacy is a matter of degree, as is the continuum from mere opinion to solid knowledge. This chapter explored these points. It clarified the principles of charity and fidelity, and it considered the intricacies of assessing unusual claims. Our judgments of improbability depend on our background knowledge and the evidence available to us. When a claim is inconsistent with our background knowledge, we judge the claim to be improbable. Our most reliable source of information is our own observations, but when these are not available, then we turn to other sources of information, preferably the reliable, popular science magazines and the traditional news sources. Usually we accept a claim based on the credibility of the sources who tell us to accept the claim. The reliability and credibility of magazines, newspapers, TV programs, and websites differ radically; with the less credible ones, we should get independent verification, a second opinion from a reliable source, before accepting any of their unusual claims. We always need to be alert for fake news. The more credible media aim to support their controversial information by getting it from two or more independent sources. The more knowledge we have, and thus the closer our body of background knowledge approaches that of the experts, the better will be our own judgments. Anecdotes of people's experiences are not as good evidence as statistical reports. When we don't have good evidence for a claim, we should suspend belief, or we should continue with our disbelief if we already have some reason to disbelieve it. Getting useful information about whom to vote for is very difficult, but we've seen a few examples that tell us what to be on the lookout for, and we've learned that news about candidates early in an election race is usually more useful than news late in the race. The facts—the objective truths—are our goal, and we critical thinkers need to be on the alert against those people who reject objectivity and see it all as a game of pushing opinions on others in an effort to be influential. This alertness demands quite a bit from us critical thinkers because we human beings are not born to be objective creatures. We need self-discipline to overcome our natural instincts to overestimate what's wrong, to attack anyone who criticizes us, and to over-rely on our gut feelings.

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4.1.10: Glossary

anecdote A report of an individual's own experience, a firsthand report.

credibility A person's credibility on some issue is their ability to offer solid grounds for deciding the issue. Credibility is a matter of degree, and it involves both the honesty of the person and how much of an expert they are.

fallacy of misplaced burden of proof Committing the error of trying to get someone else to prove you are wrong, when it is your responsibility to prove you are correct.

fake news: Non-news, especially disinformation presented as if it were news. It is either a lie or a misrepresentation of a situation.

principle of fidelity The principle requiring you to preserve the intended meaning of the speaker's original statements when you are analyzing them.

principle of charity The principle that says to interpret a claim in its best light. If it seems obviously false, try to find a re-interpretation that makes it reasonable without violating the principle of fidelity by putting words into the claimant's mouth that the claimant would not accept.

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4.1.11: Exercises

1. Do one, but only one, of the following two parts, as directed by your instructor: (a) Find an example of propaganda; say where you found it; and explain why it is propaganda. (b) Find a new example of propaganda that is not discoverable by searching the Internet for the phrase "example of propaganda;" say where you found it; and explain why it is propaganda.

■ 2. Create a single sentence that is a rewrite of the following peculiar sentence; your sentence should simultaneously apply both the principles of charity and fidelity:

The criminal trial of Amy Boycott began yesterday in Illinois and Indiana, making headlines in both states.

■ 3. Consider the following sentence: "I'm not alive today." The sentence is strange. Which of the following sentences would count as being an interpretation that applies both fidelity and charity?

I'm not alive tomorrow.

I'm alive today but not alive today.

I'm not very animated today.

I'm not under arrest today.

■ 4. If Darryl tells me his father carries a cane, and I tell Samantha that Darryl's father carries a walking stick, have I violated the principle of fidelity?

5. The statement below is apparently contradictory because it suggests that a cheetah is faster than a dog but not faster than a dog. If you wished to remove the greyhound comment while rephrasing the statement, which one of the following is the best way to do it while being charitable and using the principle of fidelity?

The cheetah is the fastest land animal even faster than a greyhound, but the cheetah in our zoo is sick and cannot run as fast as a dog.

a. All cheetahs run fast, but the cheetah in our zoo is sick and cannot run fast.

b. The average cheetah runs faster than the average of any other kind of land animal, but the cheetah in our zoo is sick and cannot run as fast as most dogs.

c. The cheetah is the fastest land animal, but not the fastest water animal or flying animal. The cheetah in our zoo is sick.

d. The cheetah is not the fastest land animal, although some are very fast, and the cheetah in our zoo is sick and cannot run as fast as a dog.

e. Some cheetahs are fast, and some are not; for example, the cheetah in our zoo is sick and cannot run as fast as a dog.

6. Create a dialogue in which the speaker clearly fails to properly apply the principle of charity. Don't mention the principle during the dialogue, but at the end identify where the failure occurs and why you are justified in saying it occurs there.

7. Visit the Internet or a local supermarket's magazine rack, or some other place, and find what you take to be the most preposterous claim you've read or heard this week (outside of this class). State the claim; and identify the source.

8. The more shocking or bizarre the claim, the more apt you should be to demand more and better evidence for it.

a. true

b. false

9. Which is more improbable, a claim that Martians are attacking Earth, or a claim that Martians are attacking Earth and that the next U.S. president will be a woman? Say why.

10. Suppose the following paragraph had appeared in a news story on the web pages of the Washington Post, the major daily newspaper of Washington, D.C. Do you have any comments? What reasons do you have for your comments? (No, you don't get any more precise directions than this. You will be graded on your depth of insight in regard to the course material as it applies here.)

A man who had been in a coma for six weeks was saved yesterday by exorcism from a demon trying to kill him. A doctor and two psychics drove the demon out of the man and into a rat, which began shrieking until it was burned to death, at which point the man stood up and began to talk normally.

■ 11. As he was standing in the grocery store checkout line, your neighbor read in a magazine (he doesn't remember which one) that farmers in West Virginia reported encountering visitors from outer space. Your neighbor asks you where he can go to find out if anybody has ever really seen extraterrestrials. Which of the following would be the most reliable source of information to recommend to your neighbor?

- a. A bestseller called *Space Creatures Terrorized My Baby!*
- b. Your uncle who has many friends in West Virginia who are farmers.
- c. A U.S. army radar screen operator.
- d. A catholic priest who recently wrote an article in *Scientific American* magazine titled "Is There Life beyond Earth?"
- e. A scriptwriter for the movie *E. T.*

12. Rank the following three headlines in order from most to least bizarre. Defend your ranking.

■ 13. Explain the point of this famous quotation by the philosopher George Santayana: "Skepticism is the chastity of the intellect."

14. Rank the following sources of information in terms of their believability or credibility in regard to whether the U.S. banking system is becoming less stable. You may need to go to outside sources to learn more about them.

- a. *Weekly World News* (weekly supermarket tabloid)
- b. Radio Baghdad (radio station in Iraq run by the Iraqi government)
- c. *The San Francisco Chronicle* (daily newspaper)
- d. *The Nation* (magazine of political analysis)
- e. *Huffington Post* (political news website)

Put the letter of the most credible source first or highest on your list.

15. Scientists generally believe that (i) there are no fire-breathing dragons or abominable snowmen and that (ii) there are no ghosts.

• a drawing of a ghost

Scientists believe this despite many reports by people claiming to have seen these unusual beings. Scientists believe one of the two much more strongly. Which one, i or ii? Why? Write a short essay explaining and defending your answer. The terms can use some clarification. Make the following assumptions. The abominable snowman is called "Bigfoot" or "Yeti" in other parts of the world. A dragon is an exotic flesh-and-blood animal that looks somewhat like a dinosaur but has special physical abilities such as the ability to fly and the ability to direct a stream of flame outward from its mouth. By the word ghost we mean the soul of a dead person that appears to the rest of us in bodily form except that it cannot be photographed and can be semitransparent.

16. Which is more improbable? (1) a claim that France will attack Canada someday next year, or (2) a claim that France will attack Canada someday next year, and that the next U.S. president will be a man.

17. You receive a telephone call on your answering machine. The speaker says he is from the online fraud department of your bank's credit card division and that there has been some trouble with your account. You are instructed to call the bank toll-free at 888-278-6424. When you phone that number, you are told that someone has charged your card for \$18,550 for a new motorcycle, and you are asked if you accept this charge. When you say you do not, you are told that because of this suspicious activity you will need to be assigned a new credit card number and will be given new cards free of charge. In order to verify your identity, you are asked to supply your home address, your social security number, your card number, and your online password. But for an extra \$6 per month you can purchase insurance against identity fraud. At this point, what should a critical thinker do?

18. You are trying to decide which computer would be best for your church to buy for keeping all its records. Rank all of the following that you might go to for advice in terms of their credibility, and include a few sentences defending your ranking.

- a. A computer column that appears in an online computer magazine.
- b. Your sister who has been a bookkeeper for her local church in Miami for four years.
- c. Your next-door neighbor who has built two computers so far as a hobby.
- d. A salesperson at a computer store.

19. On which issues below is James Shoch more or less credible as a source for you in your decisions on these issues? That is, if he were to give you his advice, how trustworthy and knowledgeable do you guess it would be? Give a 200 word or less defense of your ranking of Shoch's advice on these issues.

James Shoch is a professor in the Government Department at a state university in Northern California. His specialty is contemporary American political parties. He has a Ph.D. degree from the Massachusetts Institute of Technology and taught previously at Dartmouth College. He is the author of the books *Trading Blows: Party Competition and U.S. Trade Policy in a Globalizing Era* (University of North Carolina Press, 2000) and is a co-editor of *What's Left of the Left: Democrats and Social Democrats in Challenging Times* (Duke University Press, 2011). He has published eleven articles in academic journals on American economic, trade, and industrial policy. Over twenty-five years ago he was a political director of the activist organization Democratic Socialists of America. He has spent parts of summers in France, Italy, Sweden, Denmark, Turkey, China, and Thailand. His food column in the online culinary page *Eating without Guilt* has over a thousand readers per month. Last year he was awarded the Distinguished Teaching Award at his university, an award given to only one person per year.

- a. Whether Americans prefer Swedish-style food to Greek-style food.
- b. The extent to which the Walmart Corporation influences the balance of trade in the U. S.
- c. Whether the twenty-first century's global climate change will have more effect on the climate of North America or South America.
- d. Has the Democratic Party moved to the left since the election of Barack Obama?
- e. What is a good, cheap Italian restaurant to eat at near M.I.T. next week?
- f. Whether a syllabus in a French History course should require weekly testing of the previously assigned readings.
- g. Which candidate should you vote for in your congressional district in Los Angeles?

20. After moving into a new apartment, you notice that on weekends occasionally your electric lights flicker or slowly dim and then get brighter. You check very carefully for wiring problems and find no problems. Why wouldn't it be OK then to conclude that your apartment is haunted?

■ 21. Discuss the quality of this argument:

The prostitute said she enjoyed having sex with Mayor Smith, so Mayor Smith did have sex with the prostitute.

22. Which of these is least likely to be fake news?

- a. Non-news.
- b. A mistake made accidentally by the New York Times newspaper.
- c. Disinformation presented in the blog "Challenge to the Right" as if it were news.
- d. An intentional misrepresentation of a situation.
- e. A known falsehood about a situation that is presented by a blog in order to seem to be an objective truth.

23. Your instructor has selected five posts on Twitter, Snapchat, Instagram, WhatsApp or YouTube. (a) Rank them in order from most trustworthy to least trustworthy. (b) For which would you choose "Like"? (c) You can distinguish junk information from real information, so indicate why you ranked the posts as you did. (d) Indicate what additional information you would get before accepting various claims that were made in the posts.

24. (a) Create your own false news story that is likely to be convincing to others. (b) Your teacher might insert it among other news stories, then ask other class members to find the one that you created.

2 The criminal trial of Amy Boycott began yesterday on the border of Illinois and Indiana, making headlines in both states. This interpretation applies charity by removing the inconsistency, and it applies fidelity by not interpreting the sentence in a way that could not have been intended (as far as you can tell from the evidence available).

3 I'm not very animated today. This gives the sentence a charitable reading without saying something that wasn't meant.

4 No, because a cane is a walking stick.

8 Answer (a). The better evidence is required to overcome the initial obstacle of the claim's being so improbable

11 Answer (d). The article by the priest promises to provide solid information, unlike the sensational book about terrorizing someone's baby. There is no reason to believe that being a priest would unduly influence the author's opinions on this topic. The source of the priest's article, a reputable scientific journal, adds credibility to the priest's comments on this topic. Regarding (b), West Virginia is a big state, so your uncle is not likely to be able to put your neighbor in contact with the right farmers. Even if your uncle could, the information would be valuable only if the farmers said the whole story was false; but if the farmers said the story was true, your neighbor shouldn't accept the story so easily. Such extraordinary claims require extraordinarily good evidence—better evidence than a few stories from the farmers. If their story were backed up by independent investigators from the military

and the universities, the story would be much more likely to be true. Regarding (c), the U.S. Army radar operator is likely to have heard stories about other radar operators encountering unidentified objects on their radar screens, but nobody can look at a blip on a radar screen and tell whether it is coming from E.T. So, the best bet is the priest.

13 You can keep your body of beliefs from getting penetrated by a lot of false ideas if you are skeptical and demand decent evidence before accepting the belief.

21 It would be a mistake to say that on the basis of the information in the premises the Mayor did have sex with the prostitute. It would also be a mistake to say that on the basis of the information in the premises the Mayor did not have sex with the prostitute. A better answer would be that the premises give some evidence that the Mayor had sex with the prostitute, but it's not strong evidence because the prostitute might be lying. Better evidence would be some independent evidence such as a witness having seen the Mayor coming out of the prostitute's home at 3:00 pm when he claimed to be elsewhere. Other useful evidence would be that the prostitute has been caught lying about some of her other statements.

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SECTION OVERVIEW

4.2: Obstacles to Better Communication

This chapter is designed to reveal some of the major pitfalls in normal communication. Usually your goal is to communicate well. You want to be clear, to be precise, and to get the message across with the proper tone. But not always. There are many reasons for not wanting to directly say what you mean. That birthday present from Aunt Bessie deserves a thank you, but you don't want to tell her that the present itself is useless to you. And when you insert into your history essay the famous remark "History is a pack of tricks played on the dead," you don't intend to be taken literally. However, this chapter explores the logical aspects of good communication when you do want to say what you mean and mean what you say. This goal is not always easy to achieve, as we will see.

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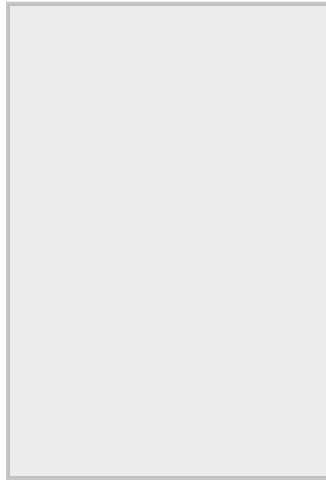
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4.2.1: Not Realizing What You Are Saying

All of us sometimes say things that aren't quite what we mean, but those whose native language is not English have special troubles in this regard. Here are some examples of items written in English by non-native speakers:

- Sign outside a doctor's office in Rome: "Specialist in women and other diseases."
- Bucharest hotel lobby: "The lift is being fixed for the next day. During that time, we regret that you will be unbearable."
- In a Serbian hotel: "The flattening of underwear with pleasure is the job of the chambermaid."
- On the menu of a Swiss restaurant: "Our wines leave you nothing to hope for."
- In a Norwegian cocktail lounge: "Ladies are requested not to have babies at the bar."
- In an Acapulco hotel: "The manager has personally passed all the water served here."¹



You wouldn't make errors like these, would you?

? Exercise 4.2.1.1

You've been hired by a Tokyo car rental firm to revise the following paragraph of its brochure in order to improve the English. How would you rewrite it?

When passenger of foot heave in sight, tootle the horn. Trumpet him melodiously at first, but if he still obstacles your passage then tootle him with vigor.

Answer

You did get rid of "tootle," didn't you? There are many ways to rewrite the statement more clearly. Here is one: "Lightly honk your horn if a pedestrian blocks your path. If he continues to block your path, honk more vigorously."

¹ These errors and many others have been circulating widely, but the above list is part of a longer list reported on by Jon Carroll in the San Francisco Chronicle, July 30, 1990

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4.2.2: Abusing Rules of Grammar

Bad spelling is a source of communication problems, though not an especially subtle one. The great individualist from Tennessee, Davy Crockett (1786-1836), was a frontiersman who had little respect for book learning; he spelled words any way he wanted and said that the rules of English spelling are contrary to nature."

He had a point, because English spelling isn't designed for easy learning—ask a foreigner. But none of us can change that situation. Crockett couldn't, and you can't. So, if we are to communicate effectively, we've all got to spell words the way most everybody else does.

One of the first rules of good communication is to use grammar and semantics correctly. For example, the sentence "She is a person lovely" is bad grammatically, but the semantics is OK. The sentence "She is a negative square root" uses good grammar but bad semantics, although people will know what you mean if you say the sentence is grammatically weird. In this book we won't worry about the fine difference between grammar and semantics and will stick to the big picture: your primary goal as a communicator is to communicate your meaning clearly. Don't make your audience do extra work to figure out what you mean when they encounter bad grammar or bad semantics.

A common error is to make phrases modify unintended parts of a sentence. The reader can get the wrong idea. Here is an example from a newspaper article:

Coach Pucci offered his resignation effective at the end of the current school year, on Christmas.

This report puzzles the reader because the school year ends in the spring, not at Christmastime. It would have been better to put the words on Christmas closer to the part of the sentence they relate to, as in the following rewrite:

Coach Pucci offered his resignation on Christmas, to be effective at the end of the current school year.

The original sentence was odd—odd enough that the reader had to stop and do extra work to figure out what you meant. In doing this, we readers apply a special principle of logical reasoning:

According to the **principle of charity**, you should give the benefit of the doubt to writers or speakers whose odd statements you are trying to understand; if the statements appear to be silly, then look for a less silly, but still likely, interpretation. In a conversation, when a new speaker makes a comment, we listeners apply the principle of charity by assuming that what they said is intended to be a relevant contribution to the conversation. In fact, it's a sign of mental illness if a person too often makes a comment that is irrelevant to the conversation. We mentally healthy people try to make contributions that can be easily understood to be relevant.

The lesson the principle of charity offers to speakers rather than listeners is that we should clearly say what we mean so that our listeners or readers won't be put through unnecessary mental gymnastics trying to figure out what we really intended to say.

Communication is often hampered when people are sloppy and don't realize what they are saying. Here are some humorous but authentic examples. Imagine being a teacher at an elementary school and receiving these two excuses from Anne's parents:¹

- Anne didn't come to school. She was in bed under the doctor and could not get up.
- Please excuse Anne. She was sick and I had her shot.

With a little charity and empathy, you can figure out what the parent meant.

What would you think if you were a welfare department employee and you received this letter from a woman applying for financial assistance?

- I am forwarding my marriage certificate and six children. I had seven, but one died which was baptized on a half sheet of paper.

If you take her literally, you might wonder when the six kids will be arriving. Can you imagine the scene as that seventh child was baptized while it sat balanced on a half sheet of soggy paper? There are effective ways to clear up such writing problems. Here is one way:

I am mailing you my marriage certificate and the birth certificates of my six children. I had a seventh child, but he died. That child's baptismal certificate is on the enclosed half sheet of paper.

Writers need to take some care in expressing themselves or run the risk of saying something they don't mean; conversely, readers must be continually aware of not taking writers too literally.

? Exercise 4.2.2.1

The person receiving the following letter at the welfare department knew not to take it too literally:

"I want money quick as I can get it. I have been in bed with the doctor for two weeks, and he doesn't do me any good."

Select one of the following choices as the better rewrite of the welfare letter:

- a. "I am in urgent need of funds. For two weeks I have been in bed with the doctor, but I am still ill."
- b. "I want money quick as I can get it. At my doctor's request, I have been in bed for the last two weeks, but I am still ill."

Answer

Answer (b). The point is to eliminate the sexual allusion.

1 From The Sacramento Bee newspaper, February 24, 1988.

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4.2.3: Over-Using Euphemisms

When you replace a harsh-sounding phrase with one that means more or less the same but is gentler, you are using a euphemism. Taking a brick from King Tilt's tomb during a visit to the Egyptian pyramids is really stealing, but the person who does so is likely to cover it up with the euphemism "souvenir hunting." If the mortician mentions your "dearly departed" grandmother, that's a euphemism for your dead grandmother. The term dead is a more accurate though harsher one. If you're the type of person who tells it like it is, you will have a hard time being a successful mortician or politician.

The connotations of a term are what it suggests to the reader or hearer. Euphemisms have fewer negative connotations; they have fewer associations that are unpleasant to think about or that might offend the hearer's morality or sensitivities. Euphemisms include genteelisms such as "disrobed" for naked and "bosom" for "breasts." A "Rocky Mountain oyster" is not an oyster at all, is it? The Bowlers' Association has resolved to use euphemisms to make bowling a more upscale sport. They plan to get bowling out of the bowling "alleys" and into the bowling "centers." They also plan to get the balls out of the "gutters" and into the "channels."

? Exercise 4.2.3.1

What is a euphemism for "armpit sweat-stopper"?

Answer

Underarm antiperspirant

Using a euphemism in place of a negatively charged term can keep a discussion going past sensitive points that might otherwise end the discussion or escalate hostilities. However, euphemisms have their down side. They can be used for very serious deception. In the 1930s and 1940s, the German bureaucratic memos called their Nazi mass murder of the Jews by the euphemism "the final solution to the Jewish problem."

? Exercise 4.2.3.2

Which terms are euphemisms for "American"?

- a. Yankee
- b. Capitalist pig
- c. Imperialist
- d. all of the above
- e. none of the above

Answer

Answer (e). Answers (b) and (c) are more negative than "American." Answer (a) is not more negative than "American" in some regions of the world; New Englanders have no problem with being called "Yankee" as long as they aren't called "Yankee dogs." But even in New England "Yankee" isn't a euphemism, just a synonym.

Sometimes we pay insufficient attention to the connotations of what we say. Suppose you were asked one of the following questions.

1. Is the government spending too much for welfare?
2. Is the government spending too much for assistance to the poor?

In a public opinion poll, it was found that twice as many Americans said "yes" to question 1 than to question 2. Can you see how connotations accounted for the difference? Pollsters, poets, and advertisers are the three groups in our society who need to be the most sensitive to connotations.

Two words that are synonymous according to a dictionary or a thesaurus can often have radically different connotations. Some public relations people make their fortunes by trading on their appreciation of these subtleties. Others achieve success by finding synonyms that disguise what is meant. The U.S. Department of Defense purchasers have paid a lot more money for a hammer when it was called a "manually powered fastener-driving impact device." The phrase isn't a euphemism for hammer, but it does serve to

obscure what is really meant. Such cover-up phrases are called doubletalk. One D.O.D. purchase order called a steel nut a "hexiform rotatable surface compression unit."

Can you imagine a military officer walking into the local hardware store and whispering a request for a hexiform rotatable surface compression unit? During the 1991 U.S. war in Kuwait and Iraq, the Navy reported a 90 percent success rate for its Tomahawk missiles. By "success rate" the Navy meant the rate of successfully leaving the launch pad when the fire button was pressed. An even worse cover-up term was "collateral damage," which was what the military called damage to non-military citizens and their homes and vehicles.

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4.2.4: Unintended Innuendo

Here is a letter from Anne's parents to her elementary school teacher:

Anne was late because she was not early ... She is too slow to be quick.

If you were Anne's teacher, you would notice the implication that Anne is dimwitted, but you'd discount it as sloppy communication because you would apply the principle of charity and figure out what the parent probably meant instead.

An **innuendo** is a negative suggestion made by disguised references or veiled comments about a person. If your professor were to write a letter of recommendation to graduate school for you that said, "This student always managed to spell his (or her) name correctly," you would be upset by the innuendo. The professor is using innuendo to suggest you have few talents; being able to spell one's own name correctly is such a minor positive feature that the reader is likely to believe the writer cannot find anything more positive to say. This letter is an example of damning with faint praise.

? Exercise 4.2.4.1

Identify the innuendo in the following passage.

The vice-president is a man who projects the image of being honest.

Answer

The innuendo is that the vice-president is not as honest as his public relations image would suggest.

If you call your opponent a "possible liar," you are insinuating something. You aren't specifically charging that he is a liar, but you aren't exactly withholding the charge either.

Imagine that you are a university professor who has been asked to write a short letter of recommendation for a student, Juanita Barrena, who wants to be admitted to social work graduate school. Here are two recommendation letters. Notice that they both state the same facts, yet one is positive, and one is negative. How could that be?

To whom it concerns:

Ms. Juanita Barrena, one of my ex-students, surprise me by asking that I write a letter of recommendation to you. Although she got an A- instead of an A, she was friendly and, if I remember correctly, organized a study group for the tests. Occasionally she spoke in class. I recommend her.

Yours truly,

Washington Carver

To the Graduate School of Social Work:

I am delighted to have been asked by my student Juanita Barrena to write a letter of recommendation to your graduate school of social work. Juanita excelled in my European history course, capturing an A- in a difficult course. In addition to her good grade, she stands out in my mind as being quite exceptional. Not only did her insightful comments capture the attention of the entire class while demonstrating an excellent grasp of the material, but she also showed special initiative by organizing a study group for my tests. Organizing this group demonstrated her special talent for using her social skills to achieve a specific goal that contributed to the group as a whole, an asset that will serve her well in the field of social work. Regarding her personality, I am again happy to be able to add more favorable comments; she is very friendly, an especially appropriate asset for her future career. I know of nothing about her that would reflect unfavorably upon her application. I am convinced that Juanita has demonstrated a high level of academic and social skills and shows promise of succeeding in graduate school. Again, I am happy to recommend her wholeheartedly for admission to your graduate program.

Yours truly,

Prof. Washington Carver

History Department

phone: (996) 486-9433

The emotional tone of the second letter is more animated and positive. For example, the second says "capturing an A-," which is more positive than "getting an A- instead of an A." In the second letter, Carver says he is "delighted to have been asked" to write the letter, but in the first letter he says he is "surprised" to have been asked, raising the possibility that the request was an unpleasant surprise. The second letter is longer, showing that the professor gave more attention to the student's request. The typos in the first letter are a sign of Carver's inattention. In the second letter, Carver added his phone number, demonstrating his willingness to talk further if the admissions committee desires; doing so is evidence he believes Barrena is worthy of some extra effort on his part.

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4.2.5: Disobeying Rules of Discourse

A cardinal rule of good communication is to imagine yourself in the shoes of the person you are trying to communicate with. Here is another rule: If you don't like what someone has to say, don't let him say it again. That is not a rule of good communication; just a joke. This one is, though: Obey the rules of discourse. The **rules of discourse** are the rules that guide communicators in normal writing and conversation. These rules are the guidelines most everyone follows and expects others to follow. We try, for example, to interpret other people's speech the way they intend it to be interpreted. We try not to be long winded or roundabout. We try to be courteous. We violate a rule of discourse when we praise faintly. If we are going to praise something, we are normally expected not to praise it at a lower level than it deserves.

Some of the rules of discourse are rules of logical reasoning, and some are not. Interpreting someone's speech the right way is a rule of logical reasoning, but being courteous is not.

It's a rule of discourse not to ask someone to do the impossible, and it's a rule not to say something unless you believe it. That is why it is so odd to say, "That is true, but I don't really believe it." It is also a rule of discourse not to give too little information, or too much information, or irrelevant information.

These rules are for normal situations. You don't follow the rules when you want to keep information secret or when you want to distract people by providing them with so much information that they won't think to ask you the questions you don't want asked.

? Exercise 4.2.5.1

What rule of discourse are you violating if, when there is a knock on your door, you open it smiling and say, "You're not unwelcome to come in"?

Answer

Don't be roundabout.

Being **sarcastic** is a technique that intentionally violates the rules or that conveys a pessimistic opinion. Saying in a sarcastic tone "Yes, I believe you" conveys just the opposite. It is an interesting way to say, "No, I do not believe you." Isn't it fascinating to analyze the rules of language? Not that you care.

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4.2.6: Not Sticking to the Issue and Not Treating It Fairly

Let's consider the notions of accepting the burden of proof, identifying the issue in a disagreement, sticking to the issue, fair play in argumentation, and creating a counterargument.

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4.2.6.1: Not Accepting the Burden of Proof

If a neighbor says, "Jeff slit the tires on my son Jeremy's bike," he is expressing his opinion. An opinion is a belief. But is his opinion also a fact? Maybe. He can show it is a fact if he can prove it to be true. If he expects to convince other people of his opinion, it is his duty to prove it. A proof of a statement is an argument for that statement that ought to be convincing; it doesn't need to be the sort of thing you would find in a math book. You prove a statement to other persons if you give them reasons that ought to convince them, even if those reasons don't actually convince them. The important point is that people don't know something if they are not justified in believing it.

Sometimes, it isn't obvious who has the burden of proof. If two people each make a statement disagreeing with the other, who has the heavier burden of proof? You can't tell by asking, "Who spoke first?" Usually the burden is on the shoulders of the person who makes the strangest statement. A statement is considered strange if it would be likely not to be accepted by the majority of experts in the area under discussion. People who make controversial statements have the greater burden of proving their statements.

The claim that an alleged mass murderer is innocent may be unacceptable to people in a community because the community members have been convinced of his guilt by media coverage. Nevertheless, the burden of proof does not rest with those who make the controversial claim of his innocence; it still rests with those who assert his guilt. The legal experts would say that the controversial claim is the claim that he is guilty before the trial has concluded.

There are other problems in determining where the burden lies. In the late twentieth century, an English researcher discovered a poem inserted between two pages of an obscure book in the Bodleian Library of Oxford University in England.¹ The poem was handwritten by a seventeenth-century scribe who attributed it to William Shakespeare. Surprisingly, however, this poem was not part of the currently known works of Shakespeare. Was it really by Shakespeare? That's the question. Examination of the paper and ink verified that the poem was indeed copied in the seventeenth century. Shakespeare himself died in the early seventeenth century. The poem is clearly written in the style of a Shakespearean poem, although it is not an especially good poem. The researcher is convinced the poem is Shakespeare's. At this point, does the researcher have the burden of providing more proof, or does the skeptic have the burden of proving the poem is not Shakespeare's?

The burden of proof has now shifted to the skeptic, not on the person who said it was written by Shakespeare. Unfortunately, it takes expertise to know this. Because of how the poem was discovered, when it was copied, and the style it is written in, experts on English poetry generally concede that the case has been made in favor of Shakespeare, as author, and the burden is on somebody to show he was not the author. Many skeptical researchers have analyzed the poem, looking at such things as the number of words that aren't in any of Shakespeare's other works, but they have failed to prove their case.

? Exercise 4.2.6.1.1

Jeremy says, "My goldfish are dumb, dumb, dumb. They don't know one-tenth as much about the world as I do." David responds, "You can't say that. Maybe we just can't communicate with your fish." Who has the greater burden of proof in this dispute?

Answer

Jeremy doesn't. He is simply making a claim that agrees with common sense. Since David is challenging common sense, he has the greater burden of proving his claim.

¹ Adapted from remarks made in program 20 of the syndicated TV series "Against All Odds: Inside Statistics," copyright by The Consortium of Mathematics and its Applications, Inc., 1988.

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4.2.6.2: Diverting Attention from the Issue

Besides shouldering one's share of the burden of proof, an equally important duty for a logical reasoner is to stick to the issue during an argument. The issue in a piece of reasoning is what the reasoning is specifically about; it's the central question under discussion as opposed to the more general topic or subject. In the example of the neighbor accusing Jeff of slitting the bicycle's tires, suppose another neighbor says, "Quit picking on Jeff. You've hassled him before, and now you are doing it again. You never liked the fact that your son got beat up when he started that fight with Jeff." Now the second neighbor is raising a different issue. The issue was whether Jeff did it, but the new neighbor is trying to divert attention from this to a new issue, whether the accuser of Jeff has a hidden agenda. Even if you settle that second issue and find that the neighbor does have a hidden agenda, that does not settle the issue of whether Jeff did slight the bicycle tires.

The goal is to pursue the truth about the issue, not to sidetrack, confuse, or con one's opponent. Logical reasoners argue in good faith. The purpose is not to win, but to discover the truth. However, political debaters usually don't pursue such a high ideal. Similarly, lawyers fight for their client; they don't try to convince the jury their client is guilty, even when they believe that the client is indeed guilty.

It is possible to learn a lot about good reasoning by examining the major errors in faulty reasoning. Errors in reasoning are called fallacies, and this chapter explores some of the major fallacies having to do with getting off the issue. These are often called the fallacies of irrelevance, because when you stray off the issue you make irrelevant remarks.

When trying to spot the issue in an argument, one technique you can use is to search for some conclusion that is being defended. Then try to see if the reasoner is promoting the conclusion as their way of settling a controversy. That controversy will be the issue. Figuratively, the technique works like this. Imagine that you are walking along the top of a fence, and someone is giving you reasons to come down on one side. The issue in the argument is whether to come down on one side or on the other. The arguer is not arguing in good faith if he is pulling you off the fence onto his side by some means other than giving good reasons.

? Exercise 4.2.6.2.1

Identify the issue in the following discussion.

Jennifer: You are worrying too much. You should spend less time thinking about the consequences for police officers and more about the consequences for the mayor's office. If the mayor or vice mayor were injured, there would be an outpouring of grief throughout the city.

James: Police put their lives on the line for us every day. Each police officer's life is valuable, as valuable as the life of the mayor. Our police deserve our respect.

Jennifer: You are thinking of TV shows. Being a farmer is a lot more dangerous than being a cop, but that's a side issue. Look, if some of the police guarding the mayor and her staff get shot during the event we are planning, well, that's life. They know the risk. That's why we politicians pay them so much money.

James: That sounds pretty callous to me. I don't think you should write off police lives the way you write off the latest 2 percent budget cut.

Jennifer: Wake up to the realities. I'm talking political power, and you're just talking sentiment and morality.

The issue is:

- a. that police lives are valuable.
- b. whether political power is more important than morality.
- c. that Jennifer is being callous about police lives and James is being sensitive and showing respect for them.
- d. whether the lives of the police are as valuable as those of the mayor and vice mayor.
- e. that if the mayor or vice mayor were injured, there would be an outpouring of grief all through the city.

Answer

Answer (d). (a) is not the answer because it makes a statement on James's side of the issue, (b) is not the answer because, although it does give an approximate statement of the topic, the more specific issue is better stated by answer (d). Answer (c) states James's position on the issue, but it does not state the issue itself, (e) states something that James and Jennifer might agree to, but it is not the specific subject of their controversy.

The normal goal of an arguer is to provide convincing reasons for a conclusion that takes a position on the issue at hand. Arguments that do not achieve that goal are said to be bad, illogical, or fallacious. If the issue is whether a particular Toyota will start in the morning, the following argument doesn't speak to the issue:

The Toyota is owned by Barack, who is a citizen of the state of Hawaii, and aren't Hawaiians Americans? So, the car is owned by an American citizen.

The argument is fallacious, given the content. Yet the same argument would be on target in another context where the issue is the nationality of the car's owner, but it's not relevant to the issue of whether the car will start. Intentionally diverting someone's attention from one issue to another is called the Red Herring Fallacy and the irrelevant issue is called the red herring. The name comes from a prison break in which the prisoners are being chased by prison guards using dogs. The prisoner throws a red herring fish in some direction to divert the dogs in that direction. (Dogs presumably will be attracted more by the smell of the herring than the smell of the prisoners.) The bottom line here is that knowing the issue is key to deciding whether an argument is any good.

One extremely common technique of providing a red herring works like in this example. It is the 1950s and you are manufacturing cigarettes. Your opponent is complaining that statistics show cigarette smoking causes several kinds of health problems. To throw the discussion off track you comment, "Can you be certain? Surely the link between cigarettes and health problems isn't definitive, is it?" Raising doubt is what you are selling now, and it is the best means of competing with the body of facts. The current debate around climate change is a similar scenario.

Scientists are some of our society's best examples of critical thinkers, and it is their professional responsibility to pay careful attention to the evidence and to use the best methods of acquiring that evidence carefully. It is true that there are many examples of scientists who have not acted as critical thinkers; but pointing out these examples is not a good reason to conclude that scientists cannot be trusted any more than anyone else on scientific issues. This sub-issue of whether scientists are always totally reliable is a red herring.

? Exercise 4.2.6.2.1

What is the specific issue about minority politics referred to in the headline of the following newspaper article? The article's author isn't taking a position on either side of the issue.

Minority Politics at Issue in Merger

If Johnson County voters approve the merger of city and county governments into one mega-government in the November election, how minorities exercise political power could be dramatically transformed.

At least two current elected officials—both minorities—contend that the transformation means that minority communities will lose what little influence they now have.

Those minorities who helped write the proposal insist, however, that the local community councils formed under the merger will offer an unprecedented opportunity for minorities to hold office and to sway the debates on issues vital to their communities. There will be no loss of adequate representation, they contend.²

- a. The issue is the election in Johnson County.
- b. The issue is minority politics in Johnson County.
- c. The issue is that the local community councils formed under the merger will offer an unprecedented opportunity for minorities to hold office and to sway the debates on issues vital to their communities.
- d. The issue is whether the merger in Johnson County will weaken minority influence in government.
- e. The issue is whether the result of the election for a merger in Johnson County will hurt minorities.

Answer

Answer (d). The issue is whether the merger of the city and county governments of Johnson County will result in loss of adequate political representation for minorities. Answer (e) is not as good because it doesn't say what minorities might lose.

Answers (a) and (b) are too imprecise, though they say nothing false. Answer (c) is the worst answer because it comes down on one side of the real issue by using the word that instead of whether.

A discussion is easier to follow if everybody stays on the topic and doesn't stray off on tangents. The duty of the logical reasoner is to avoid getting lost and diverting the attention of others from the topic at hand. Stacey doesn't do her duty in the following conversation:

Macey: Would the Oakland A's be in first place if they were to win tomorrow's baseball game?

Stacey: What makes you think they'll ever win tomorrow's game?

Stacey has committed the **fallacy of avoiding the question**. Her answer does not answer the question; it avoids it. This fallacy (error) is one kind of fallacy of avoiding the issue, because answering the question is the issue here. Answering a question with a question is a common way of avoiding an issue.

Like magicians, most politicians are experts at steering our attention away from the real issue. A politician was once asked, "Do you think either the U.S. National Security Council or the Pentagon is actively involved in covert activities in this region of Central America?" The politician responded with, "I think the fact that the president has sent troops into Central America in the past is not necessarily a reason to expect that he will do so now in this region of the world. There has been a lot of pressure by the U.S. banking community to upset the economic situation, but I seriously doubt that we can expect anything as overt as the sending of U.S. troops into the region. On the other hand, neighboring countries may be upset, so there is always a threat of invasion from that direction."

The issue was whether the government was involved in covert (secret) activities in Central America. The politician avoided that issue by directing attention toward overt (public) activities. The politician cleverly and intentionally committed the fallacy of avoiding the issue. Because politicians are so likely to use this avoidance technique, reporters at press conferences are often permitted a follow-up question. A good follow-up here would be, "Thank you, sir, but I asked about the likelihood of covert operations, not overt ones. Can you speak to that issue?"

? Exercise 4.2.6.2.1

In the following interview, does Pee-Wee Herman answer the question put to him, or does he avoid it?²

Interviewer: Did you include the romance in your film as a response to people labeling you as asexual or of indeterminate gender?

Pee-Wee: It's just something I wanted to do. I never understand why people say that, though. A lot of the reviews of the show mentioned stuff like "His gender is confusing to children." To me it's clearly male on my TV show. I don't see the confusion. I don't wear wigs or cross-dress. My name is Pee-Wee. There aren't a lot of women named Pee-Wee. Probably from this interview a lot of them will write to me, [gruffly] "Mah name is Pee-Wee and ah'm a woman."

Answer

Pee-Wee's comments do answer the question that was asked; they don't sidestep it. When asked whether he included the romance in order to overcome accusations about his sexuality, he directly answered the question by saying he included it just because he wanted to and not because he wanted to overcome accusations about his sexuality. He then went on to address the accusations about his sexuality. You may believe he has a weak answer, or you may believe he didn't say enough. However, a weak answer is still an answer, so Pee-Wee did not commit the fallacy of avoiding the question.

A final note about the fallacy of avoiding the question. If somebody asks you a question, you wouldn't automatically be committing the fallacy by refusing to answer the question. Only if you should answer but don't do you commit the fallacy.

An arguer might suggest several issues while addressing another issue. The distinction is important in this conversation:

Sanderson: These Korean video cassettes are a lot cheaper than the ones Sony makes.

Tamanaka: Yeah, it's a shame. It's time Congress quit contemplating its navel and created tariffs against Korean electronic imports.

Sanderson: I don't see any reason for tariffs. Tariffs just restrict free trade.

Tamanaka: There should be more U.S. tariffs against Korean electronic imports because Koreans are getting unfair assistance from their government to subsidize their electronics manufacturing and because Koreans already have too much influence in the American economy.

The issue in the conversation is whether there should be more tariffs against Korean electronic imports. The argument in Tamanaka's last remarks addresses this issue. However, his remarks also suggest other issues, such as: Is there anything wrong with having Korean influence on the American economy? If it being right or wrong depends on how much Korean influence, then how much is too much? Are Korean electronics manufacturers really getting a government subsidy? If so, is that unfair? These side issues get suggested, but they don't get addressed in Tamanaka's argument. An argument will normally address one issue at a time. If you create an argument, your reasoning will be easier to follow if you take the issues one at a time and not try to handle everything at once.

1 Liberally adapted from an article by Eric Mattson in The Sacramento Bee, September 17,1990

2 From Interview, July 1987. p. 46

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4.2.7: Giving Too Many Details

Communicators sometimes communicate ineffectively by offering too many details for the purpose at hand. The common metaphor here is that their audience will fail to see the forest because they're being told to look at too many individual trees.

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4.2.8: Re-defining the Issue

It is one thing to argue about an issue but another to agree on what the issue is. For example, on the twenty-fifth anniversary of the first U.S. government report on smoking, the Surgeon General said that cigarette smoking was responsible for more than one out of every six deaths in the United States. Noting that nearly 30 percent of American adults still smoke, despite the Government's warnings, the Surgeon General said that many publications that carry cigarette advertisements also refuse to run articles on the danger of smoking. In addition, the Surgeon General defended taxes on cigarettes. The issue, said the Surgeon General, is health. Not so, said the cigarette companies; the issue is individual freedom—whether our society should have more or less government interference in private enterprise. The issue is whether the government should be involved, by taxation and by requiring warnings on cigarette packs, in an unconstitutional attempt at censorship. It's time for more people, including the Surgeon General, to wake up to the fact that "smokers and the tobacco industry are productive forces in the economy," said the director of media relations for the Tobacco Institute, which is the lobbying organization for the industry.¹

Notice that both parties in this argument are trying to redefine the issue or “ frame the issue ” for their own benefit. In this scenario it is probably a mistake to say that one party has identified the right issue and the other has not. All these issues should be addressed. Bringing them all out into the open gives the public a better appreciation of the situation and the ability to make more informed choices.

Suppose Otis has been trying to convince his sister that doctors and nurses working in federally funded family counseling centers should not be allowed to tell pregnant women about the option of getting an abortion. His reasons are that abortion is immoral and that the federal government should not be in the business of promoting immorality. Suppose Otis's sister reacts to his argument by saying that nurses and doctors should be able to give any medical advice they believe to be in the best interests of their patients, so the federal government should not be interfering in the doctor-patient or nurse-patient relationship by outlawing counseling about abortion. This argument will miss its target because it does not address Otis's point about the morality of abortion. Their dialogue will be especially frustrating for both of them until they realize that they are talking about different issues.

Progress can also be made in some disagreements by focusing on the issue in other ways: by defining the issue more precisely, by narrowing the issue, and by noticing when one issue must be settled before another can be fully addressed. For an example of the dependence of issues, consider the lobbyist for San Francisco who is deciding whether the city should take a position to support or oppose a proposed state law to redefine the formula for distributing state monies to county hospitals. The lobbyist will probably not be able to decide whether to recommend support for or opposition to the bill until another issue is settled—whether the bill will give more or less money to San Francisco County Hospital. Local governments usually don't take a stand for or against a bill based solely on fiscal impact, but they always keep fiscal impact in mind.

Here is an example of progress by narrowing the issue. Suppose a student in a government or political science class is asked to write a four-page essay on a topic of their own choosing. Choosing the issue of whether capitalism is better than communism would be inadvisable because this issue is so large and the essay is supposed to be so short. That big issue would not be manageable. The essay would have to discuss every country in the world and its economics, political freedom, military, lifestyles, and so forth. The essay would be improved if the student narrowed the issue to, let us say, whether race relations were better under American capitalism or under Soviet communism during World War II.

? Exercise 4.2.8.1

State the issue in the following letter to the editor. Then sketch the argument for the other side of the issue—that is, the side that the letter writer is opposed to.

Regarding "Driver Dies after Chase on I-5," Oct. 28: The article seemed to be really confused. It stated, "The death was the fifth this year in the Sacramento area resulting from high-speed police chases." In fact, it resulted, as most if not all of them do, from some low-life scumbag fleeing officers attempting to apprehend him—in this case for auto theft.

What would you suggest officers do, wave good-bye as soon as someone's speed exceeds the limit? Or would you prefer that police just never arrest anyone who travels at high speeds? I'm sure suspects would like that, but I'm also sure decent, law-abiding citizens wouldn't.

¹ Information about this scenario is available in the article, "Surgeon General Rebukes Tobacco Industry over Combative Ads," by Irvin Molotsky, The New York Times, national edition, January 12, 1989, p. A7.

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4.2.9: Covering Up the Reasons That Favor Your Opponent

The reasoner who is trying to be fair and seek the truth not only stays on the issue but also avoids misrepresenting the views of the opposition. In addition, the logical reasoner doesn't hide the opponent's reasons under the carpet. The reasoner who does so is guilty of a cover-up. Take this passage, for instance:

When you are considering which kind of apartment to live in, you should prefer wooden buildings to brick buildings. Brick buildings are more dangerous during earthquakes because wood will bend during the quake, but brick will crack and crash down on you. Also, and even more important, brick has been discovered to be radioactive. If you put a sensitive Geiger Counter up to a brick, any brick, it will click; and it won't with wood. We already have enough sources of radiation in our lives without living surrounded by hundreds of brick sources. So, next time you are apartment hunting, remember to look for wood.

Did you spot the cover-up? It sounds well-reasoned, but it is covering up the bad aspects of wood while scaring you away from bricks. Although it is true that earthquakes are more of a danger for brick apartments than for wood apartments, earthquakes are rare, while fire is a much greater danger everywhere, and bricks don't burn. Second, although it is true that bricks are radioactive, the radioactivity is so trivial that it is not worth bothering about. The danger of wood fires is far more serious. The moral is:

Very often we all selectively use information in order to help or hurt another person. The Reverend Jesse Jackson tells this story. One cold February afternoon, the newly inaugurated Republican President of the U.S. was on the Presidential Yacht off the coast of Maine. He had some engine trouble, but nobody on board could fix it. Being in a hurry, he got out of the boat and walked across the water to get help on shore. The newspaper reporters on shore who saw him were astonished. Off they raced to compose and call in stories to their editors. All the reporters phoned in essentially the same story, but the next day's headlines in the Republican newspapers said, "President Walks on Water." The headlines in the Democratic newspapers said, "President Cannot Swim." We all tend to process new evidence through the lens of what we already believe.

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4.2.10: Review of Major Points

This chapter examined a variety of ways that writers and speakers communicate less well than we and they expect. Sometimes a writer will unwittingly make statements with low information content, will mask the true meaning with euphemism, doubletalk, or innuendo, will use sloppy sentence construction, or will violate the rules of discourse. The chapter also introduced the principle of charity, which readers use to help interpret materials by writers who do not say what they mean nor mean what they say.

People who make statements have the burden of proving their statements. Their goals should be to stick to the issue, to pursue the truth about the issue, and not to sidetrack, confuse, or con the opponent. Progress can sometimes be made when issues are identified, or they are identified more clearly. It is important to distinguish between the issue that is addressed and the side issues that are suggested. Some disagreements can be settled by drawing attention to the issue, by more precisely defining the issue, by narrowing the issue, and by noticing when one issue must be settled before another one can be fully addressed.

In this chapter we briefly distinguished fact from opinion, introduced the notions of taking a position on an issue, shifting the burden of proof, making a fallacy, and offering a counterargument.

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4.2.11: Glossary

burden of proof The duty to prove some statement you've advocated. The burden is usually on the shoulders of the person who wants others to accept his or her statement. When two people make statements that disagree, the burden falls on the shoulders of the person making the more controversial statement.

counterargument An argument that attempts to undermine another argument.

euphemism A gentler word or phrase used to replace a harsh-sounding one.

fallacies Reasoning errors.

fallacy of avoiding the issue Failing to address the issue at hand by going off on tangents. However, the fallacy isn't committed by a reasoner who says that some other issue must first be settled before the original issue can be adequately addressed.

fallacy of avoiding the question A type of fallacy of avoiding the issue that occurs when the issue is how to answer some question. The fallacy would be committed if someone's answer were to avoid the question rather than answer it.

innuendo A negative suggestion made by disguised references or veiled comments about a person.

issue The specific topic, subject, or central question under discussion, as opposed to the general topic, subject or question.

knowledge Truths you are justified in believing.

principle of charity Giving the benefit of the doubt to writers and speakers who have said something silly or obviously false, and not taking them too literally.

position on an issue Your belief about how an issue should be settled.

proof An argument that ought to be convincing. It doesn't need to be the sort of thing you would find in a math book. You prove a statement to other persons if you give them reasons that ought to convince them, even if those reasons don't actually convince them.

red herring fallacy The error of intentionally distracting someone with a side issue or irrelevant issue.

shifting the burden of proof By making a reasonable case for your position on an issue, you thereby shift the responsibility of proof to the shoulders of your opponent who disagrees with your position.

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4.2.12: Exercises

- 1. What is wrong with the following headline, which appeared in an American daily newspaper?

Religion Plays Major Part in the Message of Easter

2. Write a realistic 10-second TV commercial for Goldstar perfume in which you say too little with too many words.

3. Match the harsh words in the first column with their euphemisms in the following column:

retreat

mad

drop

murder

son of a bitch

bite the dust

adjust downward

neutralize

strategic movement to the rear

pass away

s.o.b.

mentally deranged

4. Find a more euphemistic equivalent of these terms: disaster, spying, fired (from a job), old person, (tell a) lie

- 5. Give a euphemism for urination; and use it in a sentence.

6. The best euphemism for his "death" is his

being butchered

living

Passing away

inspiration to us all

treachery

- 7. A boy named Stephen gets the nickname "Steve" and a girl named Sarah gets the nickname "Sue," but a girl named Helen has a connotation problem. Explain.

8. Which one of these synonyms has the greatest negative connotation?

inform

squeal

apprise

notify

9. Rewrite these excuses more clearly

1. Stanley had to miss some school. He had an attack of whooping cranes in his chest.
2. Please excuse Jane on Monday, Tuesday, and Wednesday. She had an absent tooth.
3. Please excuse Jim Friday. He had loose vowels.
4. The basement of our house got flooded where the children slept so they had to be evaporated.
5. Please excuse Connie from gym class today, as she has difficulty breeding.

6. Anne did not do her homework because I couldn't understand it.
10. Imagine that Sarah Waltham is a receptionist in the laser printer division of your corporation, and you are her direct supervisor. Write two letters of recommendation for her, one very positive and the other much less so, although it is still a recommendation, not an attack. Both your letters should contain the same facts: (a) she gets to work on time, (b) she is courteous and helpful both on the phone and with employees and clients who contact her, and (c) she is as good a receptionist as the last three you've employed. Don't add other significant facts.
- 11. Create a euphemism for the term "lobbyist."
12. For each of the following sentences, guess what the author meant to say, then rewrite it more clearly.
- I had been driving for forty-five years when I fell asleep at the wheel and had an accident.
 - The guy was all over the road. I had to swerve a number of times before I hit him.
 - The telephone pole was approaching. I was attempting to swerve out of its way, when it struck my front end.
 - An invisible car came out of nowhere, struck my vehicle, and vanished.
13. Select some controversial topic about which you have an opinion (i.e., a belief).
14. Write a one- or two-page argument giving reasons to support your opinion. The reasons should not merely be a history of your thinking in arriving at your opinion but instead should be reasons that are likely to convince other people to adopt it. That is, deemphasize the genesis of your opinion and emphasize the justification of your opinion.
- 15. What did Mrs. Malaprop probably mean in Sheridan's play *The Rivals* when she said, "He is the very pineapple of politeness"?
- 16. Suppose you are only trying to make a case for your position. You don't want to create some knock-down, drag-out, absolute proof; you just want to persuade the person you are talking to. Do you have the burden of proof in such a situation?
17. What is the main issue in the following argument?
- Several lines of biological evidence have now fixed the time at which humans and chimpanzees descended from a common, primitive African apelike species. It must have been less than 20 million but more than 5 million years ago. This is because *Homo sapiens* (humans) and *Pan troglodytes* (chimpanzees) are so similar in details of anatomy, physiology, chromosome structure, and enzyme chemistry. Admittedly the clocks of anatomy, physiology, chromosome structure, and enzyme chemistry do disagree slightly, but they all agree that the evolutionary tree must have branched during this time.
18. Where in the following dialogue does one of the participants not accept his burden of proof? Justify your answer. The scene: Mr. Harris is walking up to a group of people that includes you, several of your neighbors, Jeremy (the twelve-year-old son of Mr. Harris), and Jeff (a fifteen-year-old son of one of the neighbors who isn't present).
- Mr. Harris: There you are! Jeff, did you slit the tires on my son Jeremy's bike?
- Jeff: What? What are you talking about?
- Mr. Harris: Thursday afternoon. (Pointing to the bike) Look at those slits, one in the front tire, one in the back.
- Jeff: I didn't do it.
- Mr. Harris: Maria saw you on Thursday showing somebody a red knife.
- Jeff: It was new, so I showed people. I'm sorry about the tires, but I didn't cut them.
- Mr. Harris: Maria said you were arguing with Jeremy. Jeremy's spray paint cans are missing from our garage. So are some boards. I hear that boards in your garage have new spray paint all over them. Black and green. Jeremy's black and green cans are missing.
- Jeff: I was just taking back some boards that were mine. Jeremy owed me boards. He said he would pay me back, but he never did. I didn't take any more than what was due me. I didn't do the tires.
- Mr. Harris: Are you denying you had a knife on Thursday afternoon?
- Jeff: My grandfather gave me his Swiss army knife. I showed it to everybody. Jeremy was jealous. He wanted the knife. Those tires could have been slit with any knife.
- Mr. Harris: OK, you're right that any knife could have been used, but the person who used the knife was probably mad at Jeremy, mad enough to steal his paint cans and boards, too. Where'd you get the paint for those boards you took?
- Jeff: Why did you talk to Maria?
- Mr. Harris: Where did you get the paint? Let's see those cans.
- Jeff: Maria had no business butting in.
- Mr. Harris: She didn't do anything wrong. You did.

Jeff: I was going to pay Jeremy for his paint cans. Jeremy, what do you want for the paint? Here's two dollars. The cans were practically empty. You were done with them. You said so.

19. Write a 100 to 300-word essay defending your own rational belief about how likely it is that Jeff (in the previous exercise) is guilty.

■ 20. What is wrong with this reasoning?

I believe that there can be time travel back to the time of the Egyptian pyramids and the pharaohs because nobody has ever proved that there can't be.

■ 21. State the issue of the following argument:

I know you are thinking of not going to the film with Emilio, but remember that you promised him you would go with him. You now seem to be saying to me that you might go with Juanita instead and might tell Emilio you are sick and won't be going with him. Don't. One consequence of doing this is that you will be breaking your promise to Emilio. That would be morally wrong, wouldn't it? In addition, if Emilio finds out the truth, you could lose your friend. Aren't those reasons enough?

22. Create a dialogue in which (a) one speaker shows insight when he or she says, "That's fine, but the real issue is...." (b) the second speaker disagrees with the first speaker, and (c) the first speaker makes a convincing case for being correct.

23. Create a dialogue in which progress is made by narrowing the issue.

24. Find an editorial or letter to the editor in one of your local newspapers and create a short (75-100 words) argument for why the author is mistaken about something. Begin by stating the issue. Assume that your audience is the other students in your class. In your answer, include a copy of the editorial or letter.

25. Create a dialogue between two people in which progress is made in their dispute because they agree to redefine the issue.

26. What is the central issue of the following dialogue?

Mother: My fifteen-year-old daughter failed two courses at school. The worst part is, she didn't even try. She just said, "Oh well, it's not important." If she had tried and failed, that wouldn't be so bad.

Friend: Are you sure it wouldn't be so bad? Maybe it would be worse if she tried and failed.

Mother: No, it wouldn't, because if she tried, then she wouldn't fail the courses.

Friend: Oh, I think I see what you mean. Do you mean that anybody who tries will succeed at least in the sense that they did try and didn't just give up?

Mother: No, I just mean that if my daughter tries, she will get a grade higher than an F.

27. What is the issue or question that the author is concerned with in the following letter to the editor? Choose from the options listed.

No one says that the death penalty is the only answer to brutal murder. But it is a sure way to stop repeat offenses, and it's far cheaper than keeping a killer in jail 30 or 40 years. While it may not deter a hard-core killer or a psychotic, it probably would deter the Bernard Goetzes and the kind of youths accused of assaulting the jogger in Central Park.

a. What will stop repeat cases of crime?

b. Whether brutal murders will increase or decrease, given current trends.

c. Should brutal murderers be killed by the government?

D. Whether the death penalty deters hard-core killers or psychotic killers.

■ 28. Identify the issue in the following conversation:

Saghit: Take a look at Jane Fonda and her ex-husband Tom Hayden. There's a couple of typical Democrats for you. Those two radicals are self-admitted organizers of anti-war protests against our sons who were laying down their lives during the Vietnam War. Nowadays, Democratic State Assemblyman Hayden is corrupting the California Legislature. That's the story with the whole party. The California Democratic Party has done a few good things now and then, but basically it is corrupt. It's even corrupt financially. You know the saying, "California has the best legislature that money can buy."

Jorgen: Ja. Ja. Funny joke; but get serious. Not everybody in the California Legislature is a Democrat. Just most of them.

Saghit: You are making my case. The leaders of the State Assembly and the State Senate are Democrats, and everyone knows that these two men are interested only in getting enough money for their reelection campaigns; whether their votes help or hurt the citizens is not their major concern.

Jorgen: Look. The ex-Imperial Wizard of the Ku Klux Klan was elected as a Republican to the Louisiana Legislature. Can the Republicans be proud of that? Are you going to stand there and defend the Ku Klux Klan and the rest of those bigots? So, let's not hear so much from you about Democrats in California.

What is the principal issue in the above conversation?

- a. Are California Democrats corrupt?
- b. Are Jane Fonda and Tom Hayden corrupting the legislature?
- c. Are the majority of Democrats too interested in getting money?
- d. Whether a member of the Klan was ever elected to the Louisiana Legislature.

29. Regarding the previous question, comment on all the other possible answers that you did not pick. Do the possible answers contain some sub issues or smaller issues surrounding the main issues?

■ 30. If we analyze Saghit's argument in the earlier question about Tom Hayden and the California Legislature, we see that one of the following statements is not a reason he uses to back up his conclusion. That one statement is

- a. Tom Hayden is a California Democrat who is corrupting the California Legislature.
- b. Jane Fonda and Tom Hayden are typical of California Democrats.
- c. At least two, and maybe a lot more, California Democrats are too interested in getting enough money for their reelection campaigns.
- d. California has the best legislature that money can buy.
- e. Corruption is bad for America.

31. During the next week, pay attention to the occurrence of any argumentation that you find outside your school—argumentation you take part in or observe. Describe one of those arguments. More specifically, describe one person's argument by restating the reasons and the conclusion as full, declarative sentences. Label each sentence as being a reason or a conclusion. State the issue that is in dispute. Remember that when we say informally that two people are in an argument, from a logical perspective there are at least two arguments, not one. Each person in "the" argument has his or her own argument. When answering the question, give only the argument of one person for one side of one issue.

32. (i) Create a list of three beliefs you have. Each belief must be sufficiently controversial that you can imagine there being reasonable people who hold the opposite opinion and disagree with you. Hand the list in to your instructor, (ii) Create arguments in defense of your beliefs, but do not yet hand them in unless requested to do so by your instructor. From your list, your instructor later will arbitrarily pick one of your three beliefs and ask you to give a convincing argument for why other people should accept your belief, (iii) Create arguments against your beliefs. Your instructor will also pick one belief from your list and ask you to give an argument against it. Each argument should be a short essay of a page or two, typed double-spaced, if possible.

■ 33. Arnold Haypole is a member of a state legislature. His ex-lawyer, David Kunsinger, has complained that Arnold Haypole is no longer in favor of banning the death penalty in all situations. Kunsinger says Haypole used to be against the death penalty with no exceptions. Here is a newspaper report of Haypole's response to Kunsinger's charge. Explain why the issue stated by Haypole is not the real issue.

After Kunsinger's charge that Haypole switched positions on the death penalty in order to advance his career, Haypole replied that Kunsinger "should start looking at some of his own clients before he criticizes other people. The issue is whether Kunsinger has a record of honesty. A good look at the record will reveal a forked tongue."

Labeling Kunsinger's criticism of him "very offensive," Haypole added a charge of his own as to why his former defender spoke out. "I think he's just trying to promote a book."

34. Suppose someone argues that since murder is wrong, and that, since capital punishment is murder by the state, it follows that capital punishment is wrong, too. The main issue here is

- a. that murder is wrong.
- b. whether murder is wrong.
- c. that capital punishment is murder.
- d. whether capital punishment is murder.
- e. is capital punishment wrong?
- f. why capital punishment is wrong.

35. What is the issue in the following passage?

The inside of this portable computer's box is not the standard fare. Mounted on the system board are a 33-Mhz 80386SX chip, a socket for an 80387SX math coprocessor, a VGA video chip set, and an AMI BIOS. As tested, the system had 2MB of 33-nanosecond DIP RAM, using 1-megabyte chips. Do you find these items as standard fare on a portable?

36. For each of the following disagreements, explain why it is or isn't merely a semantic disagreement.

a. Jose: Scientists have proved that there is no such thing as telepathy. Apparent cases of direct mind-to-mind communication, when investigated and tested, cannot be repeated under carefully controlled conditions required for scientific experiments.

Sarah: They may have done good science, but they proved no such thing. A proof that there is no telepathy requires axioms and inferences from axioms, but no scientist has yet produced the axioms of telepathy. So, they surely have not established the theorem that telepathy does not exist.

b. Leon: Christopher Columbus was a Jew. I read it in the Jewish Chronicle.

Washington: He was no Jew. If he had been a Jew, I would have heard about it. I'm a Jew.

c. Munitions expert: Fifty percent of the missiles in the U.S. arsenal would fail if they were fired. Maintenance is too haphazard.

Missile expert: Ninety percent of those missiles will work perfectly fine. I have looked at ten of them, and nine worked during a simulated firing.

d. Daryl: My candidate is no fool. She is well educated because she has lots of common sense and is well read and could carry on a coherent, interesting conversation on any of a wide variety of subjects from politics to science to sports.

Mary: Your candidate is not well educated. She doesn't even have a college degree.

■ 37. Explain why this passage commits the red herring fallacy:

Will the new tax in Senate Bill 47 unfairly hurt business? I notice that the main provision of the bill is that the tax is higher for large employers (fifty or more employees) as opposed to small employers (six to forty-nine employees). To decide on the fairness of the bill, we must first determine whether employees who work for large employers have better working conditions than employees who work for small employers. I am ready to volunteer for a new committee to study this question. How do you suppose the committee should go about collecting the data we need?

38. Your candidate is trying to get elected to the U.S. Congress; their candidate is trying to infiltrate the U. S. Congress.

The previous comment is an example of

- a. framing the issue
- b. confusing ambiguity with vagueness
- c. assessing a source's credibility
- d. not realizing what you are saying
- e. over-using euphemisms

Solutions

1 The headline makes a trivially true claim. It conveys essentially no new information to the reader. However, you can imagine the creator of the headline probably intended to make the point that, unlike Christmas with its commercialism, Easter is a less commercialized and more religiously oriented holiday

5 "Passing water is a natural bodily act." Other euphemisms are "relieving" oneself, "using the facilities," "going to the little girl's room," and so on. Pissing is a synonym but not a euphemism.

7 The connotation Hell is too negative

9 From CT Flea Market, Spring 1988, vol. 2, no. 1, Mayfield Publishing Co., Belmont, California, p. 2.

11 Legislative advocate.

12 These examples were collected by James Hollinseed at California State University, Sacramento.

15 He is the very pinnacle of politeness or he is the epitome of politeness. This paradigm example is why a funny misuse of words is called a malapropism

16 Yes, you still have a burden of proof. A proof doesn't have to be 100 percent; that standard is required only in mathematics. Informally, a proof is what ought to convince anyone who can follow the steps in the argument. So, if you want to be convincing, you have the burden of proving your case

20 Here, the speaker does not realize that, because of the oddity of the claim that there can be time travel, he or she has the burden of proof. It is not sufficient to say the claim has never been disproved; it must instead be proved.

21 The issue is whether you should break your promise to Emilio, not that you should break your promise to Emilio.

26 The issue is whether it would be better for the daughter to have tried and also failed rather than not to have tried at all. It would have been unclear to have answered the question as follows: "The issue is that the friend believes it wouldn't have been better for the daughter to have tried and yet failed." This is true, but it would have been an incorrect answer. It would also have been incorrect simply to make the true statement, "The mother does not really listen to what the friend is saying."

27 Adapted from a letter to the editor by Edward Peizer, The New York Times, national edition, June 6, 1989, p. A18.

28 Answer (a).

30 Answer (e).

33 Haypole says that the issue is whether Kunsinger is an honest person, but the real issue is whether Haypole changed his position on the death penalty to advance his career or instead changed it because of a good-faith reassessment of the evidence. Haypole doesn't answer Kunsinger's charges that Haypole switched positions to advance his career. Instead, he avoids the issue by launching an attack on Kunsinger himself.

37 Bringing up the issue of working conditions and the committee is the red herring diverting us from the main issue of whether Senate Bill 47 unfairly hurts business.

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SECTION OVERVIEW

4.3: Writing to Convince Others

Writing clearly in a straightforward style is the usual goal when composing a written product, but not always. Sometimes you may want to stand your language on its head to shock or amuse your readers. Or you may want to tell an interesting story; and then you'll need effective narrative devices such as plot, character development, and setting. However, you will have a different focus when you write a business report, a newspaper editorial, or a position paper. Let's focus upon that kind of writing.

It is especially important that your writing be clear and well-structured. It doesn't mean that it should be boring. Writing logically does require paying attention to the style as well as to the structure of the written piece. This chapter offers suggestions about how to improve this kind of writing, but these suggestions are rules of thumb, not rules to be obeyed to the letter.

OK, first things first, but not necessarily in that order. Here is the list of rules that all good writers invariably follow:

1. Be more or less specific.
2. Use not bad grammars.
3. Proofread carefully to see if you any words out.
4. Don't use no double negatives.
5. Avoid tumbling off the cliff of triteness into the dark abyss of overused metaphors.
6. Take care that your verb and your subject is in agreement.
7. No sentence fragments.
8. Placing a comma between subject and predicate, is not correct.
9. Who needs rhetorical questions?
10. Use the apostrophe in it's proper place.
11. Avoid colloquial stuff, like totally.
12. Avoid those run-on sentences you know the ones they stop and then start again they should be separated with semicolons.
13. The passive voice should be used infrequently.
14. And don't start sentences with a conjunction.
15. Excessive use of exclamation points can be disastrous!!!!
16. Exaggeration is a million times worse than understatement.
17. Stamp out and eliminate redundancy because, if you reread your work, you will find on rereading that a great deal of repetition can be avoided by rereading and editing, so reread your work and improve it by editing out the repetition you noticed during the rereading.
18. Tis incumbent upon one to employ the vernacular and eschew archaisms.
19. It's not O.K. to use ampersands & abbreviations.
20. Parenthetical remarks (however relevant) are usually (but not always) an obstacle for readers (and make it harder on readers even if you're being careful) who have the task of understanding your work (article, passage, document, and so forth).

This chapter emphasizes how to create a successful argumentative essay. An argumentative essay is a work of nonfiction prose stating and defending a position on some issue. It is a certain kind of persuasive writing. But persuasive writing is, well, not always persuasive to a critical thinker. As writers and as critical readers, we need to remind ourselves that it is unnatural for people to reach the truth by finding good reasons. What is natural is making up our mind using our gut instincts, then going out to find reasons with which we can bombard our opponents while covering up any reasons that appear to threaten our own beliefs.

4.3.1: Writing with Precision and to Your Audience

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4.3.1: Writing with Precision and to Your Audience

One suggestion for promoting effective writing is to be precise. But how do you follow a suggestion like that? When should you be precise? Where? How? Unfortunately, there is no recipe to follow. About all that can be said is that you should be precise "where appropriate," but you should not be pseudoprecise. Nevertheless, after seeing an example or two below of how to be precise and comparing it with examples of failing to be precise, you will get the point.

Here is a question that is answered precisely and then imprecisely: "How do you get to Bill's house from here?"

RELATIVELY PRECISE Answer: Go six blocks up this street to the first traffic light. Turn right, and it will be the red house with white trim—about in the middle of the next block. It's on your left. Or maybe it's on your right; I can't remember.

RELATIVELY IMPRECISE Answer: You can't miss it. He lives in the house next to my friend Ted. Ted lives on Braithwaite Street. Ted's is the most beautiful house on the block; Bill and Ted practice their electric guitars there in the garage every night. Keep an eye on their phone booth when you're there.

Even though it contains the imprecise terms about and maybe, the first answer is more precise.

Another suggestion is to write to your audience. How do you do so? Well, first you have to decide who your audience is. Don't write as if you might be read by any human being either now or in the future. That's too big an audience. For example, if you are writing a description of Theodore Roosevelt and your audience is all professional historians, you wouldn't bother to mention that he was president before that other Roosevelt, Franklin. However, if your audience is junior high school students, you would make a mistake if you failed to mention this fact about Franklin Roosevelt. When you write a college term paper, assume that your audience is your instructor. With that in mind, you do not need to make elementary points that you might need to make if your audience were your fellow students. You can assume that the instructor is aware of the topic you are writing about but may not have had the specific new ideas you have had. Only by writing for a specific audience can you answer the question "Should I argue [explain, describe] this point, or can I presume it and leave it unsaid?" In answering that question, ask yourself this: "If my audience were right here in front of me and I were talking to them, should I say this now in order to get my idea across?" There is no formula for tailoring your writing product to your audience. Good tailoring is affected by the subject matter, by the characteristics of the audience, and by the purpose of the writing. It's hard to be more precise than this.

Part of what makes writing precise is helpful structure. The structure provides a framework. In the example of directions to Bill's house, the structure in the precise answer is a sequence of steps the reader can follow to get there. The only helpful direction offered in the imprecise answer is to go to somewhere on Braithwaite Street.

Writing should have a specific structure, an overall plan of development, a method of organization. Although there are many acceptable structures, not everything is acceptable. Good readers can readily distinguish an ice sculpture from a puddle. Bad writing leaves these readers with a sense that the writing is all wet and messy.

One usually effective rule of thumb is to mentally divide your own piece of writing into three parts—an introduction, a middle, and an ending. In the introduction you announce your intentions or briefly describe what you are going to say and maybe the motivation for saying it. There you usually present a sketch of your main argument to help guide the reader in what follows. In the middle you provide the details; and in the ending you summarize what you've said and perhaps speculate about its implications or what might follow next. This common structure can be thought of this way: you tell them what you're going to say; then you say it; then you tell them what you've said. This rule gets to be more important the longer the document.

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4.3.1.1: The Introduction

The title or headline is often the first element of an introduction. It gives the audience some idea of what the writing is about and perhaps suggests the main point. The book title *The Chocolate Bible* immediately tells the reader that what is inside will probably have nothing to do with religion but a lot to do with eating and preparing chocolate.

If the same book had been given an overly cute but less precise title such as *Your Face or Mine?* the reader wouldn't have gotten as much information. That information would have to come later, such as in this first sentence of the book:

Almost all of us love chocolate, but how much do you really know about this elixir of the gods?

Such a simple introductory sentence sets the stage by outlining the rough boundaries of the discussion to follow.

Usually a title alone or a single introductory sentence is not sufficient to introduce the reader to the material that will follow. For example, if we want to make clear that *The Chocolate Bible* is a book for manufacturers and marketers of chocolate, not consumers, then the following additional sentences can go a long way toward introducing the book:

You know the subtleties of its taste, and how to manufacture and market it in your area, but what about southern Japan? Northern Japan? What manufacturing techniques and marketing strategies would you change if you wanted to reach the Egyptian market with a similar chocolate product? There is considerable room around the world to create or expand the chocolate market. Will you profit in these new markets, or will your competitor? This book will show you how to successfully produce medium-quality and high-quality cost-effective chocolate for the mass market in a variety of countries on several continents.

Thanks to this introduction we readers now know this is a book about the chocolate business, with emphasis on international marketing and manufacturing. It is not a book intended for consumers.

The introduction limits the scope of the discussion to follow. That is, it provides a context for the writing. It should also give some hint of why it's worth reading. Unless the writer has a captive audience, it is the writer's duty to capture the reader's interest and indicate why the writing should not be ignored. The chocolate book's introduction captures the reader's attention by suggesting that there is money to be made by reading on.

The type of introduction appropriate for one kind of writing might not be appropriate for another. If you are writing a newspaper article, you need to provide a summary of the whole article at the beginning so that editors can cut from the end and not have to cut out material in the middle or beginning. So your intro should contain the who, what, where, when, and how. That way, if the ending of the piece is snipped off, the article won't be hurt substantially; it will still make sense and communicate a lot of information. This same structure is appropriate for many business reports, in which the summary of the costs and the recommendations for changes in the business are made up front for the busy manager who wants to know the bottom line first and the details later.

So, one helpful rule in informative writing is to give the reader the overall picture of the article by clearly announcing your intentions. But don't write this way if you are creating a novel. Here is an introduction to informative writing in the computer business:

This report argues that it is time to divest our interests in peripherals for large computers and concentrate instead on developing peripherals for desktop, laptop, and tablet computers.

This sentence sets up the reader's expectations for what is to follow. When facts and figures are presented later, the reader will have a context to fit them into. Imagine yourself as the reader of a similar report with the same content but without this introduction; the facts and figures are just thrown at you without any explanation of why you should know them. Such an illogical structure would destroy the effectiveness of the report.

In scholarly writing, the introduction also should mention what other scholars have said on the issue you are writing about. Give credit where credit is due, so that the reader can more readily evaluate how your own work fits in or how it challenges other work in the field.

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4.3.1.2: The Middle

The body of the text is where you provide the details and do what you said you would be doing. If you were planning to describe, this is where you place the details of the description. If you were planning to argue, this is where you provide convincing reasons for your claim and perhaps clarify just what the claim is that you are trying to establish. However, when arguing logically, you should concentrate on what ought to convince, not what will convince. Even if you know your audience's prejudices and how to exploit them to get them to do what you want, don't follow this path if you want to be a logical reasoner rather than a propagandist or con artist.

The most common error in creating an argumentative essay is to leave out, or not to adequately develop, the assessment of objections. You'll look narrow-minded to the knowledgeable reader if you plunge ahead with your reasons and show no appreciation for what reasons your opponent might offer.

When you write your essay and argue for some conclusion, be sure you use assumptions that your audience will agree with, or else you ought to do one of two things: (1) defend those assumptions, or (2) mention that they won't be defended even though you realize that in a fuller work they should be.

Suppose your goal is to create an essay that establishes a specific point. How should you structure the essay? The first thing to keep in mind is that you need a fairly clear idea of the content before you can bother with the structure. Once you have that clear idea, then focus on structure. One helpful rule of thumb is that the middle can be structured so the reader is moved by understandable steps from the more obvious to the less obvious. You can establish your essay's important reasons by carefully taking the reader from points of ready agreement to points that are more controversial. At the same time, the flow of argument should usually be from the simple points to the complex points. Without this structure, many of your readers will fall by the side of your road. Your structure is your road, and if readers cannot see where they are going, they will become confused and lose interest in what you have to say. In long or complex pieces it doesn't hurt to occasionally remind readers of what the road is, how far you've gone, and what lies ahead.

Although it is important for your writing to have a clear structure, remember to do first things first: Write first, organize later. Brainstorm first; get your ideas onto paper or into your computer. Later you can go back and tie them together effectively by adding the proper organization.

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4.3.1.3: The Ending

By beginning a paragraph with a phrase such as "To summarize," you signal that all the main points you intended to make have now been made. At this point in your writing you should review and summarize those main ideas, especially if the piece is longer than two pages. Now the reader is ready to stop looking at the trees and refocus on the forest—that is, on whether you've succeeded with the grand program you promised in your introduction. But there is no formula for good writing. An argumentative essay isn't always imperfect if it lacks a summary.

Actually, the phrase "to summarize" is trite; so, you might try to think of an alternative phrase for the transition to the ending.

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4.3.1.4: Digressions

Regarding digression, suppose you are writing a business letter to a supplier explaining how the five generators their company sent you were not the quality you had agreed to purchase. In the middle of this letter, you shouldn't take a weird turn to tell a story about how you were fascinated with generators when you were fourteen years old and how you took one apart and got your first electrical shock. That would be an unreasonable digression because it would be irrelevant. It doesn't speak to the issue even if your digression is interesting.

Digressions take you down some side road and away from the main road. Normally, a digression is a fault in any writing. The reader's mental response to a digression that doesn't give strong hints of its relevance is usually something like "Enough already; now let's get back on track and make some progress."

? Exercise 4.3.1.4.1

If you were going to remove the digression in the following business letter, what would you take out?

Dear Mr. Harris:

You recently wrote our company regarding a problem with the transistors we supplied to you for your FC-7D circuit boards. I am sure we can solve your problem.

Our quality control engineers do try to fill orders correctly. Not only do we use the familiar testing via the Z-bar procedure, but we also have added the Z-bar supplement procedure which is recommended by the American Association of Quality Control Engineers. Our quality control engineers are not new employees, and they have a great deal of experience in filling order such as yours. If you would like to learn more about our quality control procedures, please contact our Quality Control Engineer Office and ask for Jeremy Bohm at (919) 278-7384.

We were quite surprised to learn that your own checking of our FC-7D boards indicates there is a ten percent failure rate. We will be happy to refill your order at no expense to you. Today we have begun the procedure of sending you another 77,000 meeting the specifications as indicated in your purchase order #33-Dcl. Meanwhile, it would be helpful for us if you would return the remaining boards that we sent to you. We will pay shipping costs. Please feel free to call me at (919) 278-6424 if you have any further questions.

Very truly yours,

Dwayne W. Edwards

Assistant Manager

Answer

Jettison the second paragraph of the letter.

Let's summarize this section's points about structure. A piece of writing without structure is chaotic. Every piece of writing needs some sort of method of organization, even though different kinds of writing can use different methods. Write the piece first—get your meaning out onto the paper. Then go back and organize. When doing so, mentally consider how you are going to introduce the topic. What way will you organize the main body? How do you intend to end your piece? Can the reader always see the road you are on? Will making a particular point just cause a detour from the main road?

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4.3.2: Improving Your Writing Style

The manner of presentation of a piece of writing is its style. You'll need an effective style. How do you get it? Here are some suggestions.

Be brief One mark of good writing style is brevity but with sufficient detail. There are exceptions, however. Brevity is not a virtue when writing letters appealing for contributions to your organization. Fund raisers have learned that a simple, clear, and concise request does not bring in the money. What works is a long letter that provides more information about the organization and that goes into great detail about how the money will be spent. The letter makes the recipient feel like he or she is part of the inner workings of the organization. Another exception to the rule of brevity is that a complicated point sometimes requires repeating. Just don't repeat it with the same words, and don't do it more than once.

Be straightforward. Another mark of good style is "saying it straight," as Emily Dickinson would say. You should say that Mary had a little lamb whose fleece was white as snow. Only a lawyer could get away with "Mary was the legal owner of a diminutive, potential sheep, whose fleece was as innocent of coloring as congealed atmospheric vapor." Avoid jargon or technical-ese. Also, remember that it is easier to follow a group of sentences, each expressing one idea, than a single sentence that strings several ideas together. Break up those long, rambling strings.

Let's elaborate on these two suggestions. William Faulkner could have made his point briefly and simply by saying:

Five miles farther down the river from Major de Spain's camp there is an Indian mound, which we children fear. A small Chickasaw Indian reservation is nearby.

But saying it that way is less interesting and less memorable than the way Faulkner wrote it:

Five miles farther down the river from Major de Spain's camp, and in an even wilder part of the river's jungle of cane and gum and pin oak, there is an Indian mound. Aboriginal, it rises profoundly and darkly enigmatic, the only elevation of any kind in the wild, flat jungle of river bottom. Even to some of us—children though we were, yet we were descended of literate, town-bred people—it possessed inferences of secret and violent blood, of savage and sudden destruction, as though the yells and hatchets which we associated with Indians through the hidden and secret dime novels which we passed among ourselves were but trivial and momentary manifestations of what dark power still dwelled or lurked there, sinister, a little sardonic, like a dark and nameless beast lightly and lazily slumbering with bloody jaws—this, perhaps, due to the fact that a remnant of a once powerful clan of the Chickasaw tribe still lived beside it under Government protection.¹

Yes, you usually want to rid your writing of excess vegetation, but a tree can be pruned so much that it dies. There are five-page plot summaries of Faulkner novels, but the only people who buy them are students in English courses who hope the test will not cover anything subtle. The people who read for their own pleasure and interest prefer less brevity and more complexity.

The suggestion above that you adopt a style that is straightforward means, among other things, avoiding the abstract when you can just as well be specific and concrete. For example, a student who misunderstands Heidegger may say too abstractly, "IBM faces Microsoft, not with the nothingness of Being, but with the nothingness of dread." You should say, more concretely, "IBM executives fear their stock will be less valuable if they merge with the Microsoft Corporation."

Give examples; get to the point. That advice is good, but it is a little superficial. If the audience will immediately catch on to your general claim, skip the examples. Some of your textbooks have no doubt moved too quickly through the subject matter and have not given enough examples, while other textbooks have plodded along wasting your time by giving example after example of a simple idea that you caught on to right away.

? Exercise 4.3.2.1

Which response below is the most straightforward answer to the request "Give a specific description of the Indian mound in Faulkner's short story above"?

- The mound rises significantly above the plain of the surrounding river bottom.
- Even to some of us—children though we were, yet we were descended of literate, town-bred people—the mound possessed inferences of secret and violent blood, of savage and sudden destruction, as though the yells and hatchets which we associated with Indians through the hidden and secret dime novels which we passed among ourselves were but trivial and momentary manifestations of what dark power still dwelled or lurked there, sinister, a little sardonic, like a dark and nameless beast lightly and lazily slumbering with bloody jaws—this, perhaps, due to the fact that a remnant of a once powerful clan of the Chickasaw

tribe still lived beside it under Government protection.

c. The mound is an earthen cone with a base of about 100 feet and an altitude of 30 feet. The mound sits on a plain that contains a river bottom.

Answer

Answer (a). Answer (b) is not correct because it is not a description of the mound but instead is a description of the children's reaction to the mound. Answer (c) is not correct because there is no basis for claiming that the mound had those specific measurements. Answer (c) would be a better answer than (a), however, if (c) were true.

Here is a final suggestion that is perhaps the most important of all in producing logical writing: Reread what you've written. After you have written what you set out to write, let it cool. Forget about it for a while; the longer the better. Then go back and reread it with an open mind, as if you were a member of your intended audience seeing it for the first time. Or ask a helpful friend to read it and give you a reaction. You are likely to gain valuable information about what you may need to clarify.

The rest of this chapter explores the process of creating arguments.

¹ From William Faulkner, "A Bear Hunt," *Collected Stories of William Faulkner*, (New York: Vintage Books, 1977), p. 65.

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4.3.3: Proving Your Conclusion

When the reasons do establish the conclusion, the argument is called a **proof**. Because the line between when the reasons establish the conclusion and when they don't can be a fuzzy one, the term proof is vague, except in the case of mathematical proofs. Mathematical proofs are not a matter of degree; they are either correct or incorrect, but the kind of proofs we have in ordinary life and in science are a matter of degree; they make their case more or less strongly.

Some things are harder to prove than others, as we all know. You may have heard someone say, "It's impossible to prove a negative." This statement is an exaggeration, but it contains a valuable kernel of truth. It is an exaggeration, because it is easy to prove this negative: my car keys are not in my pocket. But it is much more difficult to prove the following negative: There is no telepathy.

Unlike a search of my pocket, the place to be searched for telepathy is not well defined because a psychic could say that just because you haven't found any telepathy so far doesn't mean you won't find telepathy in other situations you haven't yet investigated. Also, there is so much uncertainty about what counts as being an actual case of telepathy; for example, a psychic says that some event is a sign of telepathy, but a skeptic disagrees and says the psychic is jumping to conclusions.

Even though it is difficult to prove that there is no telepathy, it has been proved. First, given what else we know about nature, especially what else we know about brain physiology, telepathy is highly improbable, so not only is the burden of proof on anyone who says telepathy does exist, but the burden is a heavy one in the sense that it will have to be an extraordinarily good proof. Systematic searches for telepathy by qualified scientists have turned up no solid evidence. These two reasons prove there is no telepathy. They do not make it 100% certain there is no telepathy, but still it is enough to feel confident.

The above reasoning applies a special method of reasoning: hold off believing that something exists until you get the evidence in favor of it. Science is both a body of knowledge and a way of getting knowledge. Science involves a skeptical attitude that says, "I won't believe you until you show me the solid evidence."

When is evidence solid evidence? For most of us, the most solid form of evidence we have are the reports of experts we trust plus our knowledge that the experts agree with each other. But among the experts themselves, it often does take an expert to decide what counts as solid evidence. Usually, though, solid evidence must be reproducible. For example, if one researcher says, "I tested the subject and found her to be a psychic," other researchers will need to be satisfied that she can actually perform as well when the testing is repeated by themselves or by some other researcher they trust. The truth will be able to stand up to repeated tests, but falsehood will eventually be exposed.

People sometimes ask, "Why can't scientists give poorly supported suggestions the benefit of the doubt and simply accept them? Why the obsessional preoccupation with matters of validation?" The answer is that this liberal attitude leads to a contradiction. Suppose you have poor support for some suggestion S, and you also have poor support for its negation, Not-S. The liberal attitude above would have us accept both S and Not-S, which is absurd. Besides, the track record of accepting unsupported hypotheses is quite poor; they turn out to be unhelpful for creating good explanations and making accurate predictions, which are the two main goals of science.

When you argue that some conclusion should be drawn from the evidence you present, be careful not to defend a stronger conclusion than what the evidence justifies. Here is an example that illustrates the point. Two Italian-speaking men suffered strokes that damaged their brains, but not in the usual ways. According to a report in the well-respected British science journal *Nature*, examination of the first man two weeks after his stroke revealed that he omitted all vowels when writing about himself, his town, or common objects. He would leave blank spaces for the vowels. For example, he spelled the name of his town, Bologna, as "B lgn." He was aware of the fact that he had misspelled the words, but he could not correct his errors. The second man also had a vowel-specific disturbance. He could write vowels, but he misspelled many words, and most of the misspellings involved errors with vowels and not consonants. Both men had no such difficulties before their strokes. The experimental psychologist who reported these two astonishing cases said that they may indicate the brain contains two different mechanisms, one for identifying and generating vowels and one for identifying and generating consonants. But notice that the evidence of these two cases is not a proof of this; it does no more than "indicate" this, as the researcher was careful to note. If, instead, the researcher had said that the evidence of these two cases "proves" there is a cerebral vowel organizer, then the researcher would have drawn too strong a conclusion and likely would have been told by the journal editor to tone down the conclusion before the article would be published.

? Exercise 4.3.3.1

What is the error in the following sentence?

In good scientific reasoning, the scientific reasoner should be cautious and never claim that something is known or proved unless it can be shown that from the evidence acquired that it would be absolutely impossible for the claim to be false.

Answer

This statement is making it too difficult for scientific reasoning to establish its claims. A proof of a claim is simply a strong, convincing argument; it need not be an argument so strong that "it would be absolutely impossible for the claim to be false."

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4.3.4: Creating Counterarguments

A counterargument to argument S is always an argument for why the conclusion of S is not true.

a. true b. false

_____ [171]

When it comes to issues that cannot be settled by scientific investigation, the proofs or arguments take on a different character from the sort we've been examining. The reasons for you to favor a social policy, for example, will more often appeal to the values you hold than to the facts about the world. Values cannot be detected with voltmeters, nor measured with meter sticks. The rest of this chapter will consider arguments that appeal to the values held by the participants in the argument.

Sometimes when we respond to an argument that attacks our own position we try to expose weaknesses; for example, we might point out that the reasons given are not true, or that the reasons don't make the case even if they are true, and so forth. At other times we don't directly attack the argument but rather create a new argument for the opposite conclusion. This indirect response is called "creating a counterargument." By successfully using the techniques of argument criticism or of creating a counterargument, our position lives on to bury our enemy, the undertaker. In courts of law, these techniques are called rebuttal. The point of rebuttal is to turn our vaguely felt objections into convincing arguments.

What follows in the next few pages is an example of the give-and-take in argumentation. The exchange contains arguments, counterarguments, criticisms of arguments, criticisms of criticisms, and revisions of criticisms. The issue is whether utilitarianism is the proper way to decide right from wrong. Utilitarianism is the ethical viewpoint based on the following claim:

UTILITARIAN CLAIM: Among the possible actions a person can take in a situation, the right action is that which produces the most overall happiness for everyone.

John Stuart Mill, a nineteenth-century English philosopher, argued for utilitarianism. He wanted an antidote to the practice of English judges and legislators making social and ethical decisions on the basis of how the decision "felt" to them. Mill wanted the decision method to be more scientific. He hoped that in principle the decision could be the result of a process of calculation of the positive and negative consequences for each possible choice. The alternative that produced the maximum number would be the one to choose. His utilitarianism is a kind of cost-benefit analysis that focuses not on the benefits to a company or special group but to society as a whole, to all people.

ARGUMENT FOR UTILITARIANISM: We all have or should have feelings of generalized benevolence, of caring in general for our fellow human beings. Utilitarianism expresses these feelings. In addition, most all of the actions that utilitarianism says are immoral are in fact believed to be immoral by most people; and most of the actions that utilitarianism says are moral are generally believed to be moral, so utilitarianism coincides with most of what we already believe. In fact, utilitarianism agrees so well that it provides the most coherence to our chaotic ethical beliefs. Because we want this coherence, we should adopt utilitarianism and accept the consequences of adopting it—namely, that if utilitarian reasoning declares some action to be immoral, then even though we intuitively believe the action to be moral, we must revise our intuitions to be in agreement with what utilitarianism says.

The American philosopher William James did not accept this line of reasoning. He argued against utilitarianism. James's objection arose from his belief that it would be immoral to demand that a single individual suffer even if that suffering were to promote the overall happiness of everyone else. He based his reason on the immediate moral feeling of revulsion we'd have if we thought about the special situation he had in mind. He said:

COUNTERARGUMENT: Utilitarianism implies that trading off someone's pain to achieve the greater good of everyone else is acceptable. Yet it is really unacceptable, because of our moral feelings of revulsion at running roughshod over the dignity of that one individual.

Here is a simpler version of James's counterargument. Imagine yourself on a wagon train of settlers moving westward in the U.S. in 1850. You are attacked by a gang of outlaws. Circling your wagons, you prepare to defend yourself against an overwhelming force. You count your few guns and bullets and realize you are in a desperate situation. Just then the outlaw leader makes an offer. He promises to let the wagon train pass through to Oregon provided you will hand over the daughter of your wagon master. Otherwise, he says, his gang will attack and kill you all. You happen to know that this gang of outlaws has a tradition of keeping its promises. So if they get the daughter, the rest of you will likely make it through unharmed. You also know that the daughter will likely face unspeakable horrors. What do you do? The utilitarian will say to give her up. She has just one life, but the rest of the wagon train has many more lives to be saved; it's a matter of cost-benefit analysis. In this imaginary scenario, William James would argue that

trading the girl for the greater good of the wagon train would be morally abhorrent. It wouldn't be right to do this to her, regardless of the consequences to the wagon train. Therefore, utilitarianism leads to immorality, and it cannot be the proper basis of moral reasoning. End of counterargument.

When faced with an argument against one's own position, a person often strikes back, getting defensive. The utilitarian John Stuart Mill might have responded with, "Well, it's easy for you to criticize; you don't have to face the consequences of these important decisions on a day-to-day basis." This remark is the kind of thing we say when we want to discount the force of someone else's argument. Empress Catherine the Great used the same tactic against eighteenth-century Enlightenment philosophers who were criticizing her social policies toward the Russian peasants; she said, "It's easy for you to talk. You write on paper, but I write on human flesh."

In the following passage, the defender doesn't get defensive; instead the utilitarian offers a more substantial criticism that tries to undermine the main points made in James's counterargument. This new argument is based on two reasons: (1) there is no need for us to pay much attention to James's feelings of revulsion, and (2) we do make trade-offs of people's lives all the time without calling it immoral.

CRITICISM OF THE COUNTERARGUMENT: Moral feelings are very strong, but this does not prevent them from appearing as irrational taboos to those who do not share our conventions. This should warn us against the tendency to make ethical philosophy an apology or justification of the conventional customs that happen to be established. Suppose that someone were to offer our country a wonderfully convenient mechanism, but demand in return the privilege of killing thousands of our people every year. How many of those who would indignantly refuse such a request will condemn the use of the automobile now that it is already with us? ^[172]

The point of the criticism is to say that if you accept the trade-off for the automobile, then you should accept the trade-off of a lonely soul's pain for the greater good of everyone else. If so, then utilitarianism has not been shown to lead to absurdity, as James mistakenly supposed. Therefore, the counterargument fails, and the argument for utilitarianism stands.

Let's review the flow of the discussion so far. The issue is the truth or falsity of utilitarianism. James's position is that utilitarianism is incorrect. His counterargument depends on his evaluation of the example of the lost soul on the far-off edge of things. The criticism of James's counterargument goes like this. James's situation with the lost soul is analogous to the situation of people being killed by the automobile, and just as it would have been OK to proceed with automobile construction, so it would be okay to send that lost soul to the far-off edge of things. So, utilitarianism is correct.

At this point, James could counterattack by criticizing the analogy between torturing individuals and killing them in car accidents. He might say this:

CRITICISM OF THE CRITICISM OF THE COUNTERARGUMENT: The analogy between the torture and the automobile situation isn't any good. The two situations differ in a crucial respect. My situation with the far-off lost soul requires intentional harm. The lost soul did not voluntarily give up his right not to be tortured; if he did, that would have been praiseworthy on his part, but he didn't. Instead he was seized against his will. But automobiles were introduced into our society voluntarily with no intention to harm anybody. The car manufacturers didn't build cars with the goal of "killing thousands of our people every year." They set out to make money and provide society with efficient transportation. In my situation, one person is singled out for harm. In the automobile situation, each person runs an approximately equal risk of accidental harm. The lost soul is not free to refuse, and his pain is foreseen. But any particular automobile driver is free not to drive, and his pain is unpredictable. So the analogy breaks down. My point stands.

The person who originally criticized the counterargument now makes a change in light of the criticism of his criticism.

REVISION OF THE CRITICISM OF THE COUNTERARGUMENT: Maybe the analogy with automobiles does break down, but the motivation behind it is still correct and can show what is wrong with James's counterargument against utilitarianism. We often consider it moral to trade off some people's pain against the greater good of everyone else even when the pain is intentionally inflicted and even when those who receive it are not free to refuse it. U.S. Immigration and Naturalization requires people coming into this country to suffer the pain of certain vaccinations for the good of the rest of us who don't want to catch foreign diseases. There is no universal sense of revulsion about such situations. Most people think it is the right thing to do, being the lesser of two evils. It is understandable why individuals look out for themselves and don't choose to do what is in the interest of all society, but that doesn't make what they do morally right, does it? So, utilitarianism is the proper viewpoint on ethics after all.

Well, we won't crown a victor in this dispute about utilitarianism. There are many more moves and countermoves that might occur before the issue is settled. The issue is still an open one in the field of philosophy. However, the discussion does demonstrate the

give-and-take that occurs in a serious dispute.

Briefly state a counterargument to the following argument:

Communism is better than capitalism because communism is designed to promote cooperation among equals whereas capitalism is designed to promote competition, greed, and the domination of one person by another.

_____ [173]

Let's now try to handle all at once many of the points made about argumentation.

Consider the following debate, which contains a series of arguments, criticisms of arguments, counterarguments, revisions, clarifications, arguments in defense of previous assumptions, and so forth. The main issue is whether robots could someday think, (a) Where does the first clarification occur? (b) Where does the first criticism occur? (c) Where is the first counterargument? (d) Which side should win this debate? (e) What is the most convincing point made for the winning side?

A.

First Person: A robot could never think. You can tell that right away, just by thinking about what the words mean.

Second Person: Are you suggesting that a robot cannot think because thinking and robot are conflicting terms the way round and triangular are?

B.

First Person: No, I mean even if some future robot appeared to think, the real thinking would belong to its programmer. A robot couldn't think on its own.

Second Person: When the robot walks, you don't say it's really the programmer who is doing the walking, do you?

C.

First Person: No, of course not.

Second Person: Robots can think because they do all sorts of things that we used to say required thinking. They play chess, for example, though not the way we do.

D.

First Person: They play chess, but they don't think when they play it. Robots cannot think on their own because robots can only do what they are programmed to do.

Second Person: OK, program it to think.

E.

First Person: But you can't do that.

Second Person: Why not? I hope you don't answer by saying, "because robots can only do what they are programmed to do." That would be circular reasoning.

F.

First Person: Thinking requires flexibility in the sense that one can change one's thoughts. But since robots can't change the thoughts that are programmed into them, they cannot really think either.

Second Person: A robot could change its thought without changing its programming, just as a chess-playing computer changes its moves without changing its programming.

G.

First Person: My point about change is that a thinking being must be capable of original thought, but a robot can do only what it is programmed to do.

Second Person: Couldn't a chess-playing computer come up with a chess move that had never been played before and that would surprise even its programmer? That move would be as original for it as our thoughts are for us. Besides, isn't an original human thought just a surprising thought that is actually only the product of the person's genetic code plus his or her life's conditioning?

H.

First Person: No, an original thought is uncaused.

Second Person: If it's uncaused, then it is just random. Surely, good thinking isn't just random mumbling, is it? If you tell me it is uncaused physically but instead caused by our intent, I don't understand that.

I.

First Person: I wouldn't be so quick to write off intentions, but look, a thinking being must be able to handle itself in new situations. There are too many new situations for them to be explicitly handled in advance by the programmer; the task is just too large. So a robot couldn't ever really think.

Second Person: There are an endless number of new addition and multiplication problems, yet a small machine can handle them, can't it?

J.

First Person: Because of individual growth as well as the growth of our species itself, we're all the end products of our entire history, but human history cannot be written down and programmed into a computer. We all know a lot that we can't say, or can't write down in notation. We know it implicitly in our flesh and blood, so to speak. A computer knows only what can be written down.

Second Person: I disagree. Ok, so you know something you can't write down. You know how to ride a bicycle but can't write down the details. It doesn't follow that the details can't be written down just because you can't write them down. Someone else can write them down and use them to permit a robot to ride a bicycle, too. Besides, why are you making such a big point about being made of flesh and blood? You can add, and you are made of hydrocarbon; a calculator can add, and it's made of copper and silicon. The stuff can't be that important.⁹

K.

First Person: We carbon-based beings really know what we are doing when we add; the calculator doesn't.

Second Person: I agree, but you're overestimating "stuff?" If living organisms are composed of molecules that are intrinsically inanimate and unintelligent, why is it that living, conscious matter differs so radically from unconscious nonliving matter? They both are made of molecules. The answer must be the ways those molecules are put together, because the essence of life and thinking is not substance but instead complex patterns of information. Life and thinking are properties of the way stuff is organized. If you organized the stuff correctly, then life and thought might exist in most any substance, whether it be flesh or silicon chips.

L.

First Person: It isn't really a question of "stuff" nor of programming. It is more a question of essence. We are essentially of a different nature. Thinking beings have souls, but robot computers do not.

Second Person: If a machine were built with sufficient ingenuity, couldn't God give it a soul?

M.

First Person: Yes, God could, but God wouldn't.

Second Person: How do you know what God would do?

^[174]

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4.3.5: Review of Major Points

We learned about how to improve writing, especially argumentative writing. Be sure your writing is clearly organized, or else you can lose your reader in the details. Here is the best way to structure argumentative writing: a) add your main point, the thesis statement, into the introductory paragraph; b) give an argument for your thesis; c) give counter-arguments and respond to them; (d) end with a conclusion paragraph that summarizes what you've done and perhaps suggests additional issues that need investigation. Whether writing to describe, argue, or explain, by providing a clear and precise structure you can dramatically improve the writing's effectiveness. Longer pieces are more effective when they are divided into three parts in this order:

- Introduction (This is your opening, and it usually includes a statement of your thesis or conclusion.)
- Middle (Your support for the thesis plus an assessment of objections to it.)
- Conclusion (Summarize what you've done and what still needs doing.)

This isn't the only order that might be successful in persuading your audience to accept your conclusion. Essays can be effective even though they leave their conclusion until the end and deal early on with discounting possible objections. The most common error in creating an argumentative essay is not to adequately develop, the assessment of objections.

Getting the main points down on paper or in a word processor file should come before worrying about the organizational details. Write first; then worry about how to structure the ideas effectively. Sometimes when we respond to an argument we try to expose weaknesses in it. We might show that the reasons given are not true, or the reasons don't make the case even if they are true, and so forth. At other times we don't directly attack the argument but rather create a new argument for the opposite conclusion, and doing this is called creating a counterargument.

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4.3.6: Glossary

argumentative essay A work of nonfiction prose stating and defending a position on some issue. It's a certain kind of persuasive writing.

counterargument An argument for the conclusion opposite to that taken by another arguer.

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4.3.7: Exercises

1. Create a four-page argumentative essay, typed double-spaced, that analyzes the following argument and that attacks the main points of the argument below and then creates a counterargument.

Animals may appear to have minds, but in fact they don't. Do you seriously believe that a one-celled animal has a mind? Besides, to have a mind it has to have a soul. Yet if every gnat had a soul, there would be a population explosion in the domains of the spirit, that is, in heaven. Heaven surely has no such room. So, gnats and other beasts are mindless.

There are several other reasons I can offer in defense of my point. I have recently been reading the works of Louis Racine, who wrote in 1700 in France. Here is Louis's argument. He is commenting on Rene Descartes's claim that animals are automata. "If beasts had souls and were capable of feelings, would they show themselves insensible to the affront and injustice done them by Descartes? Would they not rather have risen up in wrath against [Descartes who] so degraded them?" That sounds right to me.

God is good, and we can see "how much more humane is the doctrine that animals suffer no pain." What Cardinal Melchior de Polignac meant by saying this is that it takes a mind to feel pain, but animals feel no pain—they just flinch when pricked—and this attitude that animals feel no pain is correct because the attitude is the most humane approach to animals.

Everyone knows animals are just creatures of instinct. Essentially all animal behavior is unsophisticated by our standards. A lion sees an antelope and lunges for it. The antelope sees the lion, and lurches away.

You will be graded on the clarity and organization of your essay, on the lack of incorrect and silly comments, and on the depth of your insight into the topic.

2. Write a letter in which you weigh the pros and cons involved in hiring either Roth or Toomey as a legislative advocate (that is, lobbyist) for the City of Newark, New Jersey. In this fictitious case, you are an independent consultant, making a recommendation to the city council, and you have interviewed and eliminated all other candidates except these two. The council is voting on this personnel matter at its next meeting in three days. Your report should be written as a confidential letter to the council. Begin with your recommendation, then give an argument justifying your recommendation by weighing the pros and cons. Here is the description of the job that the two candidates are applying for.

The Legislative Advocate will represent the interests of the City of Newark before the state government of New Jersey, including but not limited to the legislature, the office of the governor, and the state's various departments, staff, offices, and committees. This position requires writing legislation, recommending legislation, providing information to the City and its staff about the activities of the State Government, representing the city before the State Government in the capitol, providing testimony at hearings, lobbying for passage or defeat of bills before the Legislature, encouraging the Governor to sign or veto bills that have passed the legislature, and other related activities.

The Legislative Advocate reports directly to the president of the city council and supplies monthly reports to the entire council. Salary \$162,000 per year plus medical, dental, and optical benefits. The city will supply one full-time secretary, office space, two telephone land lines, one cell phone with unlimited calling, a desktop computer or laptop computer, a fax machine, copy machine, and at least 400 square feet office space in a City building.

Background on the City Council: 3 Republicans, 6 Democrats; president is a Republican; 6 men, 3 women; 5 white, 3 black; 1 Hispanic.

Background on New Jersey: Democratic governor. Republicans hold a two-thirds majority in the two houses of the Legislature.

Confidential analysis of personnel matters:

ROTH: Has previously been a legislative advocate for an Illinois public employee labor union and also for Planned Parenthood in Illinois. Eighteen years ago she and another black female were fired from their positions as county social workers for continuing to picket the county during a strike in violation of a court injunction declaring the strike illegal. The case reached the Illinois Supreme Court and was overturned, winning public employees in Illinois the right to strike. She is currently one of two lobbyists for the City of Chicago, representing the city before the Illinois state government. Her specialties are lobbying for issues concerning health care, labor relations, and urban planning. Holds a master's degree in public health from the University of Pennsylvania. Has letters of support from two Democratic and two Republican city council members in Chicago. Has never lived in New Jersey. No

convictions. Age 43. Registered Democrat. Main new idea offered during interview: Lobby for a state bill enabling Newark to legally offer free hypodermic needles to drug addicts in exchange for their used needles.

TOOMEY: Lawyer. Served for two years as a researcher on a taxation committee in the New York legislature. Toomey was an administrative aide for the current lieutenant governor of New Jersey, a Republican, but was fired from that position after serving four months. Ran for city council of Princeton eight years ago, receiving thirty-one percent of the vote. Presently is a legislative advocate representing the U.S. Steel Corporation and the Association of Airports of New Jersey before the State. Toomey has worked actively on the election campaign of the speaker of the state senate of New Jersey, who is a personal friend of two Republican members of the Newark city council. Drivers license suspended for six months for drunk driving two years ago. White. Age 63. Registered Republican. Main new idea offered during interview: Newark should make the homeless and the panhandlers less visible to other citizens.

3. This is a three-week assignment. Your instructor will give you a description of a controversial issue. Pick one side of the issue and write an essay defending your opinion. Make it about four pages long, typed double-spaced. It is due one week after it is assigned. The class's essays will then be randomly redistributed to the class. Make sure you don't get your own essay back. For the essay you receive, write a three-page analysis of the quality of the essay. Can you think of better points the writer could have made? Can you think of counterarguments the writer failed to notice? This analysis is due in one week. Put your name on it, and staple it to the back of the first essay. The essay-analysis pairs will then be randomly redistributed to the class. Make sure you don't get any of your own work back. For the pair that you receive, write a three-page critique of both the original essay and the analysis given of it. Put your name on your critique, and staple it to the back of the pair. Turn in the trio within one week.

4. Describe to a sixth-grade science class the similarities and differences between a shadow and a reflection.

5. Common Sense was published anonymously on January 10, 1776. The American radical, Thomas Paine, wrote this fifty-page argumentative essay for a variety of reasons, the main one being to convince readers that the colonies should pursue revolution rather than reconciliation. In 400 to 700 words, summarize the argument against reconciliation. To get some flavor of the arguing, consider Paine's reaction below to the assertion that Great Britain is America's parent, the implication being that after some bad times the child should reconcile with the parent rather than revolt and drive away the parent:

Even brutes do not devour their young, nor savages make war upon their families; wherefore, the assertion, if true, turns to her reproach; but it happens not to be true, or only partly so, and the phrase parent or mother country hath been jesuitically adopted by the king and his parasites, with a low papistical design of gaining an unfair bias on the credulous weakness of our minds. Europe, and not England, is the parent country of America.

6. Research the history of California in the 1930s, then create an argumentative essay making a police officer's case for Okies not settling there.

7. View the film *The Grapes of Wrath* in your college library or elsewhere, then write an essay speculating on the explanation of why the film treated its Chapter 3 the way it did.

8. Write an argumentative essay about utilitarianism in which you conclude either for or against it. Predict the criticisms that might be offered by your opponent and deal with them in your essay.

9. Create an argumentative essay on one of the following topics.

- a. Should Columbus Day celebrations be promoted or downplayed?
- b. Is a fetus a person with rights?
- c. Should our country's defense budget be increased, decreased, or kept the same?
- d. If you drop your new toothbrush in the toilet, should you throw it away, should you wash it in hot water and continue using it, or should you do something else?
- e. How sure can you be that you are not now dreaming?
- f. What is wrong with the following reasoning?

It is impossible for the instructor to leave this room through the door. In order to get out, he (or she) must move from where he is now and walk across the room to the door. But before that, he must reach the halfway point from where he is to the door. But before that, he must reach the one-quarter point from where he is to the door. But before that, he must reach the one-eighth point, and so forth. He has an infinite number of places to go before leaving the room, and nobody has enough time to visit an infinite number of places.

- g. Is the punishment for using crack cocaine too lenient?
- h. Are numbers real objects, or are they just in our heads?

- i. In what ways is the system of taxes unfair—that is, who or what is not taxed the proper amount
 - j. Should a judge ever be able to require a reporter to reveal the identity of her sources (informants)?
 - k. When is it ever proper to steal?
 - l. Should there be a death penalty for any crimes?
 - m. Should flag burning ever be illegal?
 - n. Property owned by organized religions or by insurance companies does not and should not pay property taxes, right?
 - o. Should the border between the U.S. and Mexico be made more open like that between the U.S. and Canada, or should it be made more difficult to cross?
 - p. Discuss this position: Environmentalists do not work from facts. They use tainted theory to scare Americans into believing their lies. Trust me. The Earth will be here for our great-grandchildren to enjoy, even if you do use disposable diapers.
 - q. Is it OK to pay a worker below the minimum wage if the worker voluntarily agrees to work for less?
 - r. Should the federal and state governments create more regulations and red tape for companies involved in producing or selling the food we all eat?
 - s. Who was the best U.S. president?
 - t. What country has the worst foreign policy?
 - u. Are any college sports programs overfunded or underfunded?
 - v. Should county health departments have the right to give out free, clean needles to drug addicts as a means of curbing the spread of AIDS?
 - w. Should employers be able to refuse to hire people who have AIDS, and should insurers be able to refuse to sell them insurance for this reason?
 - x. If (you believe) the amount spent on public welfare is too high, where should the money be spent instead? If (you believe) the amount spent on public welfare is too low, where should the government get the money for the increase?
 - y. Is it OK for the federal government to use our tax monies to bail out failed businesses such as savings and loans?
 - z. Who will probably do more to improve the United States in the future, the Republicans or the Democrats?
-

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CHAPTER OVERVIEW

5: Ethics

Defense Against the Dark Arts: The Psychology and Ethics of Persuasion

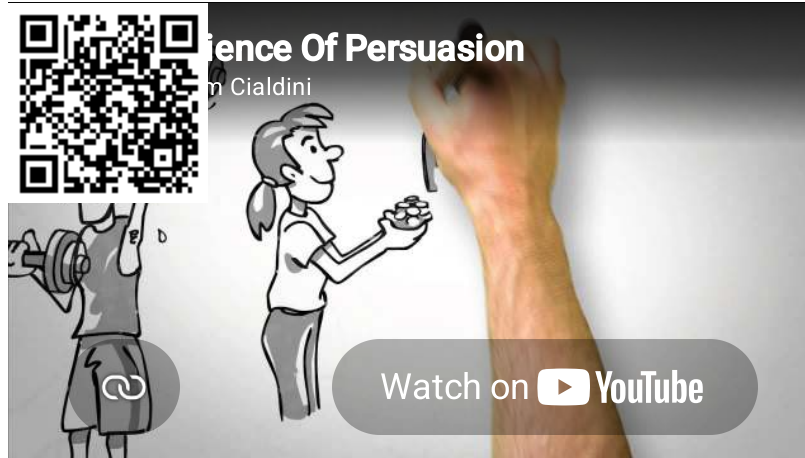


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CHAPTER OVERVIEW

6: Audience Dynamics, Apathetic, Motivated, Hostile

Science of Persuasion



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CHAPTER OVERVIEW

7: Toulmin Model

7.1: Main Body

7.1.1: What is Argument?

7.1.2: Terms- Argument, Community, and Inquiry

7.1.3: Terms- Question at Issue

7.1.4: Terms- Claims

7.2: Toulmin

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SECTION OVERVIEW

7.1: Main Body

7.1.1: What is Argument?

7.1.2: Terms- Argument, Community, and Inquiry

7.1.3: Terms- Question at Issue

7.1.4: Terms- Claims

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7.1.1: What is Argument?

What is argument?

An argument can be a disagreement: often, we think of an argument as a kind of verbal fight that occurs between friends, relatives, or even strangers.

An argument can also be a position: You might argue strongly for something (free parking, cheaper tuition, better coffee) or against something. The facts and evidence you put together in favor of your side are your argument.

In academics, an argument is a composition, usually written, that takes a position and supports it using appropriate evidence. The word “evidence” might make you think of a courtroom, but in reality, anything you present that supports your case is evidence. Data and statistics can be evidence; experience — either yours or someone else’s — can be evidence. Evidence should be true, but it doesn’t necessarily need to be a fact, to support an academic argument.

If that sounds confusing, it’s in part because some of the terms we use to talk about academic argument are used a little differently than how we use them in our everyday life. This chapter will introduce the key terms that we’ll use to talk about argument and explain why we use them. Along the way, we’ll start getting into what argument is, how you can use it, and why you should.

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7.1.2: Terms- Argument, Community, and Inquiry

Terms

Several terms will pop up again and again when we talk about argument. Let's decode a few of them now, starting with argument:

Argument: a disagreement over an issue where both parties can provide evidence to support their side.

Notice the difference here between argument as we'll use it and arguments that you may have experienced elsewhere. In our kind of argument, reasoned argument, the argument itself has to be over a subject where *reasonable people* can disagree.

Who are reasonable people? Excellent question! There's no good answer. (Surprise!) A short explanation goes like this: Reasonable people are people who can be reasoned with. Since that's not helpful, let's break it down further. In order for one person to respond to another person's arguments, they have to share some knowledge or values. It might be entertaining to get into arguments with people who have no knowledge of what they're talking about, but it isn't productive, and it's not what academic argument is trying to do.

The people considered to be knowledgeable and/or reasonable on any topic will likely vary with the topic. Certainly, a Kindergartener could make a great argument for why ice cream should be eaten at every meal — but no one would likely recognize a 5-year-old as a reasonable person on this topic. They lack experience and knowledge, and they would not be able to support their argument with much evidence beyond “because it's tasty!” or “because I want it!” Two nutritionists might be more reasonable, or two restaurant managers, or even just two people who had tried eating ice cream constantly for a day or two. People should generally have some knowledge of or on a topic to be considered part of the crowd who can argue it reasonably.

Some (like John Gage, in *The Shape of Reason*) define this as **an argumentative community**: the people who are concerned with, and knowledgeable enough about, an argument enough that they can discuss and debate it. Your writing class may be an argumentative community, but you're even more likely to find them within classes in your major field of study, where everyone is at equal levels of expertise on a topic.

Of course, we now live in an age where anyone can look up a topic online and feel like an expert five minutes later. So — and this may be the first time you've heard this about the Internet — perhaps having access to online sources has expanded our definitions of who a reasonable audience may be. Let's get back to that in a bit, when we talk about finding sources.

For now, let's focus on the other aspect of this question: What is a reasonable argument? Where does it come from? Well, to create a reasonable argument, we'll need to start, first, with a question. That might sound strange: Shouldn't I start with something I want to argue about and go from there? Well, yes, but if you pick an argument based on something where you already know the answer, you're looking for a fight you can win, instead of an academic argument.

The type of argument we're looking at comes from wanting to find the right answer to an issue about which you have genuine curiosity. This **process of inquiry** is part of the research method that you'll engage in throughout your college career. Engaging in honest inquiry is a vital part of constructing valid arguments. Think of the difference between how you look for answers when you already think you know what the right answer is and when you don't. When actual curiosity drives our search, we are more likely to approach new information with an open mind — and to reconsider our own positions or knowledge. This is the process that academic argument wants to encourage.

The inquiry process needs to start with a question — but it needs to start with the right kind of question.

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7.1.3: Terms- Question at Issue

The Question at Issue

Good research begins by finding a **Question at Issue**. A good Question at Issue is one that:

1. Is current
2. Reasonable/concerned people can disagree upon
3. Can be answered within a narrow frame of time

Finding a current question means looking for something that is still in debate, not a question that was settled years ago. Plenty of issues that were once at the forefront of academic discourse have now faded into the background. No one is really arguing about whether blackboards are a good idea, for instance, and the argument about whether the motorcar will ever replace the horse-drawn carriage is over. While it may be interesting to go back and study settled questions, or to speculate on what would have happened if they had been decided differently, Questions at Issue engage with current topics.

Finding issues about which there is disagreement may seem easy enough, but it can be more challenging than you would think. Remember, we have to look at what the concerned and reasonable people in the argumentative community would consider an actual at-issue question, not whether reports or other parties would like the debate to be renewed. Take, for instance, the issue of Climate Change. [Broad scientific consensus](#) points toward humans being the cause. This means that the concerned and knowledgeable parties — our reasonable people — have spoken on this issue. Yet debate still remains in broadcast and online media over whether climate change is real, which might inspire someone to consider “Is climate change real?” or “Do humans cause climate change?” as Questions at Issue. Because the answer to that question — a resounding “yes!” — has been settled by the expert community, someone wanting to research questions about climate change would have to look for other, unsettled, current questions surrounding the topic. They might study, instead, the degree to which the climate is changing, or how news and opinion media have had an impact on public knowledge about the topic.

Finally, a Question at Issue should be narrow enough that the person asking the question can find an answer within their defined time frame. Should specific drugs be decriminalized/legalized? That’s certainly a question that’s at issue in many communities. However, trying to answer that gigantic question would take years of study. Unless you’re ready to sign up for law and medical school right now, consider narrower questions instead: Should my town decriminalize possession of ___ drug? might be a better question to start with.

Figuring out a question that’s at issue isn’t always easy. It’s rarely going to be the first question that comes up about a topic. You may need to conduct some preliminary research just to figure out a good question at issue — and that’s good! Early research and reading can help narrow your topic before you even start writing, and a focused question at issue will guide the rest of your process and project.

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7.1.4: Terms- Claims

Finding an Answer

Once you've established your question at issue, it's time to find an answer. To do this, you'll conduct research (a process discussed later), synthesize others' ideas, and reach a point where you have a clear side for your argument. When you have a one-sentence answer to your question at issue, you've found your **claim**.

The claim, which is also part of our argumentative thesis, can take several different forms, as both professors Jennifer Fletcher and John Gage point out in their books on argumentative writing. These forms are:

- Claim of fact
- Claim of definition
- Claim of value
- Claim of rule/policy/action

A **claim of fact** may ask about consequences or reasons, or it may try to establish whether something can be true. For example, I might claim Providing free textbooks would enable more students to stay enrolled in college. That's a claim of fact: I can prove (or fail to prove) that free books will mean more enrolled students by looking at numbers. Likewise, I can make claims of fact about existing policies or procedures (Most students do not understand our college plagiarism policies) or about reasons or consequences (Netflix users are less likely to go to the movies than those without Netflix).

A **claim of definition** tries to explain something or a part of something in a new or potentially controversial way. Let's take a break to talk about controversy: Usually, the word "controversy" is now attached to the idea of scandal or impropriety. For our use, controversy reverts to its original meaning: "disagreement." So defining something in a new way, or in a way about which there could be disagreement, is making a claim of definition.

Why would we want to argue over words, though? Well, for some of us, it's because that's what we love to do (think of your instructor). For the rest of us, claims of definition are interesting because they offer the chance to redefine how people think and talk about a topic you're interested in. Think of the dozens of words you use each day that have a meaning that's specific to you, or just to you and your friends. When you use the word "leader" or "leadership," for instance, what do you mean by it? When you picture "success," what are you picturing? What about words like "accessible," or "free," or "entitled"? Do you think you define them the same way as everyone else, or do you think your own experiences have led you to a different understanding of what being free or being successful really means? If so, perhaps you want to make a claim of definition about those words.

Other kinds of claims of definitions may work to narrow or broaden well-known terms. For example, if you want to argue that cheerleading should be considered an Olympic sport, you may have a claim of definition about what sports are (or what the Olympics should be).

Claims of value might sound like the kind of claims that get you into arguments over Thanksgiving dinner — and that's not untrue. However, in academic argument, remember, we're not trying to get into any fights. We don't want anyone to stop speaking to anyone else. We're trying to find reasonable ways to disagree, and sometimes, our disagreements are based on shared values or ethics, not on facts. Shared values might be personally held beliefs, such as religious/spiritual beliefs, but they might also be ethical codes that professional groups adhere to. As a student, you are likely subject to a student Code of Conduct, which is a statement about the shared values or standards upheld by students at your institution. A claim of value, also called a "claim of quality" (Fletcher), makes an argument based on these shared values that something is good or bad.

That might sound pretty heavy, but you've likely seen more claims of value in your life than anything else — particularly if you've ever looked at reviews online. Restaurant and product reviews are often based on claims of value: This restaurant has the best burger in the history of ever is a claim of value. Can we factually prove that any restaurant has the best burger in history? No. Can we define what "the best burger" is? Perhaps. Can we appeal to other burger lovers and claim that this restaurant is great? Sure. That's a claim of value.

Likewise, most reviews of art, music, movies, and dance rely on claims of value or quality. The reviewer may establish shared values with the audience by explaining what they'll be evaluating the performance on, but the audience must share those values in order to believe the claim. Put another way: If I love explosions and spaceships, and a reviewer says "This new movie is great" and supports that claim by talking about all of the fireworks and space adventures, I'm going to realize we share some values and be more likely to agree with the reviewer's claim.

Claims of value often deal with gray-area issues, as well. Consider the earlier question about whether drugs should be decriminalized. Questions about what behavior should be seen as criminal come down to questions of value and may require claims of value as their answers. Comparing two different issues may also be a claim of value: Drinking while under the influence of alcohol is more irresponsible than drinking while stoned is a claim of value, because the argument hinges on what the writer (and reader) consider “irresponsible” behavior to be.

Finally, Claims of rule/policy/action (which I’ll abbreviate to **Claims of Rule**) call for changes to be made to existing ways of doing things. These types of claims nearly always begin with a “should” statement: The college should make all first-year textbooks free is a Claim of Rule because it argues for changing an existing policy.

Claims of rule are perhaps the easiest to establish — just find a law you disagree with, and get going — but they are sometimes the hardest to narrow down. Arguing against a national policy, particularly one that’s been around for years, would likely take a book. Many students often decide they want to engage in debate around the Bill of Rights and the U.S. Constitution. While there’s always plenty of debate to be had over what these policies mean, there’s never enough time to thoroughly cover even a less popular amendment (say, the 17th) in a short paper. Trying to argue for or against changes to something like the First or Second Amendment would require giving up the next few years of your life to read nothing but federal court case law. Again, find narrow topics whenever possible: You may not be able to argue broadly about free speech restrictions across the United States, but there may be local issues or campus issues about which research and argument would be doable.

How do you know what type of claim to make? The type of claim you have may depend on the type of question you’ve asked. Look at how these questions and claims match up:

Question of fact:

- Are more accidents caused by drivers under the influence of alcohol or marijuana?
- Claim: More accidents are caused by...

Question of definition:

- What does it mean to be “intoxicated” or “under the influence”?
- Claim: Intoxication means...

Question of value:

- Which is worse, drinking and driving or driving while stoned?
- Claim: It is worse to....

Question of rules:

- Should we change the local policy regarding sales of recreational marijuana?
- Claim: We should change/not change local policy to state that...

Once you have your claim established, it’s time to find the fun stuff: Evidence!

References

Fletcher, J. (2015). [Teaching Arguments: Rhetorical Comprehension, Critique, and Response](#). Portland, ME: Stenhouse.

Gage, J. (2006). *The Shape of Reason*. New York, NY: Pearson.

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7.2: Toulmin

A section on Toulmin-style argumentative writing.

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8.1.1: Inductive Arguments and Statistical Generalizations

As we saw in chapter 1 (section 1.8), an inductive argument is an argument whose conclusion is supposed to follow from its premises with a high level of probability, rather than with certainty. This means that although it is possible that the conclusion doesn't follow from its premises, it is unlikely that this is the case. We said that inductive arguments are "defeasible," meaning that we could turn a strong inductive argument into a weak inductive argument simply by adding further premises to the argument. In contrast, deductive arguments that are valid can never be made invalid by adding further premises. Recall our "Tweets" argument:

1. Tweets is a healthy, normally functioning bird
2. Most healthy, normally functioning birds fly
3. Therefore, Tweets probably flies

Without knowing anything else about Tweets, it is a good bet that Tweets flies. However, if we were to add that Tweets is 6 ft. tall and can run 30 mph, then it is no longer a good bet that Tweets can fly (since in this case Tweets is likely an ostrich and therefore can't fly). The second premise, "most healthy, normally functioning birds fly," is a statistical generalization. **Statistical generalizations** are generalizations arrived at by empirical observations of certain regularities. Statistical generalizations can be either universal or partial. Universal generalizations assert that all members (i.e., 100%) of a certain class have a certain feature, whereas partial generalizations assert that most or some percentage of members of a class have a certain feature. For example, the claim that "67.5% of all prisoners released from prison are rearrested within three years" is a partial generalization that is much more precise than simply saying that "most prisoners released from prison are rearrested within three years." In contrast, the claim that "all prisoners released from prison are rearrested within three years" is a universal generalization. As we can see from these examples, deductive arguments typically use universal statistical generalizations whereas inductive arguments typically use partial statistical generalizations. Since statistical generalizations are often crucial premises in both deductive and inductive arguments, being able to evaluate when a statistical generalization is good or bad is crucial for being able to evaluate arguments. What we are doing in evaluating statistical generalizations is determining whether the premise in our argument is true (or at least well-supported by the evidence). For example, consider the following inductive argument, whose premise is a (partial) statistical generalization:

1. 70% of voters say they will vote for candidate X
2. Therefore, candidate X will probably win the election

This is an inductive argument because even if the premise is true, the conclusion could still be false (for example, an opponent of candidate X could systematically kill or intimidate those voters who intend to vote for candidate X so that very few of them will actually vote). Furthermore, it is clear that the argument is intended to be inductive because the conclusion contains the word "probably," which clearly indicates that an inductive, rather than deductive, inference is intended. Remember that in evaluating arguments we want to know about the strength of the inference from the premises to the conclusion, but we also want to know whether the premise is true! We can assess whether or not a statistical generalization is true by considering whether the statistical generalization meets certain conditions. There are two conditions that any statistical generalization must meet in order for the generalization to be deemed "good."

1. **Adequate sample size:** the sample size must be large enough to support the generalization.
2. **Non-biased sample:** the sample must not be biased.

A **sample** is simply a portion of a population. A **population** is the totality of members of some specified set of objects or events. For example, if I were determining the relative proportion of cars to trucks that drive down my street on a given day, the population would be the total number of cars and trucks that drive down my street on a given day. If I were to sit on my front porch from 12-2 pm and count all the cars and trucks that drove down my street, that would be a sample. A good statistical generalization is one in which the sample is **representative** of the population. When a sample is representative, the characteristics of the sample match the characteristics of the population at large. For example, my method of sampling cars and trucks that drive down my street would be a good method as long as the proportion of trucks to cars that drove down my street between 12-2 pm matched the proportion of trucks to cars that drove down my street during the whole day. If for some reason the number of trucks that drove down my street from 12-2 pm was much higher than the average for the whole day, my sample would not be representative of the population I was trying to generalize about (i.e., the total number of cars and trucks that drove down my street in a day). The "adequate sample size" condition and the "non-biased sample" condition are ways of making sure that a sample is representative. In the rest of this section, we will explain each of these conditions in turn.

It is perhaps easiest to illustrate these two conditions by considering what is wrong with statistical generalizations that fail to meet one or more of these conditions. First, consider a case in which the sample size is too small (and thus the adequate sample size condition is not met). If I were to sit in front of my house for only fifteen minutes from 12:00-12:15 and saw only one car, then my sample would consist of only 1 automobile, which happened to be a car. If I were to try to generalize from that sample, then I would have to say that only cars (and no trucks) drive down my street. But the evidence for this universal statistical generalization (i.e., “every automobile that drives down my street is a car”) is extremely poor since I have sampled only a very small portion of the total population (i.e., the total number of automobiles that drive down my street). Taking this sample to be representative would be like going to Flagstaff, AZ for one day and saying that since it rained there on that day, it must rain every day in Flagstaff. Inferring to such a generalization is an informal fallacy called “hasty generalization.” One commits the fallacy of **hasty generalization** when one infers a statistical generalization (either universal or partial) about a population from too few instances of that population. Hasty generalization fallacies are very common in everyday discourse, as when a person gives just one example of a phenomenon occurring and implicitly treats that one case as sufficient evidence for a generalization. This works especially well when fear or practical interests are involved. For example, Jones and Smith are talking about the relative quality of Fords versus Chevys and Jones tells Smith about his uncle’s Ford, which broke down numerous times within the first year of owning it. Jones then says that Fords are just unreliable and that that is why he would never buy one. The generalization, which is here ambiguous between a universal generalization (i.e., all Fords are unreliable) and a partial generalization (i.e., most/many Fords are unreliable), is not supported by just one case, however convinced Smith might be after hearing the anecdote about Jones’s uncle’s Ford.

The non-biased sample condition may not be met even when the adequate sample size condition is met. For example, suppose that I count all the cars on my street for a three hour period from 11-2 pm during a weekday. Let’s assume that counting for three hours straight give us an adequate sample size. However, suppose that during those hours (lunch hours) there is a much higher proportion of trucks to cars, since (let’s suppose) many work trucks are coming to and from worksites during those lunch hours. If that were the case, then my sample, although large enough, would not be representative because it would be biased. In particular, the number of trucks to cars in the sample would be higher than in the overall population, which would make the sample unrepresentative of the population (and hence biased).

Another good way of illustrating sampling bias is by considering polls. So consider candidate X who is running for elected office and who strongly supports gun rights and is the candidate of choice of the NRA. Suppose an organization runs a poll to determine how candidate X is faring against candidate Y, who is actively anti gun rights. But suppose that the way the organization administers the poll is by polling subscribers to the magazine, Field and Stream. Suppose the poll returned over 5000 responses, which, let’s suppose, is an adequate sample size and out of those responses, 89% favored candidate X. If the organization were to take that sample to support the statistical generalization that “most voters are in favor of candidate X” then they would have made a mistake. If you know anything about the magazine Field and Stream, it should be obvious why. Field and Stream is a magazine whose subscribers who would tend to own guns and support gun rights. Thus we would expect that subscribers to that magazine would have a much higher percentage of gun rights activists than would the general population, to which the poll is attempting to generalize. But in this case, the sample would be unrepresentative and biased and thus the poll would be useless. Although the sample would allow us to generalize to the population, “Field and Stream subscribers,” it would not allow us to generalize to the population at large.

Let’s consider one more example of a sampling bias. Suppose candidate X were running in a district in which there was a high proportion of elderly voters. Suppose that candidate X favored policies that elderly voters were against. For example, suppose candidate X favors slashing Medicare funding to reduce the budget deficit, whereas candidate Y favored maintaining or increasing support to Medicare. Along comes an organization who is interested in polling voters to determine which candidate is favored in the district. Suppose that the organization chooses to administer the poll via text message and that the results of the poll show that 75% of the voters favor candidate X. Can you see what’s wrong with the poll—why it is biased? You probably recognize that this polling method will not produce a representative sample because elderly voters are much less likely to use cell phones and text messaging and so the poll will leave out the responses of these elderly voters (who, we’ve assumed make up a large segment of the population). Thus, the sample will be biased and unrepresentative of the target population. As a result, any attempt to generalize to the general population would be extremely ill-advised.

Before ending this section, we should consider one other source of bias, which is a bias in the polling questionnaire itself (what statisticians call the “instrument”). Suppose that a poll is trying to determine how much a population favors organic food products. We can imagine the questionnaire containing a choice like the following:

Which do you prefer?

- a. products that are expensive and have no FDA proven advantage over the less expensive products
- b. products that are inexpensive and have no FDA proven disadvantage over more expensive products

Because of the phrasing of the options, it seems clear that many people will choose option “b.” Although the two options do accurately describe the difference between organic and non-organic products, option “b” sounds much more desirable than option “a.” The phrasing of the options is biased insofar as “a” is a stand-in for “organic” and “b” is stand-in for “non-organic.” Even people who favor organic products may be more inclined to choose option “b” here. Thus, the poll would not be representative because the responses would be skewed by the biased phrasing of the options. Here is another example with the same point:

Which do you favor?

- a. Preserving a citizen’s constitutional right to bear arms
- b. Leaving honest citizens defenseless against armed criminals

Again, because option “b” sounds so bad and “a” sounds more attractive, those responding to a poll with this question might be inclined to choose “a” even if they don’t really support gun rights. This is another example of how bias can creep into a statistical generalization through a biased way of asking a question.

Random sampling is a common sampling method that attempts to avoid any kinds of sampling bias by making selection of individuals for the sample a matter of random chance (i.e., anyone in the population is as likely as anyone else to be chosen for the sample). The basic justification behind the method of random sampling is that if the sample is truly random (i.e., anyone in the population is as likely as anyone else to be chosen for the sample), then the sample will be representative. The trick for any random sampling technique is to find a way of selecting individuals for the sample that doesn’t create any kind of bias. A common method used to select individuals for a random sample (for example, by Gallup polls) is to call people on either their landline or cell phones. Since most voting Americans have either a landline or a cell phone, this is a good way of ensuring that every American has an equal chance of being included in the sample. Next, a random number generating computer program selects numbers to dial. In this way, organizations like Gallup are able to get something close to a random sample and are able to represent the whole U.S. population with a sample size as small as 1000 (with a margin of error of ± 4). As technology and social factors change, random sampling techniques have to be updated. For example, although Gallup used to call only landlines, eventually this method became biased because many people no longer owned landlines, but only cell phones. If some new kind of technology replaces cell phones and landlines, then Gallup will have to adjust the way it obtains a sample in order to reflect the changing social reality.

Exercise

What kinds of problems, if any, do the following statistical generalizations have? If there is a problem with the generalization, specify which of the two conditions (adequate sample size, non-biased sample) are not met. Some generalizations may have multiple problems. If so, specify all of the problems you see with the generalization.

1. Bob, from Silverton, CO drives a 4x4 pickup truck, so most people from Silverton, CO drive 4x4 pickup trucks.
2. Tom counts and categorizes birds that land in the tree in his backyard every morning from 5:00-5:20 am. He counts mostly morning doves and generalizes, “most birds that land in my tree in the morning are morning doves.”
3. Tom counts and categorizes birds that land in the tree in his backyard every morning from 5:00-6:00 am. He counts mostly morning doves and generalizes, “most birds that land in my tree during the 24-hour day are morning doves.”
4. Tom counts and categorizes birds that land in the tree in his backyard every day from 5:00-6:00 am, from 11:00-12:00 pm, and from 5:00-6:00 pm. He counts mostly morning doves and generalizes, “most birds that land in my tree during the 24-hour day are morning doves.”
5. Tom counts and categorizes birds that land in the tree in his backyard every evening from 10:00-11:00 pm. He counts mostly owls and generalizes, “most birds that land in my tree throughout the 24-hour day are owls.”
6. Tom counts and categorizes birds that land in the tree in his backyard every evening from 10:00-11:00 pm and from 2:00-3:00 am. He counts mostly owls and generalizes, “most birds that land in my tree throughout the night are owls.”
7. A poll administered to 10,000 registered voters who were home- owners showed that 90% supported a policy to slash Medicaid funding and decrease property taxes. Therefore, 90% of voters support a policy to slash Medicaid funding.
8. A telephone poll administered by a computer randomly generating numbers to call, found that 68% of Americans in the sample of 2000 were in favor of legalizing recreational marijuana use. Thus, almost 70% of Americans favor legalizing recreation marijuana use.
9. A randomized telephone poll in the United States asked respondents whether they supported a) a policy that allows killing innocent children in the womb or b) a policy that saves the lives of innocent children in the womb. The results showed that 69% of

respondents choose option “b” over option “a.” The generalization was made that “most Americans favor a policy that disallows abortion.”

10. Steve’s first rock and roll concert was an Ani DiFranco concert, in which most of the concert-goers were women with feminist political slogans written on their t-shirts. Steve makes the generalization that “most rock and roll concert-goers are women who are feminists.” He then applies this generalization to the next concert he attends (Tom Petty) and is greatly surprised by what he finds.

11. A high school principal conducts a survey of how satisfied students are with his high school by asking students in detention to fill out a satisfaction survey. Generalizing from that sample, he infers that 79% of students are dissatisfied with their high school experience. He is surprised and saddened by the result.

12. After having attended numerous Pistons home games over 20 years, Alice cannot remember a time when she didn’t see ticket scalpers selling tickets outside the stadium. She generalizes that there are always scalpers at every Pistons home game.

13. After having attended numerous Pistons home games over 20 years, Alice cannot remember a time when she didn’t see ticket scalpers selling tickets outside the stadium. She generalizes that there are ticket scalpers at every NBA game.

14. After having attended numerous Pistons home games over 20 years, Alice cannot remember a time when she didn’t see ticket scalpers selling tickets outside the stadium. She generalizes that there are ticket scalpers at every sporting event.

15. Bob once ordered a hamburger from Burger King and got violently ill shortly after he ate it. From now on, he never eats at Burger King because he fears he will get food poisoning.

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8.1.2: Inference to the Best Explanation and the Seven Explanatory Virtues

Explanations help us to understand why something happened, not simply convince us that something happened (see chapter 1, section 1.3). However, there is a common kind of inductive argument that takes the best explanation of why x occurred as an argument for the claim that x occurred. For example, suppose that your car window is broken and your iPod (which you left visible in the front seat) is missing. The immediate inference you would probably make is that someone broke the window of your car and stole your iPod. What makes this a reasonable inference? What makes it a reasonable inference is that this explanation explains all the relevant facts (broken window, missing iPod) and does so better than any other competing explanation. In this case, it is perhaps possible that a stray baseball broke your window, but since (let us suppose) there is no baseball diamond close by, and people don't play catch in the parking garage you are parked in, this seems unlikely. Moreover, the baseball scenario doesn't explain why the iPod is gone. Of course, it could be that some inanimate object broke your window and then someone saw the iPod and took it. Or perhaps a dog jumped into the window that was broken by a stray baseball and ate your iPod. These are all possibilities, but they are remote and thus much less likely explanations of the facts at hand. The much better explanation is that a thief both broke the window and took the iPod. This explanation explains all the relevant facts in a simple way (i.e., it was the thief responsible for both things) and this kind of thing is (unfortunately) not uncommon—it happens to other people at other times and places. The baseball-dog scenario is not as plausible because it doesn't happen in contexts like this one (i.e., in a parking garage) nearly as often and it is not as simple (i.e., we need to posit two different events that are unconnected to each other—stray baseball, stray dog—rather than just one—the thief). **Inference to the best explanation** is a form of inductive argument whose premises are a set of observed facts, a hypothesis that explains those observed facts, and a comparison of competing explanations, and whose conclusion is that the hypothesis is true. The example we've just been discussing is an inference to the best explanation. Here is its form:

1. Observed facts: Your car window is broken and your iPod is gone.
2. Explanation: The hypothesis that a thief broke the window and stole your iPod provides a reasonable explanation of the observed facts.
3. Comparison: No other hypothesis provides as reasonable an explanation.
4. Conclusion: Therefore, a thief broke your car window and stole your iPod.

Notice that this is an inductive argument because the premises could all be true and yet the conclusion false. Just because something is reasonable, doesn't mean it is true. After all, sometimes things happen in the world that defy our reason. So perhaps the baseball-dog hypothesis was actually true. In that case, the premises of the argument would still be true (after all, the thief hypothesis is still more reasonable than the baseball-dog hypothesis) and yet the conclusion would be false. But the fact that the argument is not a deductive argument isn't a defect of the argument, because inference to the best explanation arguments are not intended to be deductive arguments, but inductive arguments. As we saw in chapter 1, inductive arguments can be strong even if the premises don't entail the conclusion. That isn't a defect of an inductive argument, it is simply a definition of what an inductive argument is! As we've seen, in order to make a strong inference to the best explanation, the favored explanation must be the best (or the most reasonable). But what makes an explanation reasonable? There are certain conditions that any good explanation must meet. The more of these conditions are met, the better the explanation. The first, and perhaps most obvious condition, is that the hypothesis proposed must actually explain all the observed facts. For example, if, in order to explain the facts that your car window was broken and your iPod was missing, someone were to say offer the hypothesis that a rock thrown up from a lawnmower broke the window of your car, then this hypothesis wouldn't account for all the facts because it wouldn't explain the disappearance of your iPod. It would lack the explanatory virtue of explaining all the observed facts. The baseball-dog hypothesis would explain all the observed facts, but it would lack certain other explanatory virtues, such as "power" and "simplicity." In the remainder of this section, I will list the seven explanatory virtues and then I will discuss each one in turn. The seven explanatory virtues are:

1. **Explanatoriness**: Explanations must explain all the observed facts.
2. **Depth**: Explanations should not raise more questions than they answer.
3. **Power**: Explanations should apply in a range of similar contexts, not just the current situation in which the explanation is being offered.
4. **Falsifiability**: Explanations should be falsifiable—it must be possible for there to be evidence that would show that the explanation is incorrect.
5. **Modesty**: Explanations should not claim any more than is needed to explain the observed facts. Any details in the explanation must relate to explaining one of the observed facts.
6. **Simplicity**: Explanations that posit fewer entities or processes are preferable to explanations that posit more entities or processes. All other things being equal, the simplest explanation is the best. This is sometimes referred to as "**Ockham's razor**"

after William of Ockham (1287-1347), the medieval philosopher and logician.

7. **Conservativeness:** Explanations that force us to give up fewer well-established beliefs are better than explanations that force us to give up more well-established beliefs.

Suppose that when confronted with the observed facts of my car window being broken and my iPod missing, my colleague Jeff hypothesizes that my colleague, Paul Jurczak did it. However, given that I am friends with Paul, that Paul could easily buy an iPod if he wanted one, and that I know Paul to be the kind of person who has probably never stolen anything in his life (much less broken a car window), this explanation would raise many more questions than it answers. Why would Paul want to steal my iPod? Why would he break my car window to do so? Etc. This explanation raises as many questions as it answers and thus it lacks the explanatory virtue of “depth.”

Consider now an explanation that lacks the explanatory virtue of “power.” A good example would be the stray baseball scenario which is supposed to explain, specifically, the breaking of the car window. Although it is possible that a stray baseball broke my car window, that explanation would not apply in a range of similar contexts since people don’t play baseball in or around parking garages. So not many windows broken in parking garages can be explained by stray baseballs. In contrast, many windows broken in parking garages can be explained by thieves. Thus, the thief explanation would be a more powerful explanation, whereas the stray baseball explanation would lack the explanatory virtue of power.

Falsifiability can be a confusing concept to grasp. How can anything having to do with being false be a virtue of an explanation? An example will illustrate why the possibility of being false is actually a necessary condition for any good empirical explanation. Consider the following explanation. My socks regularly disappear and then sometime reappear in various places in the house. Suppose I were to explain this fact as follows. There is an invisible sock gnome that lives in our house. He steals my socks and sometimes he brings them back and sometimes he doesn’t. This explanation sounds silly and absurd, but how would you show that it is false? It seems that the hypothesis of the sock gnome is designed such that it cannot be shown to be false—it cannot be falsified. The gnome is invisible, so you can never see it do its thing. Since there is no way to observe it, it seems you can never prove nor disprove the existence of the sock gnome. Thus, you can neither confirm nor disconfirm the hypothesis. But such a hypothesis is a defective hypothesis. Any empirical hypothesis (i.e., a hypothesis that is supposed to explain a set of observed facts) must at least be able to be shown false. The sock gnome hypothesis lacks this virtue—that is, it lacks the explanatory virtue of being falsifiable. In contrast, if I were to hypothesize that our dog, Violet, ate the sock, then this hypothesis is falsifiable. For example, I could perform surgery on Violet and see if I found remnants of a sock. If I didn’t, then I would have shown that the hypothesis is false. If I did, then I would thereby have confirmed the hypothesis. So the “dog ate the sock” hypothesis is falsifiable, and this is a good thing. The difference between a true hypothesis and a false one is simply that the true hypothesis has not yet been shown to be false, whereas the false one has. Falsifiability requires only that it be possible to show that the hypothesis is false. If we look for evidence that would show that the hypothesis is false, but we won’t find that evidence, then we have confirmed that hypothesis. In contrast, an unfalsifiable hypothesis cannot be confirmed because we cannot specify any evidence that would show it was false, so we can’t try to look for such evidence (which is what a rigorous scientific methodology requires).

Suppose, to return to my broken window/missing iPod scenario, that my friend Chris hypothesized that a 24 year old Chinese man with a Tweety Bird tattoo on his left shoulder broke the window of my car and stole the iPod. This explanation would lack the explanatory virtue of “modesty.” The problem is that the hypothesis is far more specific than it needs to be in order to explain the relevant observed facts. The details in any explanation should be relevant to explaining the observed facts. However, there is no reason to include the details that the thief was 24 years old, Chinese, and had a Tweety Bird tattoo on his left shoulder. How do those details help us to understand why the observed facts occurred? They don’t. It would be just as explanatory to say, simply, that it was a thief rather than to include all those details about the thief, which don’t help us to understand or explain any of the observed facts.

The explanatory virtue of “simplicity” tells us that all other things being equal, the simplest explanation is the better explanation. More precisely, an explanation that posits fewer entities or processes in order to explain the observed facts is better than an explanation that posits more entities and processes to explain that same set of observed facts. Here is an example of an explanation that would lack the virtue of simplicity. Suppose that all three of our cars in our driveway were broken into one night and that the next morning the passenger’s side rear windows of each car were broken out. If I were to hypothesize that three separate, unrelated thieves at three different times of the night broke into each of the cars, then this would be an explanation that lacks the virtue of simplicity. The far simpler explanation is that it was one thief (or one related group of thieves) that broke into the three cars at roughly the same time. In the domain of science, upholding simplicity is often a matter of not positing new entities or laws when we can explain the observed facts in terms of existing entities and laws. My earlier example of the sock gnome stealing the socks

vs. our dog Violet taking the socks is a good example to illustrate this. Sock gnomes would be a new kind of entity that we don't have any independent reason to think exists, but our dog Violet clearly already exists and since the observed facts can be explained by Violet's actions rather than that of a sock gnome, the Violet explanation possesses the explanatory virtue of simplicity, whereas the sock gnome explanation lacks the explanatory virtue of simplicity. However, sometimes science requires that we posit new kinds of entities or processes, as when Copernicus and Galileo suggested that the sun, rather than the earth, was at the center of the "solar system" in order to explain certain astronomical observations. In physics new entities are often posited in order to explain the observations that physicists make. For example, the elementary particle dubbed "the Higgs boson" was hypothesized by Peter Higgs (and others) in 1964 and was confirmed in 2012. Much earlier, in 1897, J.J. Thompson and his collaborators, drawing on the work of earlier German physicists, discovered the electron—one of the first elementary particles to be discovered. So there is nothing wrong with positing new laws or entities—that is how science progresses. Simplicity doesn't say that one should never posit new entities; that would be absurd. Rather, it tells us that if the observed facts can be explained without having to posit new entities, then that explanation is preferable to an explanation that does posit new entities (all other things being equal). Of course, sometimes the observations cannot be explained without having to change the way we understand that world. This is when it is legitimate to posit new entities or scientific laws.

The last explanatory virtue—conservativeness—tells us that better explanations are ones that force us to give up fewer well-established beliefs. Like simplicity, conservativeness is an explanatory virtue only when we are considering two explanations that each explain all the observed facts, but where one conflicts with well-established beliefs and the other doesn't. In such a case, the former explanation would lack the explanatory virtue of conservativeness, whereas the latter explanation would possess the virtue of conservativeness. Here is an example to illustrate the virtue of conservativeness. Suppose that there are some photographs that vaguely seem to indicate a furry, bipedal humanoid creature that does not look human. My friend Chris offers the following explanation: the creature in those photos is Bigfoot, or Sasquatch. In contrast, I maintain that the creature in the photos is a person in a Bigfoot suit. Given just this evidence (the blurry photos), Chris's explanation lacks the virtue of conservativeness since his explanation requires the existence of Bigfoot, which is contrary to well-established beliefs that Bigfoot is merely folklore, not a real creature. In contrast, my explanation possesses the virtue of conservativeness since there is nothing about someone dressing up in a costume and being caught on camera (or even someone doing so to play a practical joke or to perpetuate a false belief in a certain population) that conflicts with well-established beliefs. My explanation doesn't require the existence of Bigfoot, but just the existence of human beings dressed up to look like Bigfoot.

It should be stated that some of the examples I have given could illustrate more than one explanatory virtue. For example, the example of the invisible sock gnome hypothesis could illustrate either lack of falsifiability or lack of simplicity. In identifying which explanatory virtues a particular explanation may lack, what is important is that you give the correct reasoning for why the explanation lacks that particular virtue. For example, if you say that the explanation isn't falsifiable, then you need to make sure you give the right explanation of why it isn't falsifiable (i.e., that there is no evidence that could ever show that the hypothesis is false). In contrast, if the explanation lacks simplicity, you'd have to say that there is another explanation that can equally explain all the observed facts but that posits fewer entities or processes.

Exercise

Identify which explanatory virtues, if any, the following explanations lack and explain why it lacks that particular virtue. If there is a better explanation, suggest what it might be.

1. Bob explains the fact that he can't remember what happened yesterday by saying that he must have been kidnapped by aliens, who performed surgery on him and then erased his memory of everything that happened the day before returning him to his house.
2. Mrs. Jones hears strange noises at night such as the creaking of the floor downstairs and rattling of windows. She explains these phenomena by hypothesizing that there is a 37-pound badger that inhabits the house and that emerges at night in search of Wheat Thins and Oreos.
3. Edward saw his friend Tom at the store in their hometown of Lincoln, Nebraska just an hour ago. Then, while watching the World Cup on television, he saw someone that looked just like Tom in the crowd at the game in Brazil. He hypothesizes that his friend Tom must have an identical twin that Tom has never told him about.
4. Edward's friend Tom died two years ago. But just yesterday Tom saw someone who looked and spoke exactly like Tom. Edward hypothesizes that Tom must have come back to life.
5. Edward's friend Tom died twenty years ago when Tom was just 18. But just yesterday Edward saw someone who looked and spoke exactly like Tom. Edward hypothesizes that Tom must have had a son that he did not know about and that this person must have been Tom's son.

6. Elise has the uncanny feeling that although her family members look exactly the same, something just isn't right about them. She hypothesizes that her family members have been replaced with imposters who look and act exactly like her real family members and that no one can prove that this happened.
7. John thinks that since something cannot come from nothing and since we know there was a Big Bang, an all-powerful but invisible and undetectable being must have been the cause of the Big Bang.
8. Erin feels that she is being followed. Every time she looks over her shoulder, she sees someone duck behind an object to avoid being seen. She hypothesizes that it must be her 5th grade teacher, Mr. Sanchez.
9. While walking through the forest at night, Claudia hears some rustling in the bushes. It is clear to her that it isn't just the wind, because she can hear sticks cracking on the ground. She hypothesizes that it must be an escaped zoo animal.
10. While driving on the freeway, Bill sees the flashing lights of a cop car in his rear view mirror. He hypothesizes that the cops must have finally found out about the library book that he never returned when he was in fifth grade and are coming to get him.
11. While driving on the freeway, Bill sees the flashing lights of a cop car in his rear view mirror. He hypothesizes that the cops are going to pull someone over for speeding.
12. While driving on the freeway, Bill sees the flashing lights of a cop car in his rear view mirror. He hypothesizes that the cops are going to pull someone over for going 13.74 mph over the speed limit.
13. Stacy cannot figure out why the rat poison she is using is not killing the rats in her apartment. She hypothesizes that the rats must be a new breed of rats that are resistant to any kind of poison and that evolved in the environment of her apartment.
14. Stacy cannot figure out why the rat poison she is using is not killing the rats in her apartment. She hypothesizes that the rats must be a new breed of rats that are immortal and that evolved in the environment of her apartment.
15. Bob is fed up with his life. He intends to kill himself so he gets his gun, puts bullets into it and pull the trigger. Miraculously, he is not killed. Bob hypothesizes that he must be immortal.

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8.1.3: Analogical Arguments

Another kind of common inductive argument is an argument from analogy. In an **argument from analogy**, we note that since some thing x shares similar properties to some thing y , then since y has characteristic A , x probably has characteristic A as well. For example, suppose that I have always owned Subaru cars in the past and that they have always been reliable and I argue that the new car I've just purchased will also be reliable because it is a Subaru. The two things in the analogy are 1) the Subarus I have owned in the past and 2) the current Subaru I have just purchased. The similarity between these two things is just that they are both Subaru. Finally, the conclusion of the argument is that this Subaru will share the characteristic of being reliable with the past Subarus I have owned. Is this argument a strong or weak inductive argument? Partly it depends on how many Subarus I've owned in the past. If I've only owned one, then the inference seems fairly weak (perhaps I was just lucky in that one Subaru I've owned). If I've owned ten Subarus then the inference seems much stronger. Thus, the reference class that I'm drawing on (in this case, the number of Subarus I've previously owned) must be large enough to generalize from (otherwise we would be committing the fallacy of "hasty generalization"). However, even if our reference class was large enough, what would make the inference even stronger is knowing not simply that the new car is a Subaru, but also specific things about its origin. For example, if I know that this particular model has the same engine and same transmission as the previous model I owned and that nothing significant has changed in how Subarus are made in the intervening time, then my argument is strengthened. In contrast, if this new Subaru was made after Subaru was bought by some other car company, and if the engine and transmission were actually made by this new car company, then my argument is weakened. It should be obvious why: the fact that the car is still called "Subaru" is not relevant establishing that it will have the same characteristics as the other cars that I've owned that were called "Subarus." Clearly, what the car is called has no inherent relevance to whether the car is reliable. Rather, what is relevant to whether the car is reliable is the quality of the parts and assembly of the car. Since it is possible that car companies can retain their name and yet drastically alter the quality of the parts and assembly of the car, it is clear that the name of the car isn't itself what establishes the quality of the car. Thus, the original argument, which invoked merely that the new car was a Subaru is not as strong as the argument that the car was constructed with the same quality parts and quality assembly as the other cars I'd owned (and that had been reliable for me). What this illustrates is that better arguments from analogy will invoke more relevant similarities between the things being compared in the analogy. This is a key condition for any good argument from analogy: the similar characteristics between the two things cited in the premises must be relevant to the characteristic cited in the conclusion.

Here is an ethical argument that is an argument from analogy.¹ Suppose that Bob uses his life savings to buy an expensive sports car. One day Bob parks his car and takes a walk along a set of train tracks. As he walks, he sees in the distance a small child whose leg has become caught in the train tracks. Much to his alarm, he sees a train coming towards the child. Unfortunately, the train will reach the child before he can (since it is moving very fast) and he knows it will be unable to stop in time and will kill the child. At just that moment, he sees a switch near him that he can throw to change the direction of the tracks and divert the train onto another set of tracks so that it won't hit the child. Unfortunately, Bob sees that he has unwittingly parked his car on that other set of tracks and that if he throws the switch, his expensive car will be destroyed. Realizing this, Bob decides not to throw the switch and the train strikes and kills the child, leaving his car unharmed. What should we say of Bob? Clearly, that was a horrible thing for Bob to do and we would rightly judge him harshly for doing it. In fact, given the situation described, Bob would likely be criminally liable. Now consider the following situation in which you, my reader, likely find yourself (whether you know it or not—well, now you do know it). Each week you spend money on things that you do not need. For example, I sometimes buy \$5 espressos from Biggby's or Starbuck's. I do not need to have them and I could get a much cheaper caffeine fix, if I chose to (for example, I could make a strong cup of coffee at my office and put sweetened hazelnut creamer in it). In any case, I really don't need the caffeine at all! And yet I regularly purchase these \$5 drinks. (If \$5 drinks aren't the thing you spend money on, but in no way need, then fill in the example with whatever it is that fits your own life.) With the money that you could save from forgoing these luxuries, you could, quite literally, save a child's life. Suppose (to use myself as an example) I were to buy two \$5 coffees a week (a conservative estimate). That is \$10 a week, roughly \$43 a month and \$520 a year. Were I to donate that amount (just \$40/month) to an organization such as the Against Malaria Foundation, I could save a child's life in just six years.² Given these facts, and comparing these two scenarios (Bob's and your own), the argument from analogy proceeds like this:

1. Bob chose to have a luxury item for himself rather than to save the life of a child.
2. "We" regularly choose having luxury items rather than saving the life of a child.
3. What Bob did was morally wrong.
4. Therefore, what we are doing is morally wrong as well.

The two things being compared here are Bob's situation and our own. The argument then proceeds by claiming that since we judge what Bob did to be morally wrong, and since our situation is analogous to Bob's in relevant respects (i.e., choosing to have luxury items for ourselves rather than saving the lives of dying children), then our actions of purchasing luxury items for ourselves must be morally wrong for the same reason. One way of arguing against the conclusion of this argument is by trying to argue that there are relevant disanalogies between Bob's situation and our own. For example, one might claim that in Bob's situation, there was something much more immediate he could do to save the child's life right then and there. In contrast, our own situation is not one in which a child that is physically proximate to us is in imminent danger of death, where there is something we can immediately do about it. One might argue that this disanalogy is enough to show that the two situations are not analogous and that, therefore, the conclusion does not follow. Whether or not this response to the argument is adequate, we can see that the way of objecting to an argument from analogy is by trying to show that there are relevant differences between the two things being compared in the analogy. For example, to return to my car example, even if the new car was a Subaru and was made under the same conditions as all of my other Subarus, if I purchased the current Subaru used, whereas all the other Subarus had been purchased new, then that could be a relevant difference that would weaken the conclusion that this Subaru will be reliable. So we've seen that an argument from analogy is strong only if the following two conditions are met:

1. The characteristics of the two things being compared must be similar in relevant respects to the characteristic cited in the conclusion.
2. There must not be any relevant disanalogies between the two things being compared.

Arguments from analogy that meet these two conditions will tend to be stronger inductive arguments.

Exercise

Evaluate the following arguments from analogy as either strong or weak. If the argument is weak, cite what you think would be a relevant disanalogy.

1. Every painting by Rembrandt contains dark colors and illuminated faces, therefore the original painting that hangs in my high school is probably by Rembrandt, since it contains dark colors and illuminated faces.
2. I was once bitten by a poodle. Therefore, this poodle will probably bite me too.
3. Every poodle I've ever met has bitten me (and I've met over 300 poodles). Therefore this poodle will probably bite me too.
4. My friend took Dr. Van Cleave's logic class last semester and got an A. Since Dr. Van Cleave's class is essentially the same this semester and since my friend is no better a student than I am, I will probably get an A as well.
5. Bill Cosby used his power and position to seduce and rape women. Therefore, Bill Cosby probably also used his power to rob banks.
6. Every car I've ever owned had seats, wheels and brakes and was also safe to drive. This used car that I am contemplating buying has seats, wheels and brakes. Therefore, this used car is probably safe to drive.
7. Every Volvo I've ever owned was a safe car to drive. My new car is a Volvo. Therefore, my new car is probably safe to drive.
8. Dr. Van Cleave did not give Jones an excused absence when Jones missed class for his grandmother's funeral. Mary will have to miss class to attend her aunt's funeral. Therefore, Dr. Van Cleave should not give Mary an excused absence either.
9. Dr. Van Cleave did not give Jones an excused absence when Jones missed class for his brother's birthday party. Mary will have to miss class to attend her aunt's funeral. Therefore, Dr. Van Cleave should not give Mary an excused absence either.
10. If health insurance companies pay for heart surgery and brain surgery, which can both increase an individual's happiness, then they should also pay for cosmetic surgery, which can also increase an individual's happiness.
11. A knife is an eating utensil that can cut things. A spoon is also an eating utensil. So a spoon can probably cut things as well.
12. Any artificial, complex object like a watch or a telescope has been designed by some intelligent human designer. But naturally occurring objects like eyes and brains are also very complex objects. Therefore, complex naturally occurring objects must have been designed by some intelligent non-human designer.
13. The world record holding runner, Kenenisa Bekele ran 100 miles per week and twice a week did workouts comprised of ten mile repeats on the track in the weeks leading up to his 10,000 meter world record. I have run 100 miles per week and have been doing ten mile repeats twice a week. Therefore, the next race I will run will probably be a world record.
14. I feel pain when someone hits me in the face with a hockey puck. We are both human beings, so you also probably feel pain when you are hit in the face with a hockey puck.
15. The color I experience when I see something as "green" has a particular quality (that is difficult to describe). You and I are both human beings, so the color you experience when you see something green probably has the exact same quality. (That is, what you and I experience when we see something green is the exact same experiential color.)

¹ This argument comes (with interpretive liberties on my part) from Peter Singer's, "The Singer Solution to World Poverty" published in the NY Times Magazine, September 5, 1999.

² <http://www.givewell.org/giving101/Yo...rther-overseas>

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8.1.4: Analogical Arguments

When I strike a match it will produce a flame. It is natural to take the striking of the match as the cause that produces the effect of a flame. But what if the matchbook is wet? Or what if I happen to be in a vacuum in which there is no oxygen (such as in outer space)? If either of those things is the case, then the striking of the match will not produce a flame. So it isn't simply the striking of the match that produces the flame, but a combination of the striking of the match together with a number of other conditions that must be in place in order for the striking of the match to create a flame. Which of those conditions we call the "cause" depends in part on the context. Suppose that I'm in outer space striking a match (suppose I'm wearing a space suit that supplies me with oxygen but that I'm striking the match in space, where there is no oxygen). I continuously strike it but no flame appears (of course). But then someone (also in a space suit) brings out a can of compressed oxygen that they spray on the match while I strike it. All of a sudden a flame is produced. In this context, it looks like it is the spraying of oxygen that causes flame, not the striking of the match. Just as in the case of the striking of the match, any cause is more complex than just a simple event that produces some other event. Rather, there are always multiple conditions that must be in place for any cause to occur. These conditions are called **background conditions**. That said, we often take for granted the background conditions in normal contexts and just refer to one particular event as the cause. Thus, we call the striking of the match the cause of the flame. We don't go on to specify all the other conditions that conspired to create the flame (such as the presence of oxygen and the absence of water). But this is more for convenience than correctness. For just about any cause, there are a number of conditions that must be in place in order for the effect to occur. These are called necessary conditions (recall the discussion of necessary and sufficient conditions from chapter 2, section 2.7). For example, a necessary condition of the match lighting is that there is oxygen present. A necessary condition of a car running is that there is gas in the tank. We can use necessary conditions to diagnose what has gone wrong in cases of malfunction. That is, we can consider each condition in turn in order to determine what caused the malfunction. For example, if the match doesn't light, we can check to see whether the matches are wet. If we find that the matches are wet then we can explain the lack of the flame by saying something like, "dropping the matches in the water caused the matches not to light." In contrast, a sufficient condition is one which if present will always bring about the effect. For example, a person being fed through an operating wood chipper is sufficient for causing that person's death (as was the fate of Steve Buscemi's character in the movie Fargo). Because the natural world functions in accordance with natural laws (such as the laws of physics), causes can be generalized. For example, any object near the surface of the earth will fall towards the earth at 9.8 m/s^2 unless impeded by some contrary force (such as the propulsion of a rocket). This generalization applies to apples, rocks, people, wood chippers and every other object. Such causal generalizations are often parts of explanations. For example, we can explain why the airplane crashed to the ground by citing the causal generalization that all unsupported objects fall to the ground and by noting that the airplane had lost any method of propelling itself because the engines had died. So we invoke the causal generalization in explaining why the airplane crashed. Causal generalizations have a particular form:

For any x , if x has the feature(s) E , then x has the feature G

For example:

For any human, if that human has been fed through an operating wood chipper, then that human is dead.

For any engine, if that engine has no fuel, then that engine will not operate.

For any object near the surface of the earth, if that object is unsupported and not impeded by some contrary force, then that object will fall towards the earth at 9.8 m/s^2 .

Being able to determine when causal generalizations are true is an important part of becoming a critical thinker. Since in both scientific and every day contexts we rely on causal generalizations in explaining and understanding our world, the ability to assess when a causal generalization is true is an important skill. For example, suppose that we are trying to figure out what causes our dog, Charlie, to have seizures. To simplify, let's suppose that we have a set of potential candidates for what causes his seizures. It could be either:

- eating human food,
- the shampoo we use to wash him,
- his flea treatment,
- not eating at regular intervals,

or some combination of these things. Suppose we keep a log of when these things occur each day and when his seizures (S) occur. In the table below, I will represent the absence of the feature by a negation. So in the table below, " $\sim A$ " represents that Charlie did

not eat human food on that day; “~B” represents that he did not get a bath and shampoo that day; “~S” represents that he did not have a seizure that day. In contrast, “B” represents that he did have a bath and shampoo, whereas “C” represents that he was given a flea treatment that day. Here is how the log looks:

Day 1	~A	B	C	D	S
Day 2	A	~B	C	D	~S
Day 3	A	B	~C	D	~S
Day 4	A	B	C	~D	S
Day 5	A	B	~C	D	~S
Day 6	A	~B	C	D	~S

How can we use this information to determine what might be causing Charlie to have seizures? The first thing we’d want to know is what feature is present every time he has a seizure. This would be a necessary (but not sufficient) condition. And that can tell us something important about the cause. The **necessary condition** test says that any candidate feature (here A, B, C, or D) that is absent when the target feature (S) is present is eliminated as a possible necessary condition of S.³ In the table above, A is absent when S is present, so A can’t be a necessary condition (i.e., day 1). D is also absent when S is present (day 4) so D can’t be a necessary condition either. In contrast, B is never absent when S is present—that is every time S is present, B is also present. That means B is a necessary condition, based on the data that we have gathered so far. The same applies to C since it is never absent when S is present. Notice that there are times when both B and C are absent, but on those days the target feature (S) is absent as well, so it doesn’t matter.

The next thing we’d want to know is which feature is such that every time it is present, Charlie has a seizure. The test that is relevant to determining this is called the sufficient condition test. The sufficient condition test says that any candidate that is present when the target feature (S) is absent is eliminated as a possible sufficient condition of S. In the table above, we can see that no one candidate feature is a sufficient condition for causing the seizures since for each candidate (A, B, C, D) there is a case (i.e. day) where it is present but that no seizure occurred. Although no one feature is sufficient for causing the seizures (according to the data we have gathered so far), it is still possible that certain features are jointly sufficient. Two candidate features are jointly sufficient for a target feature if and only if there is no case in which both candidates are present and yet the target is absent. Applying this test, we can see that B and C are jointly sufficient for the target feature since any time both are present, the target feature is always present. Thus, from the data we have gathered so far, we can say that the likely cause of Charlie’s seizures are when we both give him a bath and then follow that bath up with a flea treatment. Every time those two things occur, he has a seizure (sufficient condition); and every time he has a seizure, those two things occur (necessary condition). Thus, the data gathered so far supports the following causal conditional:

Any time Charlie is given a shampoo bath and a flea treatment, he has a seizure.

Although in the above case, the necessary and sufficient conditions were the same, this needn’t always be the case. Sometimes sufficient conditions are not necessary conditions. For example, being fed through a wood chipper is a sufficient condition for death, but it certainly isn’t necessary! (Lot’s of people die without being fed through a wood chipper, so it can’t be a necessary condition of dying.) In any case, determining necessary and sufficient conditions is a key part of determining a cause.

When analyzing data to find a cause it is important that we rigorously test each candidate. Here is an example to illustrate rigorous testing. Suppose that on every day we collected data about Charlie he ate human food but that on none of the days was he given a bath and shampoo, as the table below indicates.

Day 1	A	~B	C	D	~S
Day 2	A	~B	C	D	~S
Day 3	A	~B	~C	D	~S
Day 4	A	~B	C	~D	S
Day 5	A	~B	~C	D	~S

Day 6	A	$\sim B$	C	D	S
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Given this data, A trivially passes the necessary condition test since it is always present (thus, there can never be a case where A is absent when S is present). However, in order to rigorously test A as a necessary condition, we have to look for cases in which A is not present and then see if our target condition S is present. We have rigorously tested A as a necessary condition only if we have collected data in which A was not present. Otherwise, we don't really know whether A is a necessary condition. Similarly, B trivially passes the sufficient condition test since it is never present (thus, there can never be a case where B is present but S is absent). However, in order to rigorously test B as a sufficient condition, we have to look for cases in which B is present and then see if our target condition S is absent. We have rigorously tested B as a sufficient condition only if we have collected data in which B is present. Otherwise, we don't really know whether B is a sufficient condition or not.

In **rigorous testing**, we are actively looking for (or trying to create) situations in which a candidate feature fails one of the tests. That is why when rigorously testing a candidate for the necessary condition test, we must seek out cases in which the candidate is not present, whereas when rigorously testing a candidate for the sufficient condition test, we must seek out cases in which the candidate is present. In the example above, A is not rigorously tested as a necessary condition and B is not rigorously tested as a sufficient condition. If we are interested in finding a cause, we should always rigorously test each candidate. This means that we should always have a mix of different situations where the candidates and targets are sometimes present and sometimes absent.

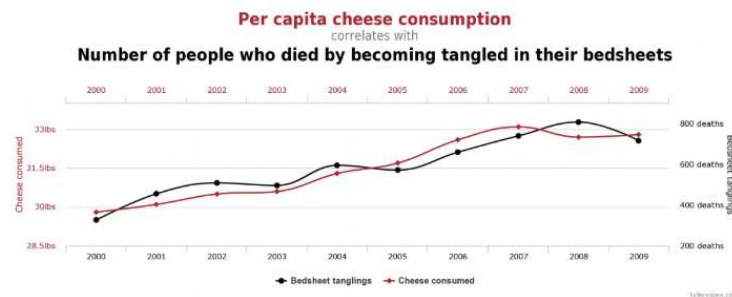
The necessary and sufficient conditions tests can be applied when features of the environment are wholly present or wholly absent. However, in situations where features of the environment are always present in some degree, these tests will not work (since there will never be cases where the features are absent and so rigorous testing cannot be applied). For example, suppose we are trying to figure out whether CO₂ is a contributing cause to higher global temperatures. In this case, we can't very well look for cases in which CO₂ is present but high global temperatures aren't (sufficient condition test), since CO₂ and high temperatures are always present to some degree. Nor can we look for cases in which CO₂ is absent when high global temperatures are present (necessary condition test), since, again, CO₂ and high global temperatures are always present to some degree. Rather, we must use a different method, the method that J.S. Mill called the **method of concomitant variation**. In concomitant variation we look for how things vary vis-à-vis each other. For example, if we see that as CO₂ levels rise, global temperatures also rise, then this is evidence that CO₂ and higher temperatures are **positively correlated**, as one increases, the other also increases at a similar rate (or as one decreases, the other decreases at a similar rate). In contrast, when two things are **negatively correlated**, as one increases, the other decreases at similar rate (or vice versa). For example, if as a police department increased the number of police officers on the street, the number of crimes reported decreases, then number of police on the street and number of crimes reported would be negative correlated. In each of these examples, we may think we can directly infer the cause from the correlation—the rising CO₂ levels are causing the rising global temperatures and the increasing number of police on the street is causing the crime rate to drop. However, we cannot directly infer causation from correlation. Correlation is not causation. If A and B are positively correlated, then there are four distinct possibilities regarding what the cause is:

1. A is the cause of B
2. B is the cause of A
3. Some third thing, C, is the cause of both A and B increasing
4. The correlation is accidental

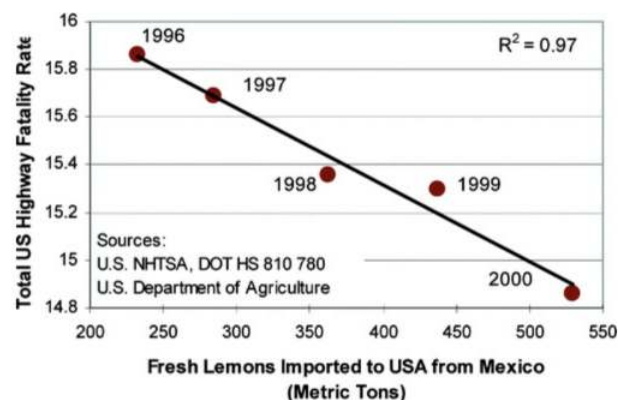
In order to infer what causes what in a correlation, we must rely on our general **background knowledge** (i.e., things we know to be true about the world), our scientific knowledge, and possibly further scientific testing. For example, in the global warming case, there is no scientific theory that explains how rising global temperatures could cause rising levels of CO₂ but there is a scientific theory that enables us to understand how rising levels of CO₂ could increase average global temperatures. This knowledge makes it plausible to infer that the rising CO₂ levels are causing the rising average global temperatures. In the police/crime case, drawing on our background knowledge we can easily come up with an inference to the best explanation argument for why increased police presence on the streets would lower the crime rate—the more police on the street, the harder it is for criminals to get away with crimes because there are fewer places where those crimes could take place without the criminal being caught. Since criminals don't want to risk getting caught when they commit a crime, seeing more police around will make them less likely to commit a crime. In contrast, there is no good explanation for why decreased crime would cause there to be more police on the street. In fact, it would seem to be just the opposite: if the crime rate is low, the city should cut back, or at least remain stable, on the number of police officers and put those resources somewhere else. This makes it plausible to infer that it is the increased police officers on the street that is causing the decrease in crime.

Sometimes two things can be correlated without either one causing the other. Rather, some third thing is causing them both. For example, suppose that Bob discovers a correlation between waking up with all his clothes on and waking up with a headache. Bob might try to infer that sleeping with all his clothes on causes headaches, but there is probably a better explanation than that. It is more likely that Bob's drinking too much the night before caused him to pass out in his bed with all his clothes on, as well as his headache. In this scenario, Bob's inebriation is the **common cause** of both his headache and his clothes being on in bed.

Sometimes correlations are merely accidental, meaning that there is no causal relationship between them at all. For example, Tyler Vigen⁴ reports that the per capita consumption of cheese in the U.S. correlates with the number of people who die by becoming entangled in their bedsheets:



And the number of Mexican lemons imported to the U.S. correlates with the number of traffic fatalities⁵:



Clearly neither of these correlations are causally related at all—they are **accidental correlations**. What makes them accidental is that we have no theory that would make sense of how they could be causally related. This just goes to show that it isn't simply the correlation that allows us to infer a cause, but, rather, some additional background theory, scientific theory, or other evidence that establishes one thing as causing another. We can explain the relationship between correlation and causation using the concepts of necessary and sufficient conditions (first introduced in chapter 2): correlation is a necessary condition for causation, but it is not a sufficient condition for causation.

Our discussion of causes has shown that we cannot say that just because A precedes B or is correlated with B, that A caused B. To claim that since A precedes or correlates with B, A must therefore be the cause of B is to commit what is called the **false cause fallacy**. The false cause fallacy is sometimes called the "post hoc" fallacy. "Post hoc" is short for the Latin phrase, "post hoc ergo propter hoc," which means "before this therefore because of this." As we've seen, false cause fallacies occur any time someone assumes that two events that are correlated must be in a causal relationship, or that since one event precedes another, it must cause the other. To avoid the false cause fallacy, one must look more carefully into the relationship between A and B to determine whether there is a true cause or just a common cause or accidental correlation. Common causes and accidental correlations are more common than one might think.

Exercise

Determine which of the candidates (A, B, C, D) in the following examples pass the necessary condition test or the sufficient condition test relative to the target (G). In addition, note whether there are any candidates that aren't rigorously tested as either necessary or sufficient conditions.

1.

Case 1	A	B	$\sim C$	D	$\sim G$
Case 2	$\sim A$	B	C	D	G
Case 3	A	$\sim B$	C	D	G

2.

Case 1	A	B	C	D	G
Case 2	$\sim A$	B	$\sim C$	D	$\sim G$
Case 3	A	$\sim B$	C	$\sim D$	G

3.

Case 1	A	B	C	D	G
Case 2	$\sim A$	B	C	D	G
Case 3	A	$\sim B$	C	D	G

4.

Case 1	A	B	C	D	$\sim G$
Case 2	$\sim A$	B	C	D	G
Case 3	A	$\sim B$	C	$\sim G$	$\sim G$

5.

Case 1	A	B	C	D	$\sim G$
Case 2	$\sim A$	B	C	D	G
Case 3	A	$\sim B$	C	$\sim D$	$\sim G$

6.

Case 1	A	B	$\sim C$	D	$\sim G$
Case 2	$\sim A$	B	C	D	$\sim G$
Case 3	A	$\sim B$	$\sim C$	$\sim D$	G

7.

Case 1	A	B	$\sim C$	D	G
Case 2	$\sim A$	$\sim B$	C	D	$\sim G$
Case 3	A	$\sim B$	C	$\sim D$	$\sim G$

8.

Case 1	A	B	$\sim C$	D	$\sim G$
Case 2	$\sim A$	$\sim B$	$\sim C$	D	$\sim G$
Case 3	A	$\sim B$	$\sim C$	$\sim D$	$\sim G$

9.

Case 1	A	B	$\sim C$	D	G
Case 2	$\sim A$	$\sim B$	C	D	G
Case 3	A	$\sim B$	$\sim C$	D	$\sim G$

10.

Case 1	$\sim A$	B	$\sim C$	D	$\sim G$
Case 2	$\sim A$	B	C	D	G
Case 3	$\sim A$	$\sim B$	$\sim C$	D	G

For each of the following correlations, use your background knowledge to determine whether A causes B, B causes A, a common cause C is the cause of both A and B, or the correlations is accidental.

1. There is a positive correlation between U.S. spending on science, space, and technology (A) and suicides by hanging, strangulation, and suffocation (B).
2. There is a positive correlation between our dog Charlie's weight (A) and the amount of time we spend away from home (B). That is, the more time we spend away from home, the heavier Charlie gets (and the more we are at home, the lighter Charlie is).
3. The height of the tree in our front yard (A) positively correlates with the height of the shrub in our backyard (B).
4. There is a negative correlation between the number of suicide bombings in the U.S. (A) and the number of hairs on a particular U.S President's head (B).
5. There is a high positive correlation between the number of fire engines in a particular borough of New York Cite (A) and the number of fires that occur there (B).
6. At one point in history, there was a negative correlation between the number of mules in the state (A) and the salaries paid to professors at the state university (B). That is, the more mules, the lower the professors' salaries.
7. There is a strong positive correlation between the number of traffic accidents on a particular highway (A) and the number of billboards featuring scantily-clad models (B).
8. The girth of an adult's waist (A) is negatively correlated with the height of their vertical leap (B).
9. Olympic marathon times (A) are positively correlated with the temperature during the marathon (B). That is, the more time it takes an Olympic marathoner to complete the race, the higher the temperature.
10. The number gray hairs on an individual's head (A) is positively correlated with the number of children or grandchildren they have (B).

³ This discussion draws heavily on chapter 10, pp. 220-224 of Sinnott-Armstrong and Fogelin's Understanding Arguments, 9th edition (Cengage Learning).

⁴ <http://tylervigen.com/spurious-correlations>

⁵ Stephen R. Johnson, The Trouble with QSAR (or How I Learned To Stop Worrying and Embrace Fallacy). J. Chem. Inf. Model., 2008, 48 (1), pp. 25–26.

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8.1.5: Probability

As we have seen, a strong inductive argument is one in which the truth of the premises makes the conclusion highly probable. The distinction between strong inductive arguments and valid (deductive) arguments is that whereas the premises of strong inductive arguments make their conclusions highly probable, the premises of valid arguments make their conclusions certain. We can think of probability as how likely it is that something is (or will be) true, given a particular body of evidence. Using numbers between 0 and 1, we can express probabilities numerically. For example, if I have a full deck of cards and pick one at random, what is the probability that the card I pick is a queen? Since there are 52 cards in the deck, and only four of them are queens, the probability of picking a queen is $4/52$, or .077. That is, I have about a 7.7% chance of picking a queen at random. In comparison, my chances of picking any “face” card would be much higher. There are three face cards in each suit and four different suits, which means there are 12 face cards total. So, $12/52 = .23$ or 23%. In any case, the important thing here is that probabilities can be expressed numerically. In using a numerical scheme to represent probabilities, we take 0 to represent an impossible event (such as a contradiction) and 1 to represent an event that is certain (such as a tautology).

Probability is important to understand because it provides the basis for formal methods of evaluating inductive arguments. While there is no universally agreed upon method of evaluating inductive arguments in the way there is with deductive arguments, there are some basic laws of probability that it is important to keep in mind. As we will see in the next few sections, although these laws of probability are seemingly simple, we misapply them all the time.

We can think of the rules of probability in terms of some of the truth functional operators, introduced in chapter 2: the probability of conjunctions, the probability of negations, and the probability of disjunctions. The probability of conjunctions is the probability that two, independent events will both occur. For example, what is the probability that you randomly draw a queen and then (after returning it to the pile and reshuffling the deck) you draw another queen? Since we are asking what is the probability that these two events both occur, this is a matter of calculating the probability of a joint occurrence. In the following, “a” and “b” will refer to independent events, and the locution “P(a)” stands for “the probability of a.” Here is how we calculate the **probability of conjunctions**:

$$P(a \text{ and } b) = P(a) \times P(b)$$

So, to apply this to my example of drawing two queens, we have to multiply the probability of drawing one queen, “P(a)” by the probability of drawing yet another queen, “P(b).” Since we have already calculated the probability of drawing a queen at .077, the math is quite simple:

$$.077 \times .077 = .0059$$

That is, there is a less than 1% chance (.59% to be precise) of drawing two queens in this scenario. So, obviously, you’d not be wise to place a bet on that happening! Let’s try another example where we have to calculate the probability of a conjunction. Suppose I want to know what the probability that both my father and mother will die of brain cancer. (Macabre, I know.) I’d have to know the probability of dying of brain cancer, which is about $5/100,000$. That is, 5 out of every 100,000 people die of brain cancer. That is a very small number: .00005. But the chance of both of them dying of brain cancer is going to be an even smaller number:

$$.00005 \times .00005 = .0000000025$$

That is almost 1 in a billion chance. So not very likely. Let’s consider a final example with more manageable numbers. Suppose I wanted to know the probability of rolling a 12 when rolling two, six-sided dice. Since the only way to roll a 12 is when I roll a 6 on each die, I can compute the probability of rolling a 6 and then the independent probability of rolling another 6 on the other die. The probability of rolling a six on 1 die is just $1/6 = .166$. Thus, $.166 \times .166 = .028$. Thus, you have a 2.8% chance of rolling a 12. We could have also calculated this using fractions instead of decimals:

$$1/6 \times 1/6 = 1/36$$

Calculating the **probability of negations** is simply a matter of subtracting the probability that some event, say event a, will occur from 1. The result is the probability that event a will not occur:

$$P(\text{not-}a) = 1 - P(a)$$

For example, suppose I am playing monopoly I wanted to determine the probability that I do not roll a 12 (since if I roll a 12 I will land on Boardwalk, which my opponent owns with hotels). Since we have already determined that the probability of rolling a 12 is .028, we can calculate the probability of not rolling a 12 thus:

$$1 - .028 = .972$$

Thus, I have 97.2% chance of not rolling a 12. So it is highly likely that I won't (thank goodness).

Here's another example. What are the chances that my daughter doesn't get into Harvard? Since the acceptance rate at Harvard is about 6% (or .06), I simply subtract that from 1, which yields .94, or 94%. So my daughter has a 94% chance of not getting into Harvard.

We should pause here to make some comments about probability. The probability of an event occurring is relative to some reference class. So, for example, the probability of getting osteoporosis is much higher if you are a woman over 50 (16%) than if you are a man over 50 (4%). So if you want accurate data concerning probability, you have to take into account all the relevant factors. In the case of osteoporosis, that means knowing whether you are a woman or a man and are over or under 50. The same kind of point applies to my example of getting into Harvard. Here's an anecdote that will illustrate the point. Some years ago, I agreed to be a part of an interviewing process for candidates for the "presidential scholarship" at the college at which I was teaching at the time. The interviewees were high school students and we could have calculated the probability that any one of them would win the scholarship simply by noting the number of scholarships available and the number of applicants for them. But after having interviewed the candidates I was given to interview, it was very clear to me that one of them easily outshined all the rest. Thus, given the new information I had, it would have been silly for me to assign the same, generic probability to this student winning the award. This student was extremely well-spoken, well-put-together, and answered even my hardest questions (with which other candidates struggled) with an ease and confidence that stunned me. On top of all of that, she was a Hispanic woman, which I knew would only help her in the process (since colleges value diversity in their student population). I recommended her highly for the scholarship, but I also knew that she would end up at a much better institution (and probably with one of their most competitive scholarships). Some time later, I was wondering where she did end up going to college, so I did a quick search on her name and, sure enough, she was a freshman at Harvard. No surprise to me. The point of the story is that although we could have said that this woman's chances of not getting into Harvard are about 94%, this would neglect all the other things about her which in fact drastically increase her chances of getting into Harvard (and thus drastically decrease her chances of not getting in). So our assessments of probability are only as good as the information we use to assess them. If we were omniscient (i.e., all-knowing), then arguably we could know every detail and would be able to predict with 100% accuracy any event. Since we aren't, we have to rely on the best information we do have and use that information to determine the chances that an event will occur.

Calculating the probability of disjunctions is simply a matter of figuring out the probability that either one event or another will occur. To calculate the **probability of a disjunction** we simply add the probability of the two events together:

$$P(a \text{ or } b) = P(a) + P(b)$$

For example, suppose I wanted to calculate the probability of drawing randomly from a shuffled deck either a spade or a club. Since there are four suits (spades, clubs, diamonds, hearts) each with an equal number of cards, the probability of drawing a spade is $\frac{1}{4}$ or .25. Likewise the probability of drawing a club is .25. Thus, the probability of drawing either a spade or club is:

$$.25 + .25 = .50$$

So you have a 50% chance of drawing either a spade or a club. Sometimes events are not independent. For example, suppose you wanted to know the probability of drawing 5 clubs from the deck (which in poker is called a "flush"). This time you are holding on to the cards after you draw them rather than replacing them back into the deck. The probability of drawing the first club is simply $\frac{13}{52}$ (or $\frac{1}{4}$). However, each of the remaining four draws will be affected by the previous draws. If one were to successfully draw all clubs then after the first draw, there would be only 51 cards left, 12 of which were clubs; after the second draw, there would be only 50 cards left, 11 of which were clubs, and so on, like this:

$$\frac{13}{52} \times \frac{12}{51} \times \frac{11}{50} \times \frac{10}{49} \times \frac{9}{48} = \frac{33}{66,640}$$

As you can see, we've had to determine the probability of a conjunction, since we want card 1 and card 2 and card 3 etc. to all be clubs. That is a conjunction of different events. As you can also see, the probability of drawing such a hand is extremely low—about .0005 or .05%. A flush is indeed a rare hand. But suppose we wanted to know, not the chances of drawing a flush in a specific suit, but just the chances of drawing a flush in any suit. In that case, we'd have to calculate the probability of a disjunction of drawing either a flush in clubs or a flush in spades or a flush in diamonds or a flush in hearts. Recall that in order to calculate a disjunction we must add together the probabilities:

$$.0005 + .0005 + .0005 + .0005 = .002$$

So the probability of drawing a flush in any suit is still only about .2% or one fifth of one percent—i.e., very low.

Let's examine another example before closing this section on probability. Suppose we want to know the chances of flipping at least 1 head in 6 flips of a fair coin. You might reason as follows: There is a 50% chance I flip heads on the first flip, a 50% chance on the second, etc. Since I want to know the chance of flipping at least one head, then perhaps I should simply calculate the probability of the disjunction like this:

$$.5 + .5 + .5 + .5 + .5 + .5 = 3 \text{ (or 300\%)}$$

However, this cannot be right, because the probability of any event is between 1 and 0 (including 0 and 1 for events that are impossible and absolutely certain). However, this way of calculating the probability leaves us with an event that is three times more than certain. And nothing is more than 100% certain—100% certainty is the limit. So something is wrong with the calculation. Another way of seeing that something must be wrong with the calculation is that it isn't impossible that I flip 6 tails in a row (and thus no heads). Since that is a real possibility (however improbable), it cannot be 100% certain that I flip at least one head. Here is the way to think about this problem. What is the probability that I flip all tails? That is simply the probability of the conjunction of 6 events, each of which has the probability of .5 (or 50%):

$$.5 \times .5 \times .5 \times .5 \times .5 \times .5 = .015 \text{ (or 1.5\%)}$$

Then we simply use the rule for calculating the probability of a negation, since we want to know the chances that we don't flip 6 tails in a row (i.e., we flip at least one head):

$$1 - .015 = .985$$

So the probability of flipping at least one head in 6 flips of the coin is 98.5%. (It would be exactly the same probability of flipping at least one tails in 6 flips.)

Exercise

Use the three different rules of calculating probabilities (conjunctions, negations, disjunctions) to calculate the following probabilities, which all related to fair, six-sided dice.

1. What is the probability of rolling a five on one throw one die?
2. What is the probability of not rolling a five on one throw of one die?
3. What is the probability of rolling a five on your first throw and another five on the second throw of that die?
4. If you roll two dice at one time, what are the chances that both dice will come up twos?
5. If you roll two dice at one time, what are the chances that one or the other (or both) of the dice will come up a two?
6. If you roll two dice at once, what are the chances that at most one of the dice will come up a two?
7. If you roll two dice at once, what are the chances that at least one of the dice will come up a four?
8. If you roll two dice at once, what are the chances that there will be no fours?
9. If you roll two dice at once, what are the chances of rolling double fives?
10. If you roll two dice at once, what are the chances of rolling doubles (of any number)?

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8.1.6: The Conjunction Fallacy

In this and the remaining sections of this chapter, we will consider some formal fallacies of probability. These fallacies are easy to spot once you see them, but they can be difficult to detect because of the way our minds mislead us—analogous to the way our minds can be misled when watching a magic trick. In addition to introducing the fallacies, I will suggest some psychological explanations for why these fallacies are so common, despite how easy they are to see once we've spotted them.

The conjunction fallacy is best introduced with an example.⁶

Linda is 31 years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti-nuclear demonstrations.

Given this information about Linda, which of the following is more probable?

- a. Linda is a bank teller.
- b. Linda is a bank teller and is active in the feminist movement.

If you are like most people who answer this question, you will answer “b.” But that cannot be correct because it violates the basic rules of probability. In particular, notice that option b contains option a (i.e., Linda is a bank teller). But option b also contains more information—that Linda is also active in the feminist movement. The problem is that a conjunction can never be more probable than either one of its conjuncts. Suppose we say it is very probable that Linda a bank teller (how boring, given the description of Linda which makes her sound interesting!). Let's set the probability low, say .4. Then what is the probability of her being active in the feminist movement? Let's set that high, say .9. However, the probability that she is both a bank teller and active in the feminist movement must be computed as the probability of a conjunction, like this:

$$.4 \times .9 = .36$$

So given these probability assignments (which I've just made up but seem fairly plausible), the probability of Linda being both a bank teller and active in the feminist movement is .36. But .36 is a lower probability than .4, which was the probability that she is bank teller. So option b cannot be more probable than option a. Notice that even if we say it is absolutely certain that Linda is active in the feminist movement (i.e., we set the probability of her being active in the feminist movement at 1), option b is still only equal to the probability of option a, since $(.4)(1) = .4$.

Sometimes it is easy to spot conjunction fallacies. Here is an example that illustrates that we can in fact easily see that a conjunction is not more probable than either of its conjuncts.

Mark is drawing cards from a shuffled deck of cards. Which is more probable?

- a. Mark draws a spade
- b. Mark draws a spade that is a 7

In this case, it is clear which of the options is more probable. Clearly a is more probable since it requires less to be true. Option a would be true even if option b is true. But option a could also be true even if option b were false (i.e., Mark could have drawn any other card from the spades suit). The chances of drawing a spade of any suit is $1/4$ (or .25) whereas the chances of drawing a 7 of spades is computed using the probability of the conjunction: $P(\text{drawing a spade}) = .25$ $P(\text{drawing a 7}) = 4/52$ (since there are four 7s in the deck of 52) $= .077$ Thus, the probability of being both a spade and a 7 $= (.25)(.077) = .019$ Since $.25 > .019$, option a is more probable (not that you had to do all the calculations to see this). Thus there are cases where we can easily avoid committing the conjunction fallacy. So what is the difference between this case and the Linda case? The Nobel Prize-winning psychologist, Daniel Kahneman (and his long-time collaborator, Amos Tversky), has for many years suggested a psychological explanation for this difference. The explanation is complex, but I can give you the gist of it quite simply. Kahneman suggests that our minds are wired to find patterns and many of these patterns we find are based on what he calls “representativeness.” In the Linda case, the idea of Linda being active in the feminist movement fits better with the description of Linda as a philosophy major, as being active in social justice movements, and, perhaps, as being single. We build up a picture of Linda and then we try to match the descriptions to her. “Bank teller” doesn't really match anything in the description of Linda. That is, the description of Linda is not representative of a bank teller. However, for many people, it is representative of a feminist. Thus, our minds more or less automatically see the match between representativeness of the description of Linda and option b, which mentions she is a feminist. Kahneman thinks that in cases like these, our minds substitute a question of representativeness for the question of probability, thus answering the probability question incorrectly.⁷ We are distracted from the probability question by seeking representativeness, which our minds more automatically look for and think about than probability. For Kahneman, the psychological explanation is needed to explain

why even trained mathematicians and those who deal regularly with probability still commit the conjunction fallacy. The psychological explanation that our brains are wired to look for representativeness, and that we unwittingly substitute the question of representativeness for the question of probability, explains why even experts make these kinds of mistakes.

⁶ The following famous example comes from Tversky, A. and Kahneman, D. (1983). Extension versus intuitive reasoning: The conjunction fallacy in probability judgment. *Psychological Review*, 90(4), 293–315.

⁷ Kahneman gives this explanation numerous places, including, most exhaustively (and for a general audience) in his 2011 book, *Thinking Fast and Slow*. New York, NY: Farrar, Straus and Giroux.

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8.1.7: The Base Rate Fallacy

Consider the following scenario. You go in for some testing for some health problems you've been having and after a number of tests, you test positive for colon cancer. What are the chances that you really do have colon cancer? Let's suppose that the test is not perfect, but it is 95% accurate. That is, in the case of those who really do have colon cancer, the test will detect the cancer 95% of the time (and thus miss it 5% of the time). (The test will also misdiagnose those who don't actually have colon cancer 5% of the time.) Many people would be inclined to say that, given the test and its accuracy, there is a 95% chance that you have colon cancer. However, if you are like most people and are inclined to answer this way, you are wrong. In fact, you have committed the fallacy of ignoring the base rate (i.e., the base rate fallacy).

The base rate in this example is the rate of those who have colon cancer in a population. There is very small percentage of the population that actually has colon cancer (let's suppose it is .005 or .5%), so the probability that you have it must take into account the very low probability that you are one of the few that have it. That is, prior to the test (and not taking into account any other details about you), there was a very low probability that you have it—that is, a half of one percent chance (.5%). The test is 95% accurate, but given the very low prior probability that you have colon cancer, we cannot simply now say that there is a 95% chance that you have it. Rather, we must temper that figure with the very low base rate. Here is how we do it. Let's suppose that our population is 100,000 people. If we were to apply the test to that whole population, it would deliver 5000 false positives. A **false positive** occurs when a test registers that some feature is present, when the feature isn't really present. In this case, the false positive is when the test for colon cancer (which will give false positives in 5% of the cases) says that someone has it when they really don't. The number of people who actually have colon cancer (based on the stated base rate) is 500, and the test will accurately identify 95 percent of those (or 475 people). So what you need to know is the probability that you are one who tested positive and actually has colon cancer rather than one of the false positives. And what is the probability of that? It is simply the number of people who actually have colon cancer (500) divided by the number that the test would identify as having colon cancer. This latter number includes those the test would misidentify (5000) as well as the number it would accurately identify (475)—thus the total number the test would identify as having colon cancer would be 5475. So the probability that you have it, given the positive test = $500/5475 = .091$ or 9.1%. So the probability that you have cancer, given the evidence of the positive test is 9.1%. Thus, contrary to our initial reasoning that there was a 95% chance that you have colon cancer, the chance is only a tenth of that—it is less than 10%! In thinking that the probability that you have cancer is closer to 95% you would be ignoring the base rate of the probability of having the disease in the first place (which, as we've seen, is quite low). This is the signature of any base rate fallacy. Before closing this section, let's look at one more example of a base rate fallacy.

Suppose that the government has developed a machine that is able to detect terrorist intent with an accuracy of 90%. During a joint meeting of congress, a highly trustworthy source says that there is a terrorist in the building. (Let's suppose, for the sake of simplifying this example, that there is in fact a terrorist in the building.) In order to determine who the terrorist is, the building security seals all the exits, rounds up all 3000 people in the building and uses the machine to test each person. The first 30 people pass without triggering a positive identification from the machine, but on the very next person, the machine triggers a positive identification of terrorist intent. The question is: what are the chances that the person who set off the machine really is a terrorist?⁸ Consider the following three possibilities: a) 90%, b) 10%, or c) .3%. If you answered 90%, then you committed the base rate fallacy again. The actually answer is "c" less than 1%! Here is the relevant reasoning. The base rate here is that it is exceedingly unlikely that any individual is a terrorist, given that there is only one terrorist in the building and there are 3000 people in the building. That means the probability of any one person being a terrorist, before any results of the test, is exceedingly low: $1/3000$. Since the test is 90% accurate, that means that out of the 3000 people, it will misidentify 10% of them as terrorists = 300 false positives. Assuming the machine doesn't misidentify the one actual terrorist, the machine will identify a total of 301 individuals as those "possessing terrorist intent." The probability that any one of them actually This is another good illustration of how far off probabilities can be when the base rate is ignored.

⁸ This example is taken (with certain alterations) from: http://news.bbc.co.uk/2/hi/uk_news/m...ne/8153539.stm

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8.1.8: The Small Numbers Fallacy

Suppose a study showed that of the 3,141 counties of the United States, the incidence of kidney cancer was lowest in those counties which are mostly rural, sparsely populated, and located in traditionally Republican states. In fact, this is true.⁹ What accounts for this interesting finding? Most people would be tempted to look for a causal explanation—to look for features of the rural environment that account for the lower incidence of cancer. However, they would be wrong (in this case) to do so. It is easy to see why once we consider the counties that have the highest incidence of kidney cancer: they are counties that are mostly rural, sparsely populated, and located in traditionally Republican states! So whatever it was you thought might account for the lower cancer rates in rural counties can't be the right explanation, since these counties also have the highest rates of cancer. It is important to understand that it isn't the same counties that have the highest and lowest rates—for example, county X doesn't have both a high and a low cancer rate (relative to other U.S. counties). That would be a contradiction (and so can't possibly be true). Rather, what is the case is that counties that have the highest kidney cancer rates are “mostly rural, sparsely populated, and located in traditionally Republican states” but also counties that have the lowest kidney cancer rates are “mostly rural, sparsely populated, and located in traditionally Republican states.” How could this be? Before giving you the explanation, I'll give you a simpler example and see if you can figure it out from that example.

Suppose that a jar contains equal amounts of red and white marbles. Jack and Jill are taking turns drawing marbles from the jar. However, they draw marbles at different rates. Jill draws 5 marbles at a time while Jack draws 2 marbles at a time. Who is more likely to draw either all red or all white marbles more often: Jack or Jill?¹⁰

The answer here should be obvious: Jack is more likely to draw marbles of all the same color more often, since Jack is only drawing 2 marbles at a time. Since Jill is drawing 5 marbles at a time, it will be less likely that her draws will yield marbles of all the same color. This is simply a fact of sampling and is related to the sampling errors discussed in section 3.1. A sample that is too small will tend not to be representative of the population. In the marbles case, if we view Jack's draws as samples, then his samples, when they yield marbles of all the same color, will be far from representative of the ratio of marbles in the jar, since the ratio is 50/50 white to red and his draws sometimes yield 100% red or 100% white. Jill, on the other hand, will tend not to get as unrepresentative a sample. Since Jill is drawing a larger number of marbles, it is less likely that her samples would be drastically off in the way Jack's could be. The general point to be taken from this example is that smaller samples tend to the extremes—both in terms of overrepresenting some feature and in underrepresenting that same feature.

Can you see how this might apply to the case of kidney cancer rates in rural, sparsely populated counties? There is a national kidney cancer rate which is an average of all the kidney cancer rates of the 3,141 counties in the U.S. Imagine ranking each county in terms of the cancer rates from highest to lowest. The finding is that there is a relatively larger proportion of the sparsely populated counties at the top of this list, but also a relatively larger proportion of the sparsely populated counties at the bottom of the list. But why would it be that the more sparsely populated counties would be overrepresented at both ends of the list? The reason is that these counties have smaller populations, so they will tend to have more extreme results (of either the higher or lower rates). Just as Jack is more likely to get either all white marbles or all red marbles (an extreme result), the less populated counties will tend to have cancer rates that are at the extreme, relative to the national average. And this is a purely statistical fact; it has nothing to do with features of those environments causing the cancer rate to be higher or lower. Just as Jack's extreme draws have nothing to do with the way he is drawing (but are simply the result of statistical, mathematical facts), the extremes of the smaller counties have nothing to do with features of those counties, but only with the fact that they are smaller and so will tend to have more extreme results (i.e., cancer rates that are either higher or lower than the national average).

The first take home lesson here is that smaller groups will tend towards the extremes in terms of their possession of some feature, relative to larger groups. We can call this the **law of small numbers**. The second take home message is that our brains are wired to look for causal explanations rather than mathematical explanations, and because of this we are prone to ignore the law of small numbers and look for a causal explanation of phenomena instead. The **small numbers fallacy** is our tendency to seek a causal explanation for some phenomenon when only the law of small numbers is needed to explain that phenomenon.

We will end this section with a somewhat humorous and incredible example of a small numbers bias that, presumably, wasted billions of dollars. This example, too, comes from Kahneman, who in turn heard the anecdote from some of his colleagues who are statisticians.¹¹ Some time ago, the Gates foundation (which is the charitable foundation of Microsoft founder, Bill Gates) donated 1.7 billion to research a curious finding: smaller schools tend to be more successful than larger schools. That is, if you consider a rank ordering of the most successful schools, the smaller schools will tend to be overrepresented near the top (i.e., there is a higher proportion of them near the top of the list compared to the proportion of larger schools at the top of the list). This is the finding that

the Gates Foundation invested 1.7 billion dollars to help understand. In order to do so, they created smaller schools, sometimes splitting larger schools in half. However, none of this was necessary. Had the Gates Foundation (or those advising them) looked that the characteristics of the worst schools, they would have found that those schools also tended to be smaller! The “finding” is merely a result of the law of small numbers: smaller groups tend towards the extremes (on both ends of a spectrum) more so than larger groups. In this case, the fact that smaller schools tend to be both more successful and less successful is explained in the same way as we explain why Jack tends to get either all red or all white marbles more often than Jill.

⁹ This example taken from Kahneman (2011), op. cit., p. 109.

¹⁰ This example is also taken (with minor modifications) from Kahneman (2011), p. 110.

¹¹ Kahneman (2011), pp. 117-118.

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8.1.9: Regression to the Mean Fallacy

Humans are prone to see causes even when no such cause is present. For example, if I have just committed some wrong and then immediately after the thunder cracks, I may think that my wrong action caused the lightning (e.g., because the gods were angry with me). The term “snake oil” refers to a product that promises certain (e.g., health) benefits but is actually fraudulent and has no benefits whatsoever. For example, consider a product that is supposed to help you recover from a common cold. You take the medicine and then within a few days, you are all better! No cold! It must have been the medicine. Or maybe you just regressed to the mean. **Regression to the mean** describes the tendency of things to go back to normal or to return to something close to the relevant statistical average. In the case of a cold, when you have a cold, you are outside of the average in terms of health. But you will naturally return to the state of health, with or without the “medicine.” If anyone were to try to convince you to buy such a medicine, you shouldn’t. Because the fact that you got better from your cold more likely has to do with the fact that you will naturally regress to the mean (return to normal) than it has to do with the special medicine.

Another example.

Suppose you live in Lansing and it has been over 100 degrees for two weeks straight. Someone says that if you pay tribute and do a special dance to Baal, the temperature will drop. Suppose you do this and the temperature does drop. Was it Baal or just regression to the mean? Probably regression to the mean, unless we have some special reason for thinking it is Baal. The point is, extreme situations tend to regress towards less extreme, more average situations. Since it is very rare for it to ever be over 100 degrees in Lansing, the fact that the temperature drops is to be expected, regardless of one’s prayers to Baal.

Suppose that a professional golfer has been on a hot streak. She has been winning every tournament she enters by ten strokes—she’s beating the competition like they were middle school golfers. She is just playing so much better than them. Then something happens. The golfer all of a sudden starts playing like average. What explains her fall from greatness? The sports commentators speculate: could it be that she switched her caddy, or that it is warmer now than it was when she was on her streak, or perhaps it was fame that went to her head once she had started winning all those tournaments? Chances are, none of these are the right explanation because no such explanation is needed. Most likely she just regressed to the mean and is now playing like everyone else—still like a pro, just not like a golfer who is out of this world good. Even those who are skilled can get lucky (or unlucky) and when they do, we should expect that eventually that luck will end and they will regress to the mean.

As these examples illustrate, one commits the **regression to the mean fallacy** when one tries to give a causal explanation of a phenomenon that is merely statistical or probabilistic in nature. The best way to rule out that something is not to be explained as regression to the mean is by doing a study where one compares two groups. For example, suppose we could get our snake oil salesman to agree to a study in which a group of people who had colds took the medicine (experimental group) and another group of people didn’t take the medicine or took a placebo (control group). In this situation, if we found that the experimental group got better and the control group didn’t, or if the experimental group got better more quickly than the control group, then perhaps we’d have to say that maybe there is something to this snake oil medicine. But without the evidence of a control for comparison, even if lots of people took the snake oil medicine and got better from their colds, it wouldn’t prove anything about the efficacy of the medicine.

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8.1.10: Gambler's Fallacy

The gambler's fallacy occurs when one thinks that independent, random events can be influenced by each other. For example, suppose I have a fair coin and I have just flipped 4 heads in a row. Erik, on the other hand, has a fair coin that he has flipped 4 times and gotten tails. We are each taking bets that the next coin flipped is heads. Who should you bet flips the head? If you are inclined to say that you should place the bet with Erik since he has been flipping all tails and since the coin is fair, the flips must even out soon, then you have committed the gambler's fallacy. The fact is, each flip is independent of the next, so the fact that I have just flipped 4 heads in a row does not increase or decrease my chances of flipping a head. Likewise for Erik. It is true that as long as the coin is fair, then over a large number of flips we should expect that the proportion of heads to tails will be about 50/50. But there is no reason to expect that a particular flip will be more likely to be one or the other. Since the coin is fair, each flip has the same probability of being heads and the same probability of being tails—50%.

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CHAPTER OVERVIEW

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SECTION OVERVIEW

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9.1.1: Formal vs. Informal Fallacies

A **fallacy** is simply a mistake in reasoning. Some fallacies are formal and some are informal. In Chapter 2, we saw that we could define validity formally and thus could determine whether an argument was valid or invalid without even having to know or understand what the argument was about. We saw that we could define certain valid rules of inference, such as *modus ponens* and *modus tollens*. These inference patterns are valid in virtue of their form, not their content. That is, any argument that has the same form as *modus ponens* or *modus tollens* will automatically be valid. A formal fallacy is simply an argument whose form is invalid, regardless of the meaning of the sentences. Two formal fallacies that are similar to, but should never be confused with, *modus ponens* and *modus tollens* are **denying the antecedent** and **affirming the consequent**. Here are the forms of those invalid inferences:

Denying the antecedent

$p \supset q$

$\sim p$

$\therefore \sim q$

Affirming the consequent

$p \supset q$

q

$\therefore p$

Any argument that has either of these forms is an invalid argument. For example:

1. If Kant was a deontologist, then he was a non-consequentialist.
2. Kant was not a deontologist.
3. Therefore, Kant was a not a non-consequentialist.

The form of this argument is:

1. $D \supset C$
2. $\sim D$
3. $\therefore \sim C$

As you can see, this argument has the form of the fallacy, denying the antecedent. Thus, we know that this argument is invalid even if we don't know what "Kant" or "deontologist" or "non-consequentialist" means. ("Kant" was a famous German philosopher from the early 1800s, whereas "deontology" and "non consequentialist" are terms that come from ethical theory.) It is mark of a formal fallacy that we can identify it even if we don't really understand the meanings of the sentences in the argument. Recall our Jabberwocky argument from chapter 2. Here's an argument which uses silly, made-up words from Lewis Carrol's "Jabberwocky." See if you can determine whether the argument's form is valid or invalid:

1. If toves are brillig then toves are slithy.
2. Toves are slithy
3. Therefore, toves are brillig.

You should be able to see that this argument has the form of affirming the consequent:

- $B \supset S$
- S
- $\therefore B$

As such, we know that the argument is invalid, even though we haven't got a clue what "toves" are or what "slithy" or "brillig" means. The point is that we can identify formal fallacies without having to know what they mean.

In contrast, **informal fallacies** are those which cannot be identified without understanding the concepts involved in the argument. A paradigm example of an informal fallacy is the fallacy of composition. We will consider this fallacy in the next sub-section. In the remaining subsections, we will consider a number of other informal logical fallacies.

Composition Fallacy

Consider the following argument:

Each member on the gymnastics team weighs less than 110 lbs. Therefore, the whole gymnastics team weighs less than 110 lbs.

This argument commits the **composition fallacy**. In the composition fallacy one argues that since each part of the whole has a certain feature, it follows that the whole has that same feature. However, you cannot generally identify any argument that moves from statements about parts to statements about wholes as committing the composition fallacy because whether or not there is a fallacy depends on what feature we are attributing to the parts and wholes. Here is an example of an argument that moves from claims about the parts possessing a feature to a claim about the whole possessing that same feature, but doesn't commit the composition fallacy:

Every part of the car is made of plastic. Therefore, the whole car is made of plastic.

This conclusion does follow from the premises; there is no fallacy here. The difference between this argument and the preceding argument (about the gymnastics team) isn't their form. In fact both arguments have the same form:

Every part of X has the feature f. Therefore, the whole X has the feature f.

And yet one of the arguments is clearly fallacious, while the other isn't. The difference between the two arguments is not their form, but their content. That is, the difference is what feature is being attributed to the parts and wholes. Some features (like weighing a certain amount) are such that if they belong to each part, then it does not follow that they belong to the whole. Other features (such as being made of plastic) are such that if they belong to each part, it follows that they belong to the whole.

Here is another example:

Every member of the team has been to Paris. Therefore the team has been to Paris.

The conclusion of this argument does not follow. Just because each member of the team has been to Paris, it doesn't follow that the whole team has been to Paris, since it may not have been the case that each individual was there at the same time and was there in their capacity as a member of the team. Thus, even though it is plausible to say that the team is composed of every member of the team, it doesn't follow that since every member of the team has been to Paris, the whole team has been to Paris. Contrast that example with this one:

Every member of the team was on the plane. Therefore, the whole team was on the plane.

This argument, in contrast to the last one, contains no fallacy. It is true that if every member is on the plane then the whole team is on the plane. And yet these two arguments have almost exactly the same form. The only difference is that the first argument is talking about the property, having been to Paris, whereas the second argument is talking about the property, being on the plane. The only reason we are able to identify the first argument as committing the composition fallacy and the second argument as not committing a fallacy is that we understand the relationship between the concepts involved. In the first case, we understand that it is possible that every member could have been to Paris without the team ever having been; in the second case we understand that as long as every member of the team is on the plane, it has to be true that the whole team is on the plane. The take home point here is that in order to identify whether an argument has committed the composition fallacy, one must understand the concepts involved in the argument. This is the mark of an informal fallacy: we have to rely on our understanding of the meanings of the words or concepts involved, rather than simply being able to identify the fallacy from its form.

Division Fallacy

The **division fallacy** is like the composition fallacy and they are easy to confuse. The difference is that the division fallacy argues that since the whole has some feature, each part must also have that feature. The composition fallacy, as we have just seen, goes in the opposite direction: since each part has some feature, the whole must have that same feature. Here is an example of a division fallacy:

The house costs 1 million dollars. Therefore, each part of the house costs 1 million dollars.

This is clearly a fallacy. Just because the whole house costs 1 million dollars, it doesn't follow that each part of the house costs 1 million dollars. However, here is an argument that has the same form, but that doesn't commit the division fallacy:

The whole team died in the plane crash. Therefore each individual on the team died in the plane crash.

In this example, since we seem to be referring to one plane crash in which all the members of the team died (“the” plane crash), it follows that if the whole team died in the crash, then every individual on the team died in the crash. So this argument does not commit the division fallacy. In contrast, the following argument has exactly the same form, but does commit the division fallacy:

The team played its worst game ever tonight. Therefore, each individual on the team played their worst game ever tonight.

It can be true that the whole team played its worst game ever even if it is true that no individual on the team played their worst game ever. Thus, this argument does commit the fallacy of division even though it has the same form as the previous argument, which doesn’t commit the fallacy of division. This shows (again) that in order to identify informal fallacies (like composition and division), we must rely on our understanding of the concepts involved in the argument. Some concepts (like “team” and “dying in a plane crash”) are such that if they apply to the whole, they also apply to all the parts. Other concepts (like “team” and “worst game played”) are such that they can apply to the whole even if they do not apply to all the parts.

Begging the question

Consider the following argument:

Capital punishment is justified for crimes such as rape and murder because it is quite legitimate and appropriate for the state to put to death someone who has committed such heinous and inhuman acts.

The premise indicator, “because” denotes the premise and (derivatively) the conclusion of this argument. In standard form, the argument is this:

1. It is legitimate and appropriate for the state to put to death someone who commits rape or murder.
2. Therefore, capital punishment is justified for crimes such as rape and murder.

You should notice something peculiar about this argument: the premise is essentially the same claim as the conclusion. The only difference is that the premise spells out what capital punishment means (the state putting criminals to death) whereas the conclusion just refers to capital punishment by name, and the premise uses terms like “legitimate” and “appropriate” whereas the conclusion uses the related term, “justified.” But these differences don’t add up to any real differences in meaning. Thus, the premise is essentially saying the same thing as the conclusion. This is a problem: we want our premise to provide a reason for accepting the conclusion. But if the premise is the same claim as the conclusion, then it can’t possibly provide a reason for accepting the conclusion! **Begging the question** occurs when one (either explicitly or implicitly) assumes the truth of the conclusion in one or more of the premises. Begging the question is thus a kind of circular reasoning.

One interesting feature of this fallacy is that formally there is nothing wrong with arguments of this form. Here is what I mean. Consider an argument that explicitly commits the fallacy of begging the question. For example,

1. Capital punishment is morally permissible
2. Therefore, capital punishment is morally permissible

Now, apply any method of assessing validity to this argument and you will see that it is valid by any method. If we use the informal test (by trying to imagine that the premises are true while the conclusion is false), then the argument passes the test, since any time the premise is true, the conclusion will have to be true as well (since it is the exact same statement). Likewise, the argument is valid by our formal test of validity, truth tables. But while this argument is technically valid, it is still a really bad argument. Why? Because the point of giving an argument in the first place is to provide some reason for thinking the conclusion is true for those who don’t already accept the conclusion. But if one doesn’t already accept the conclusion, then simply restating the conclusion in a different way isn’t going to convince them. Rather, a good argument will provide some reason for accepting the conclusion that is sufficiently independent of that conclusion itself. Begging the question utterly fails to do this and this is why it counts as an informal fallacy. What is interesting about begging the question is that there is absolutely nothing wrong with the argument formally.

Whether or not an argument begs the question is not always an easy matter to sort out. As with all informal fallacies, detecting it requires a careful understanding of the meaning of the statements involved in the argument. Here is an example of an argument where it is not as clear whether there is a fallacy of begging the question:

Christian belief is warranted because according to Christianity there exists a being called “the Holy Spirit” which reliably guides Christians towards the truth regarding the central claims of Christianity.¹

One might think that there is a kind of circularity (or begging the question) involved in this argument since the argument appears to assume the truth of Christianity in justifying the claim that Christianity is true. But whether or not this argument really does beg the

question is something on which there is much debate within the sub-field of philosophy called epistemology (“study of knowledge”). The philosopher Alvin Plantinga argues persuasively that the argument does not beg the question, but being able to assess that argument takes patient years of study in the field of epistemology (not to mention a careful engagement with Plantinga’s work). As this example illustrates, the issue of whether an argument begs the question requires us to draw on our general knowledge of the world. This is the mark of an informal, rather than formal, fallacy.

False dichotomy

Suppose I were to argue as follows:

Raising taxes on the wealthy will either hurt the economy or it will help it. But it won’t help the economy. Therefore it will hurt the economy.

The standard form of this argument is:

1. Either raising taxes on the wealthy will hurt the economy or it will help it.
2. Raising taxes on the wealthy won’t help the economy.
3. Therefore, raising taxes on the wealthy will hurt the economy.

This argument contains a fallacy called a “false dichotomy.” A **false dichotomy** is simply a disjunction that does not exhaust all of the possible options. In this case, the problematic disjunction is the first premise: either raising the taxes on the wealthy will hurt the economy or it will help it. But these aren’t the only options. Another option is that raising taxes on the wealthy will have no effect on the economy. Notice that the argument above has the form of a disjunctive syllogism:

$$\begin{array}{l} A \vee B \\ \sim A \\ \therefore B \end{array}$$

However, since the first premise presents two options as if they were the only two options, when in fact they aren’t, the first premise is false and the argument fails. Notice that the form of the argument is perfectly good—the argument is valid. The problem is that this argument isn’t sound because the first premise of the argument commits the false dichotomy fallacy. False dichotomies are commonly encountered in the context of a disjunctive syllogism or constructive dilemma (see chapter 2).

In a speech made on April 5, 2004, President Bush made the following remarks about the causes of the Iraq war:

Saddam Hussein once again defied the demands of the world. And so I had a choice: Do I take the word of a madman, do I trust a person who had used weapons of mass destruction on his own people, plus people in the neighborhood, or do I take the steps necessary to defend the country? Given that choice, I will defend America every time.

The false dichotomy here is the claim that:

Either I trust the word of a madman or I defend America (by going to war against Saddam Hussein’s regime).

The problem is that these aren’t the only options. Other options include ongoing diplomacy and economic sanctions. Thus, even if it true that Bush shouldn’t have trusted the word of Hussein, it doesn’t follow that the only other option is going to war against Hussein’s regime. (Furthermore, it isn’t clear in what sense this was needed to defend America.) That is a false dichotomy. As with all the previous informal fallacies we’ve considered, the false dichotomy fallacy requires an understanding of the concepts involved. Thus, we have to use our understanding of world in order to assess whether a false dichotomy fallacy is being committed or not.

Equivocation

Consider the following argument:

Children are a headache. Aspirin will make headaches go away. Therefore, aspirin will make children go away.

This is a silly argument, but it illustrates the fallacy of equivocation. The problem is that the word “headache” is used equivocally—that is, in two different senses. In the first premise, “headache” is used figuratively, whereas in the second premise “headache” is used literally. The argument is only successful if the meaning of “headache” is the same in both premises. But it isn’t and this is what makes this argument an instance of the fallacy of equivocation.

Here’s another example:

Taking a logic class helps you learn how to argue. But there is already too much hostility in the world today, and the fewer arguments the better. Therefore, you shouldn't take a logic class.

In this example, the word “argue” and “argument” are used equivocally. Hopefully, at this point in the text, you recognize the difference. (If not, go back and reread section 1.1.)

The fallacy of equivocation is not always so easy to spot. Here is a trickier example:

The existence of laws depends on the existence of intelligent beings like humans who create the laws. However, some laws existed before there were any humans (e.g., laws of physics). Therefore, there must be some non-human, intelligent being that created these laws of nature.

The term “law” is used equivocally here. In the first premise it is used to refer to societal laws, such as criminal law; in the second premise it is used to refer to laws of nature. Although we use the term “law” to apply to both cases, they are importantly different. Societal laws, such as the criminal law of a society, are enforced by people and there are punishments for breaking the laws. Natural laws, such as laws of physics, cannot be broken and thus there are no punishments for breaking them. (Does it make sense to scold the electron for not doing what the law says it will do?)

As with every informal fallacy we have examined in this section, equivocation can only be identified by understanding the meanings of the words involved. In fact, the definition of the fallacy of equivocation refers to this very fact: the same word is being used in two different senses (i.e., with two different meanings). So, unlike formal fallacies, identifying the fallacy of equivocation requires that we draw on our understanding of the meaning of words and of our understanding of the world, generally.

¹ This is a much simplified version of the view defended by Christian philosophers such as Alvin Plantinga. Plantinga defends (something like) this claim in: Plantinga, A. 2000. *Warranted Christian Belief*. Oxford, UK: Oxford University Press.

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9.1.2: Slippery Slope Fallacies

Slippery slope fallacies depend on the concept of **vagueness**. When a concept or claim is vague, it means that we don't know precisely what claim is being made, or what the boundaries of the concept are. The classic example used to illustrate vagueness is the "**sorites paradox**." The term "sorites" is the Greek term for "heap" and the paradox comes from ancient Greek philosophy. Here is the paradox. I will give you two claims that each sound very plausible, but in fact lead to a paradox. Here are the two claims:

1. One grain of sand is not a heap of sand.
2. If I start with something that is not a heap of sand, then adding one grain of sand to that will not create a heap of sand.

For example, two grains of sand is not a heap, thus (by the second claim) neither is three grains of sand. But since three grains of sand is not a heap then (by the second claim again) neither is four grains of sand. You can probably see where this is going. By continuing to add one grain of sand over and over, I will eventually end up with something that is clearly a heap of sand, but that won't be counted as a heap of sand if we accept both claims 1 and 2 above.

Philosophers continue to argue and debate about how to resolve the sorites paradox, but the point for us is just to illustrate the concept of vagueness. The concept "heap" is a vague concept in this example. But so are so many other concepts, such as color concepts (red, yellow, green, etc.), moral concepts (right, wrong, good, bad), and just about any other concept you can think of. The one domain that seems to be unaffected by vagueness is mathematical and logical concepts. There are two fallacies related to vagueness: the causal slippery slope and the conceptual slippery slope. We'll cover the conceptual slippery slope first since it relates most closely to the concept of vagueness I've explained above.

Conceptual Slippery Slope

It may be true that there is no essential difference between 499 grains of sand and 500 grains of sand. But even if that is so, it doesn't follow that there is no difference between 1 grain of sand and 5 billion grains of sand. In general, just because we cannot draw a distinction between A and B, and we cannot draw a distinction between B and C, it doesn't mean we cannot draw a distinction between A and C. Here is an example of a conceptual slippery slope fallacy.

It is illegal for anyone under 21 to drink alcohol. But there is no difference between someone who is 21 and someone who is 20 years 11 months old. So there is nothing wrong with someone who is 20 years and 11 months old drinking. But since there is no real distinction between being one month older and one month younger, there shouldn't be anything wrong with drinking at any age. Therefore, there is nothing wrong with allowing a 10 year old to drink alcohol.

Imagine the life of an individual in stages of 1 month intervals. Even if it is true that there is no distinction in kind between any one of those stages, it doesn't follow that there isn't a distinction to be drawn at the extremes of either end. Clearly there is a difference between a 5 year old and a 25 year old—a distinction in kind that is relevant to whether they should be allowed to drink alcohol. The conceptual slippery slope fallacy assumes that because we cannot draw a distinction between adjacent stages, we cannot draw a distinction at all between any stages. One clear way of illustrating this is with color. Think of a color spectrum from purple to red to orange to yellow to green to blue. Each color grades into the next without there being any distinguishable boundaries between the colors—a continuous spectrum. Even if it is true that for any two adjacent hues on the color wheel, we cannot distinguish between the two, it doesn't follow from this that there is no distinction to be drawn between any two portions of the color wheel, because then we'd be committed to saying that there is no distinguishable difference between purple and yellow! The example of the color spectrum illustrates the general point that just because the boundaries between very similar things on a spectrum are vague, it doesn't follow that there are no differences between any two things on that spectrum.

Whether or not one will identify an argument as committing a conceptual slippery slope fallacy, depends on the other things one believes about the world. Thus, whether or not a conceptual slippery slope fallacy has been committed will often be a matter of some debate. It will itself be vague. Here is a good example that illustrates this point.

People are found not guilty by reason of insanity when they cannot avoid breaking the law. But people who are brought up in certain deprived social circumstances are not much more able than the legally insane to avoid breaking the law. So we should not find such individuals guilty any more than those who are legally insane.

Whether there is conceptual slippery slope fallacy here depends on what you think about a host of other things, including individual responsibility, free will, the psychological and social effects of deprived social circumstances such as poverty, lack of opportunity, abuse, etc. Some people may think that there are big differences between those who are legally insane and those who grow up in

deprived social circumstances. Others may not think the differences are so great. The issues here are subtle, sensitive, and complex, which is why it is difficult to determine whether there is any fallacy here or not. If the differences between those who are insane and those who are the product of deprived social circumstances turn out to be like the differences between one shade of yellow and an adjacent shade of yellow, then there is no fallacy here. But if the differences turn out to be analogous to those between yellow and green (i.e., with many distinguishable stages of difference between) then there would indeed be a conceptual slippery slope fallacy here. The difficulty of distinguishing instances of the conceptual slippery slope fallacy, and the fact that distinguishing it requires us to draw on our knowledge about the world, shows that the conceptual slippery slope fallacy is an informal fallacy.

Causal slippery slope fallacy

The causal slippery slope fallacy is committed when one event is said to lead to some other (usually disastrous) event via a chain of intermediary events. If you have ever seen Direct TV's "get rid of cable" commercials, you will know exactly what I'm talking about. (If you don't know what I'm talking about you should Google it right now and find out. They're quite funny.) Here is an example of a causal slippery slope fallacy (it is adapted from one of the Direct TV commercials):

If you use cable, your cable will probably go on the fritz. If your cable is on the fritz, you will probably get frustrated. When you get frustrated you will probably hit the table. When you hit the table, your young daughter will probably imitate you. When your daughter imitates you, she will probably get thrown out of school. When she gets thrown out of school, she will probably meet undesirables. When she meets undesirables, she will probably marry undesirables. When she marries undesirables, you will probably have a grandson with a dog collar. Therefore, if you use cable, you will probably have a grandson with dog collar.

This example is silly and absurd, yes. But it illustrates the causal slippery slope fallacy. Slippery slope fallacies are always made up of a series of conjunctions of probabilistic conditional statements that link the first event to the last event. A causal slippery slope fallacy is committed when one assumes that just because each individual conditional statement is probable, the conditional that links the first event to the last event is also probable. Even if we grant that each "link" in the chain is individually probable, it doesn't follow that the whole chain (or the conditional that links the first event to the last event) is probable. Suppose, for the sake of the argument, we assign probabilities to each "link" or conditional statement, like this. (I have italicized the consequents of the conditionals and assigned high conditional probabilities to them. The high probability is for the sake of the argument; I don't actually think these things are as probable as I've assumed here.)

If you use cable, then your cable will probably go on the fritz (.9)
If your cable is on the fritz, then you will probably get angry (.9)
If you get angry, then you will probably hit the table (.9)
If you hit the table, your daughter will probably imitate you (.8)
If your daughter imitates you, she will probably be kicked out of school (.8)
If she is kicked out of school, she will probably meet undesirables (.9)
If she meets undesirables, she will probably marry undesirables (.8)
If she marries undesirables, you will probably have a grandson with a dog collar (.8)

However, even if we grant the probabilities of each link in the chain is high (80-90% probable), the conclusion doesn't even reach a probability higher than chance. Recall that in order to figure the probability of a conjunction, we must multiply the probability of each conjunct:

$$(.9) \times (.9) \times (.9) \times (.8) \times (.8) \times (.9) \times (.8) \times (.8) = .27$$

That means the probability of the conclusion (i.e., that if you use cable, you will have a grandson with a dog collar) is only 27%, despite the fact that each conditional has a relatively high probability! The causal slippery slope fallacy is actually a formal probabilistic fallacy and so could have been discussed in chapter 3 with the other formal probabilistic fallacies. What makes it a formal rather than informal fallacy is that we can identify it without even having to know what the sentences of the argument mean. I could just have easily written out a nonsense argument comprised of series of probabilistic conditional statements. But I would still have been able to identify the causal slippery slope fallacy because I would have seen that there was a series of probabilistic conditional statements leading to a claim that the conclusion of the series was also probable. That is enough to tell me that there is a causal slippery slope fallacy, even if I don't really understand the meanings of the conditional statements.

It is helpful to contrast the causal slippery slope fallacy with the valid form of inference, hypothetical syllogism. Recall that a hypothetical syllogism has the following kind of form:

$A \supset B$
 $B \supset C$
 $C \supset D$
 $D \supset E$
 $\therefore A \supset E$

The only difference between this and the causal slippery slope fallacy is that whereas in the hypothetical syllogism, the link between each component is certain, in a causal slippery slope fallacy, the link between each event is probabilistic. It is the fact that each link is probabilistic that accounts for the fallacy. One way of putting this is point is that probability is not transitive. Just because A makes B probable and B makes C probable and C makes X probable, it doesn't follow that A makes X probable. In contrast, when the links are certain rather than probable, then if A always leads to B and B always leads to C and C always leads to X, then it has to be the case that A always leads to X.

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9.1.3: Fallacies of Relevance

What all fallacies of relevance have in common is that they make an argument or response to an argument that is irrelevant. Fallacies of relevance can be compelling psychologically, but it is important to distinguish between rhetorical techniques that are psychologically compelling, on the one hand, and rationally compelling arguments, on the other. What makes something a fallacy is that it fails to be rationally compelling, once we have carefully considered it. That said, arguments that fail to be rationally compelling may still be psychologically or emotionally compelling. The first fallacy of relevance that we will consider, the ad hominem fallacy, is an excellent example a fallacy that can be psychologically compelling.

Ad hominem

“Ad hominem” is a Latin phrase that can be translated into English as the phrase, “against the man.” In an ad hominem fallacy, instead of responding to (or attacking) the argument a person has made, one attacks the person him or herself. In short, one attacks the person making the argument rather than the argument itself. Here is an anecdote that reveals an ad hominem fallacy (and that has actually occurred in my ethics class before).

A philosopher named Peter Singer had made an argument that it is morally wrong to spend money on luxuries for oneself rather than give all of your money that you don’t strictly need away to charity. The argument is actually an argument from analogy (whose details I discussed in section 3.3), but the essence of the argument is that there are every day in this world children who die preventable deaths, and there are charities who could save the lives of these children if they are funded by individuals from wealthy countries like our own. Since there are things that we all regularly buy that we don’t need (e.g., Starbucks lattes, beer, movie tickets, or extra clothes or shoes we don’t really need), if we continue to purchase those things rather than using that money to save the lives of children, then we are essentially contributing to the deaths of those children if we choose to continue to live our lifestyle of buying things we don’t need, rather than donating the money to a charity that will save lives of children in need. In response to Singer’s argument, one student in the class asked: “Does Peter Singer give his money to charity? Does he do what he says we are all morally required to do?”

The implication of this student’s question (which I confirmed by following up with her) was that if Peter Singer himself doesn’t donate all his extra money to charities, then his argument isn’t any good and can be dismissed. But that would be to commit an ad hominem fallacy. Instead of responding to the argument that Singer had made, this student attacked Singer himself. That is, they wanted to know how Singer lived and whether he was a hypocrite or not. Was he the kind of person who would tell us all that we had to live a certain way but fail to live that way himself? But all of this is irrelevant to assessing Singer’s argument. Suppose that Singer didn’t donate his excess money to charity and instead spent it on luxurious things for himself. Still, the argument that Singer has given can be assessed on its own merits. Even if it were true that Peter Singer was a total hypocrite, his argument may nevertheless be rationally compelling. And it is the quality of the argument that we are interested in, not Peter Singer’s personal life and whether or not he is hypocritical. Whether Singer is or isn’t a hypocrite, is irrelevant to whether the argument he has put forward is strong or weak, valid or invalid. The argument stands on its own and it is that argument rather than Peter Singer himself that we need to assess.

Nonetheless, there is something psychologically compelling about the question: Does Peter Singer practice what he preaches? I think what makes this question seem compelling is that humans are very interested in finding “cheaters” or hypocrites—those who say one thing and then do another. Evolutionarily, our concern with cheaters makes sense because cheaters can’t be trusted and it is essential for us (as a group) to be able to pick out those who can’t be trusted. That said, whether or not a person giving an argument is a hypocrite is irrelevant to whether that person’s argument is good or bad. So there may be psychological reasons why humans are prone to find certain kinds of ad hominem fallacies psychologically compelling, even though ad hominem fallacies are not rationally compelling.

Not every instance in which someone attacks a person’s character is an ad hominem fallacy. Suppose a witness is on the stand testifying against a defendant in a court of law. When the witness is cross examined by the defense lawyer, the defense lawyer tries to go for the witness’s credibility, perhaps by digging up things about the witness’s past. For example, the defense lawyer may find out that the witness cheated on her taxes five years ago or that the witness failed to pay her parking tickets. The reason this isn’t an ad hominem fallacy is that in this case the lawyer is trying to establish whether what the witness is saying is true or false and in order to determine that we have to know whether the witness is trustworthy. These facts about the witness’s past may be relevant to determining whether we can trust the witness’s word. In this case, the witness is making claims that are either true or false rather than giving an argument. In contrast, when we are assessing someone’s argument, the argument stands on its own in a way the

witness's testimony doesn't. In assessing an argument, we want to know whether the argument is strong or weak and we can evaluate the argument using the logical techniques surveyed in this text. In contrast, when a witness is giving testimony, they aren't trying to argue anything. Rather, they are simply making a claim about what did or didn't happen. So although it may seem that a lawyer is committing an ad hominem fallacy in bringing up things about the witness's past, these things are actually relevant to establishing the witness's credibility. In contrast, when considering an argument that has been given, we don't have to establish the arguer's credibility because we can assess the argument they have given on its own merits. The arguer's personal life is irrelevant.

Straw man

Suppose that my opponent has argued for a position, call it position A, and in response to his argument, I give a rationally compelling argument against position B, which is related to position A, but is much less plausible (and thus much easier to refute). What I have just done is attacked a straw man—a position that “looks like” the target position, but is actually not that position. When one attacks a straw man, one commits the straw man fallacy. The straw man fallacy misrepresents one's opponent's argument and is thus a kind of irrelevance. Here is an example.

Two candidates for political office in Colorado, Tom and Fred, are having an exchange in a debate in which Tom has laid out his plan for putting more money into health care and education and Fred has laid out his plan which includes earmarking more state money for building more prisons which will create more jobs and, thus, strengthen Colorado's economy. Fred responds to Tom's argument that we need to increase funding to health care and education as follows: “I am surprised, Tom, that you are willing to put our state's economic future at risk by sinking money into these programs that do not help to create jobs. You see, folks, Tom's plan will risk sending our economy into a tailspin, risking harm to thousands of Coloradans. On the other hand, my plan supports a healthy and strong Colorado and would never bet our state's economic security on idealistic notions that simply don't work when the rubber meets the road.”

Fred has committed the straw man fallacy. Just because Tom wants to increase funding to health care and education does not mean he does not want to help the economy. Furthermore, increasing funding to health care and education does not entail that fewer jobs will be created. Fred has attacked a position that is not the position that Tom holds, but is in fact a much less plausible, easier to refute position. However, it would be silly for any political candidate to run on a platform that included “harming the economy.” Presumably no political candidate would run on such a platform. Nonetheless, this exact kind of straw man is ubiquitous in political discourse in our country.

Here is another example.

Nancy has just argued that we should provide middle schoolers with sex education classes, including how to use contraceptives so that they can practice safe sex should they end up in the situation where they are having sex. Fran responds: “proponents of sex education try to encourage our children to a sex-with-no-strings-attached mentality, which is harmful to our children and to our society.”

Fran has committed the straw man (or straw woman) fallacy by misrepresenting Nancy's position. Nancy's position is not that we should encourage children to have sex, but that we should make sure that they are fully informed about sex so that if they do have sex, they go into it at least a little less blindly and are able to make better decision regarding sex.

Tu quoque

“Tu quoque” is a Latin phrase that can be translated into English as “you too” or “you, also.” The tu quoque fallacy is a way of avoiding answering a criticism by bringing up a criticism of your opponent rather than answer the criticism. For example, suppose that two political candidates, A and B, are discussing their policies and A brings up a criticism of B's policy. In response, B brings up her own criticism of A's policy rather than respond to A's criticism of her policy. B has here committed the tu quoque fallacy. The fallacy is best understood as a way of avoiding having to answer a tough criticism that one may not have a good answer to. This kind of thing happens all the time in political discourse.

Tu quoque, as I have presented it, is fallacious when the criticism one raises is simply in order to avoid having to answer a difficult objection to one's argument or view. However, there are circumstances in which a tu quoque kind of response is not fallacious. If the criticism that A brings toward B is a criticism that equally applies not only to A's position but to any position, then B is right to point this fact out. For example, suppose that A criticizes B for taking money from special interest groups. In this case, B would be totally right (and there would be no tu quoque fallacy committed) to respond that not only does A take money from special interest groups, but every political candidate running for office does. That is just a fact of life in American politics today. So A really has no

criticism at all to B since everyone does what B is doing and it is in many ways unavoidable. Thus, B could (and should) respond with a “you too” rebuttal and in this case that rebuttal is not a tu quoque fallacy.

Genetic fallacy

The genetic fallacy occurs when one argues (or, more commonly, implies) that the origin of something (e.g., a theory, idea, policy, etc.) is a reason for rejecting (or accepting) it. For example, suppose that Jack is arguing that we should allow physician assisted suicide and Jill responds that that idea first was used in Nazi Germany. Jill has just committed a genetic fallacy because she is implying that because the idea is associated with Nazi Germany, there must be something wrong with the idea itself. What she should have done instead is explain what, exactly, is wrong with the idea rather than simply assuming that there must be something wrong with it since it has a negative origin. The origin of an idea has nothing inherently to do with its truth or plausibility. Suppose that Hitler constructed a mathematical proof in his early adulthood (he didn’t, but just suppose). The validity of that mathematical proof stands on its own; the fact that Hitler was a horrible person has nothing to do with whether the proof is good. Likewise with any other idea: ideas must be assessed on their own merits and the origin of an idea is neither a merit nor demerit of the idea.

Although genetic fallacies are most often committed when one associates an idea with a negative origin, it can also go the other way: one can imply that because the idea has a positive origin, the idea must be true or more plausible. For example, suppose that Jill argues that the Golden Rule is a good way to live one’s life because the Golden Rule originated with Jesus in the Sermon on the Mount (it didn’t, actually, even though Jesus does state a version of the Golden Rule). Jill has committed the genetic fallacy in assuming that the (presumed) fact that Jesus is the origin of the Golden Rule has anything to do with whether the Golden Rule is a good idea.

I’ll end with an example from William James’s seminal work, *The Varieties of Religious Experience*. In that book (originally a set of lectures), James considers the idea that if religious experiences could be explained in terms of neurological causes, then the legitimacy of the religious experience is undermined. James, being a materialist who thinks that all mental states are physical states — ultimately a matter of complex brain chemistry, says that the fact that any religious experience has a physical cause does not undermine that veracity of that experience. Although he doesn’t use the term explicitly, James claims that the claim that the physical origin of some experience undermines the veracity of that experience is a genetic fallacy. Origin is irrelevant for assessing the veracity of an experience, James thinks. In fact, he thinks that religious dogmatists who take the origin of the Bible to be the word of God are making exactly the same mistake as those who think that a physical explanation of a religious experience would undermine its veracity. We must assess ideas for their merits, James thinks, not their origins.

Appeal to consequence

The appeal to consequences fallacy is like the reverse of the genetic fallacy: whereas the genetic fallacy consists in the mistake of trying to assess the truth or reasonableness of an idea based on the origin of the idea, the appeal to consequences fallacy consists in the mistake of trying to assess the truth or reasonableness of an idea based on the (typically negative) consequences of accepting that idea. For example, suppose that the results of a study revealed that there are IQ differences between different races (this is a fictitious example, there is no such study that I know of). In debating the results of this study, one researcher claims that if we were to accept these results, it would lead to increased racism in our society, which is not tolerable. Therefore, these results must not be right since if they were accepted, it would lead to increased racism. The researcher who responded in this way has committed the appeal to consequences fallacy. Again, we must assess the study on its own merits. If there is something wrong with the study, some flaw in its design, for example, then that would be a relevant criticism of the study. However, the fact that the results of the study, if widely circulated, would have a negative effect on society is not a reason for rejecting these results as false. The consequences of some idea (good or bad) are irrelevant to the truth or reasonableness of that idea.

Notice that the researchers, being convinced of the negative consequences of the study on society, might rationally choose not to publish the study (for fear of the negative consequences). This is totally fine and is not a fallacy. The fallacy consists not in choosing not to publish something that could have adverse consequences, but in claiming that the results themselves are undermined by the negative consequences they could have. The fact is, sometimes truth can have negative consequences and falsehoods can have positive consequences. This just goes to show that the consequences of an idea are irrelevant to the truth or reasonableness of an idea.

Appeal to authority

In a society like ours, we have to rely on authorities to get on in life. For example, the things I believe about electrons are not things that I have ever verified for myself. Rather, I have to rely on the testimony and authority of physicists to tell me what electrons are

like. Likewise, when there is something wrong with my car, I have to rely on a mechanic (since I lack that expertise) to tell me what is wrong with it. Such is modern life. So there is nothing wrong with needing to rely on authority figures in certain fields (people with the relevant expertise in that field)—it is inescapable. The problem comes when we invoke someone whose expertise is not relevant to the issue for which we are invoking it. For example, suppose that a group of doctors sign a petition to prohibit abortions, claiming that abortions are morally wrong. If Bob cites that fact that these doctors are against abortion, therefore abortion must be morally wrong, then Bob has committed the appeal to authority fallacy. The problem is that doctors are not authorities on what is morally right or wrong. Even if they are authorities on how the body works and how to perform certain procedures (such as abortion), it doesn't follow that they are authorities on whether or not these procedures should be performed—the ethical status of these procedures. It would be just as much an appeal to consequences fallacy if Melissa were to argue that since some other group of doctors supported abortion, that shows that it must be morally acceptable. In either case, since doctors are not authorities on moral issues, their opinions on a moral issue like abortion is irrelevant. In general, an appeal to authority fallacy occurs when someone takes what an individual says as evidence for some claim, when that individual has no particular expertise in the relevant domain (even if they do have expertise in some other, unrelated, domain).

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9.1.4: Exercise Answers

Exercise 1

1. Statement
2. Statement
3. Not a statement (question)
4. Statement
5. Not a statement (command)
6. Not a statement (command/request)
7. Statement
8. Statement
9. Statement
10. Statement
11. Not a statement (question)
12. Not a statement (exclamation)
13. Not a statement (command)
14. Statement
15. Statement

Exercise 2

1. Argument. Conclusion: The woman in the hat is not a witch.
2. Not an argument
3. Argument. Conclusion: Albert won't be willing to help me wash the dishes.
4. Not an argument
5. Not an argument
6. Not an argument
7. Not an argument
8. Argument. Conclusion: Obesity has become a problem in the U.S.
9. Not an argument
10. Argument. Conclusion: Albert isn't a fireman.
11. Argument. Conclusion: Charlie and Violet don't sweat.
12. Argument (explanation). Conclusion: I forgot to lock the door.
13. Not an argument
14. Argument (explanation). Conclusion: Apple stole some of Samsung's patents.
15. Argument. Conclusion: No one who gets frostbite while on K2 will ever survive.

Exercise 3

1. Explanation. Conclusion: Wanda rode the bus today.
2. Explanation. Conclusion: Wanda has not picked up her car from the shop.
3. Argument. Conclusion: Bob rode the bus to work today.
4. Argument. Conclusion: It can't be snowing right now.
5. Explanation. Conclusion: Some people with schizophrenia hear voices in their head.
6. Argument. Conclusion: Fracking should be allowed.
7. Argument. Conclusion: Wanda did not ride the bus today.
8. Argument. Conclusion: The Tigers will not win their game against the Pirates.
9. Argument. Conclusion: No one living in Pompeii could have escaped before the lava from Mt. Vesuvius hit.
10. Explanation: When a person moves to Cincinnati, their allergies worsen.

Exercise 4

1.
 1. There is nothing wrong with consensual sexual and economic relations between adults.
 2. There is no difference between a man paying directly for sex and a man taking a woman on a blind date, paying for it, and then having sex with her.
 3. Therefore, there is nothing wrong with prostitution. (from 1, 2 independently)
2.
 1. Multiple surveys done with prostitutes show that a high percentage of them report having been sexually abused as children.
 2. Therefore, prostitution involves women who were typically abused as children. (from 1)
 3. Therefore, prostitution is wrong. (from 2)
3.
 1. There was warm water in the cabin's tea kettle.
 2. There was wood still smoldering in the fireplace.
 3. Therefore, someone was in this cabin recently. (from 1-2)
 4. Tim has been with me the whole time.
 5. Therefore, the person in the cabin couldn't have been Tim. (from 3-4)
 6. Therefore, there is someone else in these woods. (from 6)
4.
 1. Marla Runyan ran in the Sydney 2000 Olympics when she was blind.
 2. Therefore, it is possible to be blind and yet run in the Olympics. (from 1)
5.
 1. The bridge was out.
 2. Therefore, the train had to take a longer, alternate route. (from 1)
 3. Therefore, the train was late. (from 2)
6.
 1. Iran has threatened to destroy Israel multiple times.
 2. If Iran had a nuclear missile, it could destroy Israel.
 3. Therefore, if Iran had a nuclear missile, Israel is not safe. (from 1-2)
 4. Iran has been developing enriched uranium.
 5. Enriched uranium is the most difficult part of the process of building a nuclear weapon—every other part of the process is easy compared to that.
 6. Therefore, Israel is not safe. (from 3-5)
7.
 1. All professional hockey players are missing front teeth.
 2. Martin is a professional hockey player.
 3. Therefore, Martin is missing his front teeth. (from 1-2)
 4. Almost all professional athletes who are missing their front teeth have false teeth.
 5. Therefore, Martin probably has false teeth. (from 3-4)
8.
 1. Every time I have eaten crab Rangoon at China Food restaurant, I have had stomach troubles afterward.
 2. Therefore, probably anyone who eats crab Rangoon at China Food restaurant will have stomach troubles afterward. (from 1)
 3. Bob ate the crab Rangoon at China Food restaurant.
 4. Therefore, Bob will probably have stomach troubles afterward. (from 2-3)
9.
 1. Albert and Caroline like to run together.
 2. Albert never runs without Caroline.
 3. Therefore, any time Albert is running, so is Caroline. (from 1-2)
 4. Albert is panting hard.

5. Therefore, Albert looks like he has just run (from 4)
6. Therefore, Caroline has probably just ran as well. (from 3, 5)

10.

1. Jeremy's prints would be expected to be on his own gun.
2. Someone could have stolen Jeremy's gun and used it to kill Tim.
3. Therefore, just because Jeremy's prints were on the gun that killed Tim and the gun was registered to Tim, it doesn't follow that Jeremy killed Tim. (from 1-2)

Exercise 5

(Note: there are many possible counterexamples to the arguments that are invalid; you don't have to have the counterexamples I provide to be correct.)

1. Invalid. Counterexample: Katie is severely mentally handicapped and so is not smarter than a chimpanzee.
2. Invalid. Counterexample: suppose Bob just became a fireman, so he has never actually put out any fires.
3. Invalid. Counterexample: Although Gerald probably knows how to teach mathematics, suppose he has just had a traumatic brain injury and no longer knows how to teach mathematics. And suppose the injury is recent enough for him not to have lost his job as a mathematics professor yet.
4. Invalid. Counterexample: A similar counterexample as #3 would work equally as well here.
5. Valid.
6. Invalid. Counterexample: Perhaps Craig and Linda are married, but Monique is Linda's secret lover and Craig just finds about it and is angry and hates Monique (but still loves Linda).
7. Invalid. Counterexample: suppose that although Orel Hershizer believes that God exists, in fact God doesn't exist. In that case, Orel can't communicate with God, since you can't communicate with something that doesn't exist (i.e., communication is a two-way interaction).
8. Valid.
9. Valid.
10. Valid.

Exercise 6

(Note: there is more than one possible correct answer to some of these.)

1. Anyone who rides horses is a cowboy.
2. Driving over the speed limit is wrong.
3. It is raining.
4. Olaf is an elf.
5. Any time a person has a choice of who to take to homecoming, they will take the person they like the most.
6. I have looked at the watch in frequent intervals—much more often than every 12 hours.
7. Only those who have drank too much fall out of apartment windows.
8. Mark is on Earth and is unassisted by any devices that help him overcome the Earth's gravity.
9. Any nation in which there is a large discrepancy between net worths of different races is a racist nation.
10. The water is at sea level.
11. First missing premise: We should not allow policies that have the potential of taking innocent lives, unless there is a very good reason to do so. Second missing premise: there is no very good reason to allow capital punishment.
12. First missing premise: We should not allow policies that take working class jobs away from working class folks, unless there is some very good reason to do so. Second missing premise: there is no very good reason to allow immigration that would offset the harm done to working class folks.
13. Any fair economic exchange between consenting adults should be allowed.
14. Anything that privileges using a student-athlete to make money for the college over that student athlete's education should be banned.
15. Any student who receives an F in a course should have studied more for that course.

Exercise 7

1. Discounting
2. Assuring
3. Discounting
4. Assuring
5. Discounting
6. Guarding
7. Assuring
8. Discounting
9. Discounting
10. Assuring

Exercise 8

1. Not truth functional.
2. Truth functional: Tom is a fireman. Tom is a father.
3. Not truth functional.
4. Not truth functional.
5. Truth functional: Cameron Dias has had several relationships. Cameron Dias has never married.
6. Not truth functional.
7. Not truth functional.
8. Not truth functional.
9. Truth functional: Jack is a cowboy. Jill is a cowboy.
10. Truth functional: Josiah is Amish. Josiah is a drug dealer.
11. Truth functional: The Tigers are the best baseball team in the state. The Tigers are not as good as the Yankees.
12. Truth functional: Bob went to the beach to enjoy some rest. Bob went to the beach to enjoy some relaxation.
13. Truth functional: Lauren isn't the fastest runner on the team. Lauren is fast enough to have made it to the national championship.
14. Truth functional: The ring is beautiful. The ring is expensive.
15. Truth functional: It is sad that many Americans do not know where their next meal will come from. It is true that many Americans do not know where their next meal will come from.

Exercise 9

1. $B \vee T$
2. $\sim S$
3. $\sim B$
4. $A \vee B$
5. $\sim G$
6. $\sim M \vee \sim T$
7. $\sim T$
8. $C \supset D$
9. $\sim B$
10. $\sim A$

Exercise 10

1. $(\sim A \supset \sim S) \supset M$ (The main operator is the second dot—in this case it doesn't actually matter which dot since the sentence has the same meaning whichever of the conjuncts you treat as the main operator.)
2. $\sim S \supset \sim H$ (The main operator is the conjunction.)
3. $P \supset \sim N$ (The main operator is the conjunction.)
4. $(\sim S \supset \sim F) \supset A$ (The main operator is the second dot—in this case it doesn't actually matter which dot since the sentence has the same meaning whichever of the conjuncts you treat as the main operator.)
5. $\sim C \supset (F \supset B)$ (The main operator is the first dot—in this case it doesn't actually matter which dot since the sentence has the same meaning whichever of the conjuncts you treat as the main operator.)

6. $(T \supset \sim S) \supset L$ (The main operator is the second dot—in this case it doesn't actually matter which dot since the sentence has the same meaning whichever of the conjuncts you treat as the main operator.)
7. $E \supset W$ (There is only one truth functional operator, the conjunction. So that is by default the main operator!)
8. $(T \vee L) \supset \sim S$ (The main operator is the conjunction.)
9. $(B \vee F) \supset \sim (P \vee D)$ (The main operator is the conjunction.)
10. $(A \supset J) \supset E$ (The main operator is the second dot—in this case it doesn't actually matter which dot since the sentence has the same meaning whichever of the conjuncts you treat as the main operator.)
11. $(A \supset J) \vee (C \supset M)$ (The wedge is the main operator.)
12. $S \supset \sim H$ (The main operator is the conjunction.)

Exercise 11

1.
 - a. P = Coral is a plant; A = Coral is an animal
 - b. $\sim(P \supset A)$
 - c. Main operator is the negation
2.
 - a. A = Protozoa are eukaryotes; B = Chimpanzees are eukaryotes; C = Protozoa are animals; D = Chimpanzees are animals
 - b. $(A \supset B) \supset \sim(C \supset D)$
 - c. Main operator is the second dot
3.
 - a. C = Chimpanzees are prokaryotes; P = Protozoa are prokaryotes
 - b. $\sim(C \vee P)$
 - c. Main operator is the negation
4.
 - a. C = China has not signed the Kyoto Protocol; U = The United States has not signed the Kyoto Protocol
 - b. $\sim(C \vee U)$
 - c. Main operator is the negation
5.
 - a. C = Chevrolet will support the Olympic team; M = McDonald's will support the Olympic team
 - b. $(C \vee M) \supset \sim(C \supset M)$
 - c. Main operator is the first dot
6.
 - a. L = Peter Jennings is a liar; M = Peter Jennings has a really bad memory
 - b. $L \vee M$
 - c. Main (and only) operator is the wedge
7.
 - a. L = Peter Jennings is a liar; M = Peter Jennings has a really bad memory
 - b. $\sim(L \vee M)$
 - c. Main operator is the negation
8.
 - a. L = Peter Jennings is a liar; M = Peter Jennings has a really bad memory
 - b. $L \supset M$
 - c. Main (and only) operator is the dot

9.

- a. L = Peter Jennings is a liar; M = Peter Jennings has a really bad memory
- b. $\sim(L \supset M)$
- c. Main operator is the negation

10.

- a. C = Chevrolet will support the Olympic team this year; M = McDonald's will support the Olympic team this year
- b. $\sim(C \vee M)$
- c. Main operator is the negation

11.

- a. S = Mother Theresa is a saint; C = Mother Theresa has been canonized by the Catholic Church
- b. $S \supset \sim C$
- c. Main operator is the dot

12.

- a. T = Paul Tergat was the best distance runner of the last two decades; G = Haile Gebrselassie was the best distance runner of the last two decades; R = Jim Ryun was the best distance runner of the last two decades
- b. $(T \vee G) \supset \sim R$
- c. Main operator is the dot

13.

- a. R = Jim Ryun was the best high school miler of all time; W = Jim Ryun ran a slower time than Alan Webb
- b. $R \supset W$
- c. Main (and only) operator is the dot

14.

- a. A = Paul Tergat knows how to play hockey; B = Haile Gebrselassie knows how to play hockey; C = Paul Tergat knows how to play soccer; D = Haile Gebrselassie knows how to play soccer
- b. $\sim(A \vee B) \supset (C \supset D)$
- c. Main operator is the first dot

15.

- a. B = Ethiopians are good bobsledders; T = Ethiopians are good tennis players; D = Ethiopians are good distance runners
- b. $\sim(B \vee T) \supset D$
- c. Main operator is the dot

16.

- a. S = Before Helen Keller met Annie Sullivan she could speak; R = Before Helen Keller met Annie Sullivan she could read; C = Before Helen Keller met Annie Sullivan she could communicate
- b. $(\sim S \supset \sim R) \supset \sim C$
- c. Main operator is the second dot

17.

- a. C = Helen Keller learned to communicate; S = Helen Keller learned to play soccer; B = Helen Keller learned to play baseball
- b. $C \supset (\sim S \supset \sim B)$
- c. Main operator is the first dot

18.

a. F = Tom is allowed to play football; S = Tom is allowed to play soccer

b. $(F \vee S) \supset \sim(F \supset S)$

c. Main operator is the first dot

19.

a. E = Tom will major in engineering; P = Tom will major in physics; B = Tom will major in business; S = Tom will major in sociology

b. $(E \supset P) \vee (B \supset S)$

c. Main operator is the wedge

20.

a. X = Cartman is xenophobic; R = Cartman is a racist; M = Cartman is a murderer; T = Cartman is the thief

b. $(X \supset R) \supset (\sim M \supset \sim T)$

c. Main operator is the second dot

Exercise 12

1. Invalid

2. Valid

3. Invalid

4. Valid

A	B	C	$(A \vee B) \cdot (A \vee C)$	$\sim A$	$B \vee C$
T	T	T	T T T	F	T
T	T	F	T T T	F	T
T	F	T	T T T	F	T
T	F	F	T T T	F	F
F	T	T	T T T	T	T
F	T	F	T F F	T	T
F	F	T	F F T	T	T
F	F	F	F F F	T	F

5. Invalid

R	T	S	$R \cdot (T \vee S)$	T	$\sim S$
T	T	T	T T	T	F
T	T	F	T T	T	T
T	F	T	T T	F	F
T	F	F	F F	F	T
F	T	T	F T	T	F
F	T	F	F T	T	T
F	F	T	F T	F	F
F	F	F	F F	F	T

6. Invalid

7. Valid

8. Valid

A	B	$\sim(A \vee B)$	$\sim A \vee \sim B$
T	T	F T	F F F
T	F	F T	F T T
F	T	F T	T T F
F	F	T F	T T T

9. Valid

D	R	S	$(R \vee S) \cdot \sim D$	$\sim R$	$S \cdot \sim D$
T	T	T	T F F	F	F
T	T	F	T F F	F	F
T	F	T	T F F	T	F
T	F	F	F F F	T	F
F	T	T	T T T	F	T
F	T	F	T T T	F	F
F	F	T	T T T	T	T
F	F	F	F F T	F	F

Exercise 13

1. $T \supset I$ (T = The Tigers will win; I = The Indians will lose their star pitcher)
2. $H \supset P$ (P = Tom will pass the class; H = Tom does all of his homework)
3. $R \supset G$ (R = The car will run; G = The car has gas)
4. $A \supset C$ (A = You are asking me about your grade; C = You care about your grade)
5. $F \cdot (T \supset B)$ (F = Frog will swim without his bathing suit; T = Toad will swim; B = Toad is wearing a bathing suit)
6. $\sim O \supset M$ (O = Obama is not a U.S. citizen; M = I am a monkey's uncle)
7. $T \supset \sim F$ (T = Toad wears his bathing suit; F = Toad wants Frog to see him in his bathing suit)
8. $\sim P \supset (S \vee L)$ (P = Tom passes his exam; S = Tom is stupid; L = Tom is lazy)
9. $H \supset W$ (W = Bekele will win the race; H = Bekele stays healthy)
10. $(S \vee I) \supset \sim W$ (S = Bekele is sick; I = Bekele is injured; W = Bekele will win the race)
11. $P \supset (C \cdot \sim S)$ (P = Bob will become president; C = Bob runs a good campaign; S = Bob says something stupid)
12. $T \supset P$ (T = That plant has three leaves; P = That plant is poisonous)
13. $P \supset T$ (T = That plant has three leaves; P = That plant is poisonous)
14. $P \supset T$ (T = That plant has three leaves; P = That plant is poisonous)
15. $P \supset T$ (T = That plant has three leaves; P = That plant is poisonous)
16. $N \supset O$ (O = Olga will swim in the open water; N = There is a shark net present)
17. $O \supset N$ (O = Olga will swim in the open water; N = There is a shark net present)
18. $O \supset B$ (O = Olga is swimming; B = Olga is wearing a bathing suit)
19. $N \supset \sim B$ (N = Olga is in Nice; B = Olga wears a bathing suit)
20. $T \supset B$ (T = Terrence pulls Philip's finger; B = Something bad will happen)

Exercise 14

1. Equivalent
2. Equivalent
3. Equivalent
4. Equivalent
5. Not equivalent
6. Equivalent
7. Not equivalent
8. Equivalent
9. Not equivalent
10. Not equivalent

Exercise 15

1. Contingent

A	B	$A \supset (A \cdot B)$
T	T	T T
T	F	F F
F	T	T F
F	F	T F

2. Tautology

A	B	$(A \cdot B) \supset (\sim A \supset \sim B)$
T	T	T T T
T	F	F T T
F	T	F T F
F	F	F T T

3. Tautology

A	B	$(A \cdot \sim A) \supset B$
T	T	F T T
T	F	F T F
F	T	F T T
F	F	F T F

4. Contradiction

A	B	$(A \supset A) \supset (B \cdot \sim B)$
T	T	T F F
T	F	T F F
F	T	T F F
F	F	T F F

5. Tautology

A	B	$(A \cdot B) \supset (A \vee B)$
T	T	T T T
T	F	F T T
F	T	F T T
F	F	F T F

6. Contingent

A	B	$(A \vee B) \supset (A \cdot B)$
T	T	T T T
T	F	T F F
F	T	T F F
F	F	F T F

7. Contingent

A	B	$(\sim A \supset \sim B) \supset (\sim B \supset \sim A)$
T	T	T T T
T	F	T F F
F	T	F T T
F	F	T T T

8. Tautology

A	B	$(A \supset B) \supset (\sim B \supset \sim A)$
T	T	T T T
T	F	F T F
F	T	T T T
F	F	T T T

9. Contingent

A	B	$(B \vee \sim B) \supset A$
T	T	T T
T	F	T T
F	T	T F
F	F	T F

10. Tautology

A	B	$(A \vee B) \vee \sim A$
T	T	T T F
T	F	T T F
F	T	T T T
F	F	F T T

Exercise 16

1.

Simplification 1

Simplification 1

Addition 2

Addition 3

Conjunction 4, 5

2.

Disjunctive syllogism 2, 3

Modus ponens 1, 4

Modus tollens 2, 5

3.

Simplification 3

Modus tollens 1, 4

Disjunctive syllogism 2, 5

4.

Simplification 2

Hypothetical syllogism 1, 3

Modus ponens 4, 5

Simplification 2

Conjunction 6, 7

5.

Hypothetical syllogism 3, 4

Addition 1

Constructive dilemma 2, 5, 6

6.

Simplification 2

Modus tollens 1, 4
Disjunctive syllogism 3, 5
7.
Simplification 2
Modus ponens 3, 4
Simplification 2
Disjunctive syllogism 5, 6
Conjunction 4, 7
Modus ponens 1, 8
8.
Simplification 2
Disjunctive syllogism 3, 5
Simplification 2
Modus tollens 1, 7
Disjunctive syllogism 4, 8
Modus ponens 6, 9
Modus tollens 8, 10
Addition 10

Exercise 17

1.
 1. $A \cdot B$
 2. $(A \vee C) \supset D \therefore A \cdot D$
 3. A Simplification 1
 4. $A \vee C$ Addition 3
 5. D Modus ponens 2, 4
 6. $A \cdot D$ Conjunction 3, 5
2.
 1. A
 2. $B \therefore (A \vee C) \cdot B$
 3. $A \vee C$ Addition 1
 4. $(A \vee C) \cdot B$ Conjunction 2, 3
3.
 1. $D \supset E$
 2. $D \cdot F \therefore E$
 3. D Simplification 2
 4. E Modus ponens 1, 3
4.
 1. $J \supset K$
 2. $J \therefore K \vee L$
 3. K Modus ponens 1, 2
 4. $K \vee L$ Addition 3
5.
 1. $A \vee B$
 2. $\sim A \cdot \sim C \therefore B$
 3. $\sim A$ Simplification 2
 4. B Disjunctive syllogism 1, 3
6.
 1. $A \supset B$
 2. $\sim B \cdot \sim C \therefore \sim A$

3. $\sim B$ Simplification 2
4. $\sim A$ Modus tollens, 1, 3

7.

1. $D \supset E$
2. $(E \supset F) \cdot (F \supset D) \therefore D \supset F$
3. $E \supset F$ Simplification 2
4. $D \supset F$ Hypothetical syllogism 1, 3

8.

1. $(T \supset U) \cdot (T \supset V)$
2. $T \therefore U \vee V$
3. $T \vee U$ Addition 2
4. $U \vee V$ Constructive dilemma 1, 2, 3

9.

1. $(E \cdot F) \vee (G \supset H)$
2. $I \supset G$
3. $\sim(E \cdot F) \therefore I \supset H$
4. $G \supset H$ Disjunctive syllogism 1, 3
5. $I \supset H$ Hypothetical syllogism 2, 4

10.

1. $M \supset N$
2. $O \supset P$
3. $N \supset P$
4. $(N \supset P) \supset (M \vee O) \therefore N \vee P$
5. $M \vee O$ Modus ponens 3, 4
6. $N \vee P$ Constructive dilemma 1, 2, 5

11.

1. $A \vee (B \supset A)$
2. $\sim A \cdot C \therefore \sim B$
3. $\sim A$ Simplification 2
4. $B \supset A$ Disjunctive syllogism 1, 3
5. $\sim B$ Modus tollens 3, 4

12.

1. $(D \vee E) \supset (F \cdot G)$
2. $D \therefore F$
3. $D \vee E$ Addition 2
4. $F \cdot G$ Modus ponens 1, 3
5. F Simplification 4

13.

1. $T \supset U$
2. $V \vee \sim U$
3. $\sim V \cdot \sim W \therefore \sim T$
4. $\sim V$ Simplification 3
5. $\sim U$ Disjunctive syllogism 2, 4
6. $\sim T$ Modus tollens 1, 5

14.

1. $(A \vee B) \supset \sim C$
2. $C \vee D$
3. $A \therefore D$
4. $A \vee B$ Addition 3

5. $\sim C$ Modus ponens 1, 4
6. D Disjunctive syllogism 2, 5

15.

1. $L \vee (M \supset N)$
2. $\sim L \supset (N \supset O)$
3. $\sim L \therefore M \supset O$
4. $N \supset O$ Modus ponens 2, 3
5. $M \supset N$ Disjunctive syllogism 1, 3
6. $M \supset O$ Hypothetical syllogism 4, 5

16.

1. $A \supset B$
2. $A \vee (C \cdot D)$
3. $\sim B \cdot \sim E \therefore C$
4. $\sim B$ Simplification 3
5. $\sim A$ Modus tollens 1, 4
6. $C \cdot D$ Disjunctive syllogism 2, 5
7. C Simplification 6

17.

1. $(F \supset G) \cdot (H \supset I)$
2. $J \supset K$
3. $(F \vee J) \cdot (H \vee L) \therefore G \vee K$
4. $F \supset G$ Simplification 1
5. $F \vee J$ Simplification 3
6. $G \vee K$ Constructive dilemma 2, 4, 5

18.

1. $(E \vee F) \supset (G \cdot H)$
2. $(G \vee H) \supset I$
3. $E \therefore I$
4. $E \vee F$ Addition 3
5. $G \cdot H$ Modus ponens 1, 4
6. G Simplification 5
7. $G \vee H$ Addition 6
8. I Modus ponens 2, 7

19.

1. $(N \vee O) \supset P$
2. $(P \vee Q) \supset R$
3. $Q \vee N$
4. $\sim Q \therefore R$
5. N Disjunctive syllogism 3, 4
6. $N \vee O$ Addition 5
7. P Modus ponens 1, 6
8. $P \vee Q$ Addition 7
9. R Modus ponens 2, 8

20.

1. $J \supset K$
2. $K \vee L$
3. $(L \cdot \sim J) \supset (M \cdot \sim J)$
4. $\sim K \therefore M$
5. L Disjunctive syllogism 2, 4
6. $\sim J$ Modus tollens 1, 4

- 7. $L \cdot \sim J$ Conjunction 5, 6
- 8. $M \cdot \sim J$ Modus ponens 3, 7
- 9. M Simplification 8

Exercise 18

- 1. All real men are things that wear pink.
- 2. No dinosaurs are birds.
- 3. All birds are things that evolved from dinosaurs.
- 4. Some mammals are not predators. [Already in “Some S are not P” categorical form.]
- 5. Some predators are not mammals. [Already in “Some S are not P” categorical form.]
- 6. Some things that wander are not things that are lost.
- 7. No presidents are women.
- 8. No boxers are rich people.
- 9. No things that are sleeping are things that are conscious.
- 10. No things that are conscious are things that are sleeping.
- 11. All things that end well are things that are well. [Note that this is in a different order than the sentence states. However, if you think about the meaning of the cliché, it should be clear that this is the correct order. What is being said is that as long as something ends well, it is well. It is not saying that the only things that can be well are things that end well.]
- 12. All things that care are things that are my friends.
- 13. Some person is a person who loves you.
- 14. All people are people who are loved by Jesus.
- 15. All little children are people who are loved by Jesus.
- 16. Some people are people who don’t love Jesus.
- 17. All things that use the Appalachian Trail are pedestrians.
- 18. All presidents are citizens.
- 19. All Hindus are people who believe in God.
- 20. No cheap things are good things.
- 21. Some expensive things are not good things.
- 22. Some mammals are not things that have legs.
- 23. Some couples are couples without children.
- 24. No people are chocolate-haters.
- 25. Some people are cat-haters.
- 26. No sharp things are safe things.
- 27. No poodles are things that can run faster than a cheetah.
- 28. No professional runner is a person that runs slowly.
- 29. No baboons are friendly creatures.
- 30. All things are things that would be eaten by a pig.

Exercise 19

- 1. Invalid
- 2. Valid
- 3. Invalid
- 4. Invalid
- 5. Valid
- 6. Invalid
- 7. Invalid
- 8. Invalid

Exercise 20

1. Invalid
2. Invalid
3. Invalid
4. Invalid

Exercise 21

1. Invalid
2. Invalid
3. Invalid
4. Invalid
5. Invalid
6. Valid
7. Invalid
8. Invalid
9. Valid
10. Valid
11. Invalid
12. Invalid
13. Invalid
14. Invalid
15. Invalid
16. Valid
17. Valid
18. Invalid
19. Invalid
20. Invalid

Exercise 22

1. Hasty generalization (you can't infer something general from just one case here—the sample size is way too small). There is also a sampling bias present: even if many others people from Silverton, CO drove pickups, it doesn't follow that people generally do. There is a high percentage of trucks in Silverton because the rough roads there almost require trucks.
2. Biased sample: even if he has an adequate sample size, Tom needs to sample from different times during the morning to be sure that he has a representative sample. If morning doves are disproportionately represented during the early morning hours, then his sample will be biased.
3. Even more clearly than the previous example, this one is a biased sample: even if he has an adequate sample size, Tom needs to sample from different times of the day. It is likely that morning doves will be disproportionately represented in the morning, since they are more likely to be out in the morning than other kinds of birds.
4. This example corrects the problems of the previous two: Tom has sampled from different times during the day. As long as he has taken these samples on multiple different days (preferably in different seasons too), then his sample is representative and his generalization is good.
5. Biased sample. Same problem, *mutatis mutandis*, as #3.
6. This seems to be a good generalization, assuming that he keeps up this regimen on multiple days. The difference, of course, is that instead of making his generalization cover the whole day, his generalization is only about the birds that land in his tree during the night.
7. Biased sample. Of course the home owners will be likely to support a policy that slashes property taxes. Most likely, those on Medicaid (governmental health care support for the elderly) will not be homeowners but will be in nursing home facilities. If the poll had been administered to Medicaid recipients (who are less likely to own homes), the results would likely have been different.
8. This seems a good generalization. Telephone polls are a good way of getting a random sample, and the sample size is large enough if a good random sampling technique is used.
9. Sampling bias because of the biased way the question is asked: "killing innocent children" uses strong, evaluative language and may influence how people answer, making them more likely to choose option b over option a (who wants to say they support

“killing innocent children”?).

10. Steve’s problem is that he has gotten a biased sample. Ani Difrancos concert-goers are not representative of concert-goers tout court. Since Ani Difrancos is very political (and from a feminist perspective), we should expect to see a much higher proportion of such speech at an Ani Difrancos concert. In contrast, Tom Petty is about as apolitical as any musician.

11. Biased sample. We should expect students in detention to be less satisfied, on average, than students generally. Thus, since the principal’s survey was only administered to students in detention, the rate of dissatisfaction will be much higher, which will make the sample unrepresentative and the generalization bad.

12. This seems to be a good generalization. Her generalization only covers “all Pistons games” (rather than all NBA games or all professional sports games, more generally) and she has attended many games over many years. Thus the sample seems to be both representative (i.e., non-biased) and large enough.

13. Unlike the last example, Alice’s generalization now applies to all NBA games, but still uses only her experience at Pistons games. But unless we are given some reason for thinking that Pistons games are representative of all NBA games, we should not assume that Pistons games are representative of all NBA games. Thus, the sample is probably biased (although we do not know for sure that it is, we cannot assume it isn’t without further investigation).

14. Even more than the last example, this one is a biased sample. Unless we have a good reason for thinking that Pistons games are representative of all professional sporting events, we cannot assume that they are.

15. Although we can understand Bob’s fear, this is clearly a hasty generalization since he is generalizing from only one case at one Burger King to all Burger Kings, all the time.

Exercise 23

(Note: for many of these, there is more than one correct answer. The important thing to do is to give the correct explanation for why the explanation lacks the virtue you have chosen.)

1. This could be any number of them, including: depth (why would the aliens have kidnapped him and then returned him to his home?), power (this explanation cannot be used in a range of different circumstances—a better explanation is simply that he has some kind of amnesia), or simplicity (if we don’t have any other reason to admit there are aliens, then we should simply chalk it up to some kind of amnesia).

2. Modesty. There is no reason she should posit all of those specific details about the badger, even if it was a badger. However, even just saying it’s a badger or a large rodent is an explanation that seems to lack simplicity. If houses naturally creak and windows rattle from the wind, then positing a large rodent seems unnecessary. A better explanation would simply be that the house creaks naturally as it slightly shifts and the wind is rattling the windows.

3. Simplicity and modesty. It is simpler to simply assume that there is someone who looks like Bob, whether or not he is Bob’s identical twin. It is also more modest since positing someone who looks like Bob could include someone that is Bob’s identical twin, but also leaves open the possibility that it’s just an unrelated person who happens to look like Bob. The explanation might also lack power insofar as it raises more questions than it answers. For example, why did Bob never tell you about his identical twin?

4. Conservativeness: people don’t die and come back to life, as far as we know. Thus, we could also say it lacks power since this kind of explanation doesn’t apply in any other cases we know. A better explanation is that there is someone who looks just like Tom.

5. Modesty. Like #3, a more modest explanation is that this is someone who looks like Tom, whether or not it is Tom’s son. The explanation might also lack depth since we would want to know why you had never seen or heard of Tom’s son for 20 years.

6. The last line is the giveaway: this explanation lacks falsifiability. The reason is that Elise says that there is no way to prove that this happened (she just knows it). The explanation also lacks depth since we would want to know why and how this replacement was done!

7. If this explanation lacks an explanatory virtue, it is probably falsifiability: there is no way (within current science) to show that there wasn’t such a being. Furthermore, it might also lack depth since it raises the question: where did this all-powerful being come from?

8. Modesty. Why think that it is her 5th grade teacher rather than just some person following her? The explanation is far more specific than it needs to be in order to explain the observations she has made. Thus, it lacks modesty.

9. Again, this explanation lacks modesty. Why not just say that it is “an animal” rather than “an escaped zoo animal.” Unless she has some evidence relevant to the escaped zoo animal hypothesis, she should just leave it at the more general “animal” hypothesis. Furthermore, the explanation may be said to lack power, as well. Since most such noises are made by creatures in the wild, not escaped zoo animals, the “creatures in the wild” explanation is more powerful, since it is used to explain a much wider range of

similar observations (i.e., hearing rustling in the bushes and sticks cracking on the ground while in the woods).

10. Simplicity. The simpler explanation is that Bill was speeding, not that they had tracked his overdue library book. It also lacks power since most of the time when people are pulled over on the highway it is for speeding, not unreturned library books.

11. This is a good explanation and seems to lack no explanatory virtue.

12. This explanation clearly lacks modesty. Why say that someone was going precisely 13.74 mph over the speed limit rather than saying that they were going over the speed limit (without specifying how far)? That specificity is not justified by the observed facts.

13. Conservativeness. We have no good reason for positing some whole new breed of rats—especially if the claim is that they evolved in her apartment only. This would violate what we know about how evolution works (i.e., we probably need a much larger population for this to happen than the population of rats that are contained in only her apartment). Furthermore, the explanation lacks power since a better explanation that applied to a wider range of circumstances is simply that the rats were not taking the bait.

14. Even more clearly than #13, this one lacks conservativeness. There are no known cases of anything being immortal and this idea violates our understanding of the basic laws of nature. Nothing is immortal.

15. Again, this explanation lacks conservativeness (i.e., it violates our understanding of nature which says that nothing is immortal). A better explanation is that the bullets Bob put in his gun were blanks (cf. the movie, *Crash*).

Exercise 24

1. Weak: if the painting is hanging in your high school, it probably isn't a Rembrandt. That is the disanalogy: even if the colors are very similar, almost all Rembrandts hang in galleries, not in high schools.

2. Weak. Although the similarity is that they are both poodles, there is probably some other characteristic that accounted for me being bitten. That is, it probably wasn't the fact that the dog that bit me was a poodle, but more likely that I was invading its space or it felt threatened, etc. It could have likely been some other breed in the same circumstances. So it isn't "poodleness" that accounts for the biting. That said, if we had evidence that poodles are much more likely to bite than other breeds then this argument would be stronger.

3. Strong. Unlike, the last one, this argument delivers a much stronger analogy between past events (poodle-encounters and poodle-bitings) and the current event (poodle-encounter).

4. Strong. The relevant similarities are: 1) Van Cleave's class doesn't change much from semester to semester, 2) the person has the same abilities as their friend who got the A.

5. Weak. Although both are crimes, there are many relevant differences between committing rape and robbing a bank.

6. Weak. There is no particular relationship between having seats, wheels, and brakes, on the one hand, and being safe to drive, on the other. So having seats, wheels and brakes is not a relevant similarity between the two cars, if what we are interested in is how safe they are.

7. Strong. The car company (Volvo) is a relevant similarity between the old cars and the new car. We can expect similar quality between cars from the same company. In contrast, knowing that a car has wheels, brakes and seats tells us essentially nothing about its quality, including its safety.

8. Strong.

9. Weak. A birthday party and a funeral are not relevantly similar in this case. A funeral is a much more important family event than a birthday party (typically). So we should not expect similarity with respect to a professor's absence policy when comparing birthday parties to funerals.

10. Weak. Although both may influence happiness, the relevant difference is that whereas heart and brain surgery are typically a matter of life and death (and hence much more likely to be paid for by insurance), cosmetic surgery is not a matter of life and death.

11. Weak. Although a knife and spoon share the property of being eating utensils, that is not a relevant similarity on which we can expect that they will share functional properties like cutting.

12. Whether this famous argument for the existence of God is strong or weak is a matter of some debate. One reason for saying it is a weak argument is that there is a disanalogy between artificial objects and natural objects, since complex natural objects may evolve without being designed by an intelligent designer, whereas no artificial objects (yet) can evolve on their own.

13. Weak. Running the same number of miles as an elite runner is not a relevant similarity for determining how fast one will run a race. The relevant dissimilarity here is that although Bekele runs his mile repeats at close to 4:00 flat, I can only run mine at 5:30. So it is the pace at which one runs, rather than the number of miles one runs, that is the better predictor of how fast one can run a race.

14. Strong. The fact that we are both humans is relevant to determining whether someone will feel pain. Humans all have similar

physiology, which is why we should expect that if x causes one person physical pain, then x will also cause anyone else a similar pain. (However, this argument also raises a famous problem in philosophy of mind called “the problem of other minds.” The issue is whether or not we can ever know that people have mental states, such as pain, like my own. Even if you exhibit pain behavior in similar instances in which I experience pain, how do I know that you are actually feeling what I am feeling—that you are having the experience of pain, rather than simply exhibiting pain behavior without have the mental experience of it? Many philosophers have argued that we cannot overcome this problem and must admit that we cannot know whether people other than ourselves actually have mental states like ours.)

15. Again, the common sense answer would be that this is a strong argument based on a strong analogy. Since you and I are both human and share similar perceptual systems, we should expect that we will perceive the world very similarly (even if not exactly the same). (However, we can raise the same “problem of other minds” problem here as I did in #14 above. Suppose we both point at the grass and say that it is green. However, how do I know that your experience of green is like my experience of green? Maybe your experience of green is more like my experience of red and vice versa.)

Exercise 25

1. C is sufficient since any time it is present, the target G is present. Both C and D are necessary, since any time the target G is present, they are present.
2. A and C are sufficient; A and C are also necessary.
3. C and D are necessary. All candidates are sufficient, since there is never a case where a candidate is present but the target is absent. However, the test for sufficient conditions is not rigorous, since there is no case in which the target is absent (hence, it is trivially true that there is no case in which a candidate is present when the target is absent).
4. No one candidate is sufficient (case 1 rules them all out). Only C is necessary.
5. C is sufficient; B, C, and D are necessary.
6. None are sufficient (case 1 rules them all out); A and D are necessary.
7. B is sufficient; A, B and D are necessary.
8. C is sufficient; A, B, C, and D are all necessary. However, the test for necessary conditions is not rigorous, since there is no case in which the target is present (hence, it is trivially true that there is no case in which a candidate is absent when the target is present).
9. B and C are sufficient; C and D are necessary.
10. A and C are sufficient; D is necessary.

Exercise 26

1. Accidental
2. B causes A. Perhaps when we are away from home, Charlie gets less exercise, hence putting on more weight. In that case B is (indirectly) causing A, since our being away from home results in Charlie getting less exercise, which results in him gaining more weight.
3. Common cause. The common cause is simply the factors that make plants grow, such a sunlight, water, and good soil. In this case, A and B are not causing each other, but there is something else (i.e., growth factors of plants) that is causing each one, independently to grow.
4. A causes B. The more bombing, the more stress for the president. And the more stress for the president, the more of his hairs fall out.
5. B causes A. Arguably, the average number of fires per year will influence the number of fire engines needed. Fewer fires would require fewer engines (in which case they'd likely retire some); more fires would require more engines (in which case they'd likely acquire some).
6. Common cause: agrarian societies will have more mules and will also probably pay professors less, since higher education is not as important in an agrarian society. So the common cause is being a (more or less) agrarian society.
7. B causes A. Drivers are distracted by the scantily-clad models on the billboards and more distracted drivers causes more accidents.
8. A causes B. The wider one's waist, the higher the weight due to fat. The higher the weight due to fat, the lower one's vertical leap.
9. B causes A. The heat causes slower marathon times.
10. Common cause: Ageing. The older one is, the more likely one will have gray hair and the more likely one will have more

children or grandchildren. However, neither of these factors are causing the other. Rather, both are being caused independently by a common factor: age.

Exercise 27

1. $1/6$
2. $5/6$
3. $1/36$
4. $1/36$
5. $12/36$ or $1/3$
6. $1/6 + 1/6 - 1/36 = 11/36$
7. $2/6$
8. $1 - 12/36 = 24/36 = 2/3$
9. $1/36$
10. $6/36$

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CHAPTER OVERVIEW

10: Language- Maps vs Territories, Semiotics, Style

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10.2.3: Technically Speaking - Language Learning and Technology

10.2.4: Language and Culture (Summary)

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10.1: What is Semiotics



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SECTION OVERVIEW

10.2: Using Language

Learning Objectives

Successful interaction with this and associated course content will enable students to...

- Understand the complexity of how language relates to culture
- Appreciate how language use is embedded in social contexts
- Be able to discuss how languages are structured and how they vary
- Be knowledgeable about approaches to language learning

10.2.1: Language and Culture

10.2.2: Second Language Learning

10.2.3: Technically Speaking - Language Learning and Technology

10.2.4: Language and Culture (Summary)

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10.2.1: Language and Culture

In 1915, Edmond Laforest, a prominent Haitian writer, stood upon a bridge, tied a French Larousse dictionary around his neck and leapt to his death. This symbolic, if fatal, grand gesture, dramatizes the relation of language and cultural identity (p. 65)

The story of Laforest's death is told by Claire Kramsch in her landmark study of *Language and Culture* (1998). Writers have an intense and intimate relationship to language; it is the essential tool of their trade. But we all have a very real connection between the language we speak and how we see the world. It is likely that the importance of language in constituting essential parts of our selves and our worldviews is something most people have not considered. That is particularly the case for **monolinguals**, those who know only one language. Like culture, language is all around us and we may take it for granted, just as we do the values, beliefs, and behaviors that make up our cultural identity. This may be more the case for native speakers of English, a language whose worldwide prominence may lead to the sense that English is the default, neutral way of seeing and describing reality. Many people who have not thought about the nature of language are likely to assume there is a kind of natural and logical connection between the word "tree" and the big leafy object in their local park. But languages, including English, don't work that way – they are not an objective, culturally neutral way to describe the world. "Tree" is an arbitrary symbol, not connected logically in any way to the object it describes. In this unit we will be examining the nature of language and the crucial role it plays in intercultural communication. That will entail a discussion of the intersections of language and culture; the distinctions among world languages; the nature of language learning; and the role of English in today's world. We will continue our examination of language in the next chapter as well, looking at language usage in context.

Language: How we process the world around us

The Haitian writer Edmond Laforest, who drowned with a French dictionary around his neck, was making a symbolic gesture of his indenture to the French language, that is to say his dependence on that language for his writing. French was the language of the colonizers and oppressors, who had brought African slaves to the island, from whom Laforest was descended. There was for Laforest a tragic disconnect between the language he used to describe the world and to embody his literary imagination on the one hand and the social and racial reality of Haiti on the other. Laforest's linguistic identity was further complicated by the fact that his first language was not standard French, but Haitian Creole, a language based largely on 18th-century French with influence from Portuguese, Spanish, and West African languages.



Figure 10.2.1.1: Edmond Laforest

The existence of a hybrid language such as Haitian Creole is one indication of the significant link between language and culture. Languages are rarely used in their "pure", standard form. Speakers adapt linguistically to others around them. If we come often enough into contact in our everyday lives with groups of speakers of other languages, that is likely to have an influence on our own use of language. That may manifest itself in vocabulary. The English language has such a rich vocabulary because it has borrowed and incorporated words from many different languages over the centuries. In Germany today, the large number of Turkish immigrants has led to the common use of particular Turkish expressions such as *lan* for mate/man or *valla* for honestly in everyday speech in German. **Creoles** develop when there are significant numbers of speakers of different languages who interact on a regular basis. In the US state of Louisiana, the mix of different nationalities and ethnic backgrounds created [Louisiana Creole](#) (*Kréyò La Lwizyàn*), a version of French mixed with elements of Spanish, African, and Native American languages.



Figure 10.2.1.2: Three Creole Girls, Louisiana, 1935

Such language hybrids have often developed through the process of colonialization, with the power inherent in the use of the colonizers' language leading to the indigenous population integrating elements of that language into their own speech. Evangelization has had a similar impact. In Nagaland, in Northeastern India, the spread of Christianity led to the development of a common Nagamese creole (also "Naga Pidgin") among the different 16 indigenous tribes. Creoles can be full-fledged languages, functioning as a mother tongue. **Pidgins**, on the other hand, are simplified versions of a language, used for special purposes, such as in trade. The existence of hybrid languages in many parts of the world provides evidence of how language use reflects cultural contexts, adapting as needed to accommodate the communication needs of everyday life.

Linguists and cultural anthropologists emphasize the importance of our native language on our view of the world. The link between language and culture was famously described in the work of Benjamin Whorf and Edward Sapir. The **Sapir-Whorf hypothesis** postulates that your native language has a profound influence on how you see the world, that you perceive reality in the context of the language you have available to describe it. According to Sapir (1929), "The 'real world' is to a large extent unconsciously built up on the language habits of the group. The world in which different societies live are distinct worlds, not merely the same world with different labels attached" (p. 162). From this perspective, all language use – from the words we use to describe objects to the way sentences are structured – is tied closely to the culture in which it is spoken. In 1940, Whorf wrote:

The background linguistic system (in other words, the grammar) of each language is not merely a reproducing instrument for voicing ideas but rather is itself the shaper of ideas, the program and guide for people's mental activity, for their analysis of impressions, for their synthesis of their mental stock in trade. Formulation of ideas is not an independent process, strictly rational in the old sense, but is part of a particular grammar and differs, from slightly to greatly, among different grammars...We dissect nature along lines laid down by our native languages (p. 231).

Whorf studied native American languages such as Hopi and was struck by differences to English which pointed to different ways of viewing the world, for example, in [how time is expressed](#). Taken to its extreme, this kind of **linguistic determinism** would prevent native speakers of different languages from having the same thoughts or sharing a worldview. They would be, in a sense, captives of their native language, unable to gain different perspectives on reality. More widely accepted today is the concept of **linguistic relativity**, meaning that language shapes our views of the world but is not an absolute determiner of how or what we think. After all, translation is in fact possible, and bilingualism exists, both of which phenomena should be problematic in a strict interpretation of the Sapir-Whorf hypothesis. It is also the case that many cultures are multilingual, with children growing up exposed to multiple languages without suffering culture shock when moving among languages.

- Linguistic determinism: language controls thought in cul-ture.
- Linguistic relativity: language influences thought in worldviews, and therefore differences among languages cause differences in the thoughts of their speakers.

Hua (2014), p. 176

- Linguistic relativity: language *influences* thought in worldviews, and therefore differences among languages *cause* differences in the thoughts of their speakers. Linguist Steven Pinker's (2007) research has shown that in fact language is not the only existing means of thought. It is possible for us to picture reality through mental images or shapes. In recent years, there have been a number of studies on the perception of colors related to available color words. Languages differ in this area. Some, for example, do not

have separate words for blue and green. In the Tarahumara indigenous language of Mexico, one single word, *siyona*, is used for both colors (Kay & Kempton, 1984). Such studies, as well as similar examinations of concepts such as numbers, shapes, generally have shown that "language has some effect on perception, but it does not define perception." (Hua, 2014, p. 178). In fact, experiments have shown that in some cases, where specific terms for colors do not exist, that does not prevent color recognition: "although the Dani, a New Guinea tribe, use only two colour terms . . . it was found that they could recognize and distinguish between subtle shades of colours that their language had no names for (e.g. pale blue vs. turquoise)" (Holmes, 2001, p. 324). This is in line with current linguistic thought that there is a more complex, reciprocal relationship between language and culture.



Figure 10.2.1.3: Tarahumara women, Mexico

One of the reasons linguists have moved away from a strongly causal relationship between language and culture is due to the influence of Noam Chomsky's concept of **universal grammar**. Chomsky argued that there is a universality to human thought and that language is innate and biologically determined. According to Chomsky, every human is born with a "language acquisition device" in the brain, which enables us to construct the grammar of a language (Chomsky, 1965). Chomsky argued that children acquire linguistic generalizations that experience alone, i.e. contact with the language, could not teach them. The concept of **generative grammar**, as developed by Chomsky and others, states that from a basic set of rules (mostly dealing with word order) and a finite set of elements, a language can construct an infinite number of new sentences. Chomsky's ideas have been hugely influential in linguistics. However, in recent decades there has been renewed interest in the social aspects of language. While Chomsky downplayed environmental factors, "neo-Whorfian" linguists, influenced by new studies in psychology and linguistics – especially on multilingualism – have taken a fresh look at language use in social and environmental contexts. Daniel Everett, for example, studied the culture and language of the Pirahã people in Brazil (2009, 2012) and argued that language is a tool that evolves out of the human need to solve problems.

Another development that has changed linguists' views on the nature of human language has come through work examining actual language use, as recorded and transcribed. This has enabled the collection and analysis of large bodies of texts, both written and spoken, called a language corpus (Godwin-Jones, 2017b). Usage-based views of language have developed out of that research that show that language is based less on rules than it is on patterns – word groupings or set combinations of vocabulary and grammar (Tomasello, 2000).

How language reflects culture

No matter what linguistic theory one may hold to be valid, there is little argument that the vocabulary of a language does in fact reflect important aspects of everyday life. Linguist Anna Wierzbicka (2013) provides interesting examples of expressions from the Australian aboriginal language of Warlpiri:

- *japi* — "entrance to sugar ant's nest"
- *laja* — "hole or burrow of lizard"
- *kuyu* — "meat; meated animal" [including edible birds, but not other birds]
- *karnpi* — "fat under the skin of emu"
- *papapapa-ma* — "to make the sound of a male emu calling to its chicks"
- *yulu* — "limp, relaxed—of slain kangaroo whose hindleg have been broken (in preparation for cooking)"

From a Warlpiri speaker's point of view, these single words point to important features of the environment, as potential sources of shelter and food, but there are no corresponding words in European languages or in most other languages. Wierzbicka comments:

As these examples illustrate, the words of a language reflect the speakers' special interests. For the speakers of a particular language, their words "fit the world" as they

see it—but how they see it depends, to some extent, on what they want to see and what they pay attention to. This is true also of European languages, and English is no exception, either. The conviction that the words of our native language fit the world as it really is, is deeply rooted in the thinking of many people, particularly those who have never been forced to move, existentially, from one language into another and to leave the certainties of their home language (p. 6).

Learning a second language leads one early on to appreciate the fact that there may not be a one-to-one correspondence between words in one language and those in another. While the dictionary definitions (**denotation**) may be the same, the actual usage in any given context (**connotation**) may be quite different. The word *amigo* in Spanish is the equivalent of the word friend in English, but the relationships described by that word can be quite different. Even in English, a Facebook "friend" is quite different from a childhood "friend". The German word *Bier*, refers as does the English "beer", to an alcoholic drink made from barley, hops, and water. In a German context, the word is used to describe an everyday drink commonly consumed with meals or in other social situations. In the American English context, usage of the word, "beer," immediately brings to the fore its status as alcohol, thus a beverage that is strictly regulated and its consumption restricted.



Figure 10.2.1.4: Beer in Germany: a drink like any other

Differences in available words to describe everyday phenomena is immediately evident when one compares languages or examines vocabulary used in particular situations. That might include a specific small culture, such as dog lovers or sailing enthusiasts, for example, who use a much more extensive vocabulary to describe, respectively, dog breeds or parts of a ship, than would be familiar to most people, no matter whether they are native speakers of the language or not. Sometimes, a special language is developed by a group, sometimes labeled a **jargon**, which often references a specialized technical language. A related term is an **argot**, a kind of secret language designed to exclude outsiders, such as the language used by criminal gangs.

Less immediately evident than vocabulary differences in comparing languages are differences in grammatical structures. Some languages, for example, have no clear verb tense for the future. A [TED talk by Keith Chen](#) explains how that feature might be tied to social behavior by speakers of "futureless" languages. Another [example](#) explains what the absence of subjunctive verb forms in a language might mean in terms of human behavior and interactions (see resource list for more examples). Caution is called for in accepting without question the validity of such claims. Piller (2017) points out, for example, how some textbooks simplify the relationship between language and culture through drawing misleading connections between grammar and national characteristics such as communication styles. She cites an example from a textbook on intercultural business communication (Chaney & Martin, 2013); "In the German language, the verb often comes at the end of the sentence. In oral communication, Germans do not immediately get to the point" (cited in Piller, 2017, p. 45). This is incorrect in terms of grammar (the placement of the verb depends on the sentence structure) and makes the false assumption that the "point" of a sentence necessarily comes through word order (not through intonation or other means).

In any case, if we learn to speak a second language, it provides unique insights into what it is that is valued in that culture. Students of Korean, for example, learn early on in their studies that there is not just a distinction between familiar and formal "you", as exists in many languages, but that the code of respect and politeness of Korean culture dictates different vocabulary, intonation, and speech patterns depending on one's relationship to the addressee. This can extend to nonverbal conventions as well, such as bowing or expanding personal space.

Sociolinguistics: Studying Language in Use

From the beginning of the process, second language students learn that the target language likely has different verbal (and nonverbal) conventions for participating in aspects of everyday life such as greetings, leave-taking, apologizing, or making requests. Such **speech acts** were described and studied by John Searle and John Austin in the 1960's and 1970's (Austin, 1973; Searle, 1969). These are uses of language to perform actions or to generate specific activities, and they can vary substantially from language to language. The field of **sociolinguistics** deals with speech acts, as well as with other aspects of how language is used in social contexts. An important aspect of this field of study is the examination of variations in languages, such as dialects and regional differences. This can involve clear cultural distinctions such as the existence of **high prestige** and **low prestige** versions of a language. High prestige language varieties are those that mainstream societies consider correct and standard. Typically, dialects are seen as low prestige. The relative status of a language is determined by context, namely the audience and the situation (Eckert & Rickford, 2002). Linguists also study **language variation** related to age, gender, or occupation. Contact between cultures is another important area studied by sociolinguists. Such contact can bring about change, including new variations of a language, or even new languages, such as creoles. Linguists today do not believe that any language or language variety is more pure or superior to any other (Fasold & Connor-Linton, 2006).

Today, there is considerable interest in studying how language is used in and adapted to online environments, such as microblogging (Twitter), text messaging, and social networks. Phone-based messaging, for example, has been shown to be more like spoken than written language (see linguist John McWhorter's [TED talk](#)). Sociolinguists emphasize the changing nature of language, as it comes into contact with social reality and with new ways of communicating. As new language conventions and vocabulary become established, there are inevitably voices which decry language innovations as corruptions. Some speakers of a language might object to **neologisms** (newly coined words), different uses of existing words, or deviations from standard grammar. This is known as linguistic prescription or **prescriptionism**. Linguists, on the other hand, engage in a **descriptive** approach to language, observing and recording how language is actually used. Languages develop organically and in defiance of official rules. While there may be governmental or private group efforts to maintain a "pure" version of a language, it is not proven possible to restrict the natural evolution of language through rules or regulations.

The textbooks used in foreign language instruction rarely convey to students the dynamic character of language. Textbooks present standard language and do not often introduce variations in language patterns that reflect different social, regional, or situational contexts. This is done for practical, pedagogical reasons, with the goal of having students learn basic vocabulary and essential structural elements. Dialogues in textbooks typically present the speech of educated, well-behaved native speakers, who wait till their conversation partners are finished before speaking. These are idealized native speakers, intent on being agreeable, conversing in order to exchange information and to find consensus. Linguists know how far removed such exchanges are from real life. Actual dialogs are full of interruptions, false starts, and repetitions. Conversations rarely focus on transmitting information. Interactions may be contentious, with open conflict and raw emotions on display. In any case, the language used will likely not resemble the nicely cooperative and grammatically correct sentences in a textbook. The use of **discourse analysis** in linguistics – transcribing and analyzing recordings of real conversations – has shown how varied and spontaneous human speech really is (see Gee, 2014). A [TED talk by Elizabeth Stokoe](#) provides examples of how conversation analysis reveals not only how people actually talk, but also the significance of such frequent speech phenomena as hesitations, repetitions, or brief silences.

In many contexts today, another characteristic of real language use often emerges – **code-switching**, or the mixing of languages together within a conversation. This can be simply substituting an occasional word of another language or, in other cases, it can involve a back and forth between languages for the entire conversation. As globalization has increased international contact, more frequent travel has taken more people into unfamiliar cultures, and the explosion in the use of social networks has expanded exposure to multiple languages, code-switching is a phenomenon that increasing numbers of people are likely to experience. Claire Kramsch describes this phenomenon as 'language crossings' (1998). She provides examples which highlight complex manifestations of identity enactment; the sample conversations she analyzes show how choice of language within conversations can be clear markers of group membership or social distancing. Code switching can be used in a playful way or to express social solidarity. In some settings, language crossing may be used to contest or resist authority (see sidebar). Such language crossings are not limited to bilingual groups, but are particularly evident on the Internet, where discussion forums and social media frequently mix and match languages. The extensive and frequent mixing of languages online has led to the use of the term "translanguaging" to describe the fluid transition of languages in online use (García & Wei, 2014).

Language as resistance

English by Pakistani youngsters, native speakers of English, as a strategy to resist the authority of their Anglo teacher (BR) in a British school.

- BR: attention gents
- Asif: yeh alright
- Alan: alright
- Asif: yeh

In the typical language learning environment, it is not possible to expose learners to all the varieties of language use they might encounter. However, it certainly is possible to increase learners' awareness of socio-cultural issues. One of those is the existence of **language registers**, the idea that we adjust the language we use – in terms of formality, tone, and even vocabulary – in response to the context in which we find ourselves. Learners need to be aware of how language use could be adjusted in formal face-to-face settings, as in a work environment, to highly informal, online settings, such as Facebook postings. This involves looking beyond grammatical correctness to language in use. **Pragmatics**, another field of interest in sociolinguistics, deals with the nature of language as it occurs in actual social use. The meaning of what is said in conversation may be quite different from the literal meaning of the words used. A statement made in an ironic, sarcastic, or humorous tone may, in fact, have a meaning diametrically opposed to its surface meaning. Answering "oh, sure" in American English to a statement or question can be a positive affirmation or be intended to ridicule what the interlocutor has said. Such nuances are important for being able to function in the target culture. This kind of sociocultural competence is not easy to acquire, as pragmatics does not involve learning a fixed set of rules. Rather, inference and intuition play a major role, as can emotions as well. Being aware of the dynamics of language use in conversation can help one be a better informed and literate speaker of any language. **Pragmatic competence** is particularly important in online exchanges, in which the non-verbal cues signaling intent and attitude are not available.

In recent years there has been a growing recognition that culture and language cannot be separated, and that culture permeates all aspects of language. (Godwin-Jones, 2016). If, for example, a language has different personal pronouns for direct address, such as the informal *tu* in French and the formal *vous*, both meaning 'you', that distinction is a reflection of one aspect of the culture. It indicates that there is a built-in awareness and significance to social differentiation and that a more formal level of language use is available. Native speakers of English may have difficulty in learning how to use the different forms of address in French, or as they exist in other languages such as German or Spanish. Speakers of American English, in particular, are inclined towards informal modes of address, moving to a first-name basis as soon as possible. Using informal address inappropriately can cause considerable social friction. It takes a good deal of **language socialization** to acquire this kind of pragmatic ability, that is to say, sufficient exposure to the forms being used correctly. While native speakers of English may deplore the formality of *vous* or its equivalent in other languages, in cultures where these distinctions exist, they provide a valuable device for maintaining social distance when desired, for clearly distinguishing friends from acquaintances, and for preserving social harmony in institutional settings.

Typically in foreign language instruction, sociolinguistic knowledge is presented as standard and universal in a given culture, much as language is presented in the model of educated speakers using standardized, grammatically correct language forms. This can result in a somewhat unrealistic representation of the target culture. Foreign cultures are often viewed as monolithic and invariable, with distinctions based on age, occupation, or locality either glossed over or presented as intriguing, exotic outliers ('what a strange dialect'). The reality of identity creation in today's world is quite different, with globalizing economic trends and the spread of social media leading to multifaceted personal and cultural identities which may come to the fore at different times in different situations. The national culture in which a person is raised is an important factor in determining one's values, beliefs, and habits, but there are multiple additional influences, coming, for example, from membership in a minority group, gender identification, participation in online communities, the work/living environment, or a chosen free time activity.

Bilingualism and Multilingualism

The complex identities created through the forces of globalization, mass migration, and the growth of social media, have also resulted in linguistic complexity (Piller, 2017). Individuals are much more likely than in the past to be exposed, in person or online, to speakers of other languages. The plurality of languages may well happen within one's own family. As travel and migration have brought more people from different cultures together, there has been a growth in families in which parents have different mother tongues. Children in such households are likely to be brought up speaking both languages, becoming bilingual. Bilingualism may as well result from individuals or families migrating and continuing to speak the language of their home culture, while learning that

of the host country. Studies have shown that not only do bilinguals have the advantage of likely fluency in two languages, but that the process of growing up bilingual also has a positive effect on brain development (Albert & Obler, 1978).

Bilinguals may differ in their level of proficiency in the languages they speak. Normally a bilingual will have one dominant language (Grosjean, 2001). It may be, for example, that children speaking the language of their parents at home may not develop a good reading or writing ability in that language. Some schools and universities in which there are large numbers of such "heritage" speakers, often have specially designed courses which help such students develop full capabilities in those languages. People who know more than one language have been shown to be more adept at language learning (Kaushanskaya & Marian, 2009).

In most parts of the world today, most individuals have at least some capability in a second language: "The majority of the world's population uses more than one language on a regular basis and monolingualism is by and large a historical and Anglophone anomaly" (Piller, 2017, pp. 71-72). This is a matter of necessity in countries such as Luxembourg, Nigeria, or Indonesia in which there are multiple languages coexisting in geographically close quarters. Inhabitants of smaller countries, with their own national languages, such as Denmark, Estonia, or Nauru (an island country in Micronesia) will, due to economic and practical concerns, typically learn the language of larger neighboring countries. However, in this context as in others, political and nationalist issues may influence language learning choices.

Many countries have more than one officially recognized national language, including Canada (English and French), Switzerland (French, German, Italian, Romansch), South Africa (11 languages), and India (22 languages). It's not the case that in multilingual societies all speakers are necessarily multilingual. Particular languages may be spoken predominately in one region, as is the case for French in Canada or Italian in Switzerland. In other cases, language use may be distributed according to ethnic heritage, as can be seen in Singapore or Malaysia. In some countries, there may be different versions of a common language, as is the case in Switzerland with Swiss German and standard German. This phenomenon is known as **diglossia**, in which there is a common spoken vernacular language and a more formal version. This is the case for Arabic, with the "high" version being Modern Standard Arabic, used in writing and in formal speech, and the many regional, colloquial versions (Egyptian, Maghrebi, Peninsular, etc.). In some countries or regions, there may not be this kind of functional distinction in language choice, but rather a mix of languages spoken determined by the context in which the language is used. This phenomenon, known as **ambilingualism** is seen particularly in smaller countries (such as Luxembourg), border areas (such as Alsace, France) or in urban areas aggregating different communities (Johannesburg, South Africa).



Figure 10.2.1.5: Tamil, English and Hindi name board at the Tirusulam suburban railway station in Chennai.

World languages

Languages differ in a number of ways. Not all languages, for example, have a written form. Those that do use a variety of writing systems. Russian uses the Cyrillic alphabet, while Hindi uses Devanagari. Modern Korean offers a rare example of a successfully invented written language, Hangeul (see sidebar). Chinese has a particularly ancient and rich written language, with many thousands of pictographic characters. Because of the complexity and variety of Chinese characters, there is a simplified equivalent called Pinyin, which enables Chinese characters to be referenced using the Latin alphabet. This is of particular usefulness in electronic communication. The arrival of touch-enabled smartphones has been of great benefit to languages with alternative writing systems such as Chinese or Arabic (Godwin-Jones, 2017d). Smartphones and word processors can now support writing systems that write right to left such as Hebrew.

Sample text in Korean (Hangeul)

모든 인간은 태어날 때부터 자유로우며 그 존엄과 권리에 있어 동등하다. 인간은 천부적으로 이성과 양심을 부여받았으며 서로 형제애의 정신으로 행동하여야 한다.

Translation

All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.

Article 1 of the Universal Declaration of Human Rights

Languages evolve over time. **Historical linguists** trace these changes and describe how languages relate to one another. Language families group languages together, according to similarities in vocabulary, grammar, and pronunciation. Languages within a same family derive from a common ancestor, called a **proto-language** (Nowak & Krakauer, 1999). Membership in a given family is determined through **comparative linguistics**, i.e., studying and comparing the characteristics of the languages in question. Linguists use the metaphor of a family tree to depict the relationships among languages. One of the largest families is **Indo-European**, with more than 4000 languages or dialects represented. Indo-European languages include Spanish, English, Hindi/Urdu, Portuguese, Bengali, Russian, and Punjabi, each with over 100 million speakers, followed by German, French and Persian. Nearly half the human population speaks an Indo-European language as a first language (Skirgård, 2017). How the languages are related can be shown in the similar terms for "mother" (see sidebar).

Mother in Indo-European languages

- Sanskrit *matar*
- Greek *mater*

Some regions have particularly rich linguistic traditions, such as is the case for Africa and India. In India, there are not only Indo-European languages spoken (Hindi, Punjabi), but also languages from other families such as Dravidian (Telugu, Tamil), Austroasiatic, Sino-Tibetan, Tai-Kadai, and a few other minor language families. Papua/New Guinea has a particularly rich variety of languages; with over 850 languages, it is the most linguistically diverse place on earth. In such cultures, most people are multilingual, often speaking 3 or more languages, along with a **lingua franca** - a common denominator -, such as Swahili in parts of Africa, English in India, or Tok Pisin, an English-based creole, in New Guinea.

There are languages which do not belong to families, known as **language isolates** (Campbell, 2010). Well-known examples include Basque, a language spoken in the border area between France and Spain, and Korean. Language isolates tend to develop in geographical isolation, separated from other regions, for example, through mountain ranges or the sea. In some cases, geographical features such as dense forests may result in different dialects or even languages spoken in areas which are actually quite close to one another. A **dialect** refers to a variety of a language that is used by particular group of speakers, defined normally regionally, but could be related to social class or ethnicity as well. Dialects are closely related to one another and normally mutually intelligible.

It is estimated that there are between 5000 and 7000 human languages. It is difficult to provide an exact count, as differentiating languages from dialects is often difficult. It is also the case that languages die, as the number of speakers dwindle. That is particularly the case with indigenous languages in the Americas and Asia. **Endangered languages** can become extinct, and today this is happening at an alarming rate, for multiple reasons; often cited are globalization and the rise of English as a world language. Several TED Talks highlight the work of **field linguists** (a branch of anthropology) to capture recordings of endangered languages in an effort at preservation (see resource list). Modern technology makes it much easier to document and archive language use. However, those same technological advances bring the outside world into formally isolated areas, inevitably favoring the spread of dominant languages such as Spanish, Chinese, and English.



Figure 10.2.1.6: Linguist Gregory Anderson interviews a Koro speaker in India



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10.2.2: Second Language Learning

Approaches to Language Learning

For the many indigenous languages threatened with extinction, modern technology can provide an invaluable service, through recordings to capture high-quality audio and video of native speakers. This enables as well the preservation of cultural artifacts such as traditional stories, folklore, or information about the natural world. Field linguists use the recordings along with other information gathered to analyze the target language and culture, from which they develop dictionaries, grammars, and ethnographic studies. **Ethnography** – the study and description of the customs of a particular group – has been widely used in anthropology and linguistics, as it supplies authentic information about a culture. It's also a tool that can be used in conjunction with study abroad or community-based learning. Ethnographic studies typically entail conducting interviews with "informants", i.e. local inhabitants, collecting samples of language use and cultural information. Informal ethnographic studies can be done today by students through the use of inexpensive recording devices or mobile phones.

The language data collected by ethnographers can be a valuable resource for language learning. Dual-language dictionaries, grammar tutorials, and sample dialogs are typically digitized and made available online. Such resources are especially important for less commonly taught languages (Godwin-Jones, 2013). For many world languages, there may not be any locally available learning resources such as classroom instruction or native speakers. There may be few language textbooks or other print materials available as well. There are several sites which collect online resources for less commonly taught languages such as the University of Pittsburgh [Less-commonly-taught Languages Center](#) or the University of Arizona's [Critical Languages Program](#).

While digital resources for language learning proliferate today, the traditional access to language learning materials is the textbook. Since the early 19th century textbooks have provided the essential structure and content for both teacher-led and self-taught language learning. The rich multimedia environment for language learners is a fairly recent phenomenon (see Otto, 2017). The use of audio for improving pronunciation and listening skills, and for exposing learners to more native speaker speech began with the advent of magnetic tape recorders in the 1950s and 1960s. This corresponded to the popularity of the audiovisual method of language learning, which stressed working closely, often memorizing, model dialogs. This **behaviorist approach** to language pedagogy, emphasizing rote learning of vocabulary and grammar through drills and repetition, continued to be used in the early stages of computer-assisted language learning (CALL) in the 1960s and 1970s. A major breakthrough in CALL arrived with the incorporation of digital audio and video into personal computers in the 1980s. This enabled programmatically guided random access to recordings, allowing audio and video to be used in much more creative and pedagogically effective ways. Quite sophisticated multimedia learning programs were developed which featured authentic video, gaming elements, and branching storylines depending on learner actions (Godwin-Jones, 2017a).



Figure 10.2.2.1: Learning German at the Smarter Language Academy in Nigeria

Chomsky's concept of universal grammar led to theories of language instruction that postulated the existence of a "natural order of acquisition" (Krashen, 1982, p. 15), that is, that there is for all languages a set, optimal sequence of learning activities. This led to an emphasis in language learning on grammatical rules acquired through psycholinguistic/cognitive processes. However, research from Hymes (1972) and other linguistics scholars began to emphasize a different aspect of language, namely its social aspect. From this perspective language is not just an internal, psychological process, but has a crucial socio-cultural role – it is the principal means we have to interact with others. We learn our first language from interactions with those around us, our families and peers. This dimension of language began to be increasingly recognized as important as well in second language learning. This has led to a decreased emphasis on purely cognitive approaches such as drill and practice exercises or memorization and more emphasis on

- **-tu(q)** indicative third-person singular
- **-alu(k)-**: augmentative ("very")
- **-u-**: "be"
- **-junga**: indicative first-person singular (itself composed of the indicative morpheme -ju- and the first person mark -nga)

[Inuit grammar/Wikipedia](#)

In some languages, learning sometimes subtle variations in pronunciation can be crucially important. In Mandarin Chinese, for example, there are four **tones** in which syllables are pronounced and the exact same **phoneme** (minimal unit of sound) can have four different meanings depending on the tone (high, low, rising, rising and falling). The syllable “ma” in Mandarin could be *mā* (mother), *má* (to bother), *mǎ* (horse), *mà* (to scold), or *ma* (neutral tone, used as an interrogative particle). One of the helpful tools linguists have created in the field of **phonetics** (the production of sounds) and **phonology** (how sounds are put together) is the **IPA**, the International Phonetic Alphabet (MacMahon, 1986). It allows an accurate representation of sounds in all human languages, including the variety of clicks in some African languages. In some cases, the IPA transcription is easy to understand, for example, “good” as [gʊd]. In other cases, symbols are used that are not part of the regular alphabet, for example, thicker as [θɪkə] or child as [tʃaɪld].

Learning a Second Language

The degree of difficulty in learning a second language can vary depending on a number of factors, such as motivation, time commitment, and innate ability to learn. Some learners are able to imitate very closely the sounds of a native speaker; others have great difficulty in that area, particularly if they start learning the language later in life. The **critical period hypothesis** claims that there is an ideal time window for acquiring language, namely as children or adolescents (Harley & Wang, 1997). This is particularly true for developing native-like pronunciation and fluent oral communication skills. Older learners, on the other hand, tend to do well with learning grammar and structure, the analytical aspect of language learning. The degree of difficulty is also dependent on the level of fluency and accuracy one hopes to attain. People learn languages for different reasons, and some learners may just need a reading ability.

Immigrants sometimes reach a level of ability that provides basic functionality in the language. At that point they may stop formal training or making conscious efforts to improve, their pronunciation and grammar becoming “**fossilized**” at the functional level achieved (Acton, 1984). In the field of SLA today, a major field within applied linguistics, it is recognized that language learners vary considerably in their goals and needs and that not every learner needs to develop native-like pronunciation or perfect grammar. The standard for most learners is likely to be intelligibility, being able to make oneself understood. In some cases, mispronunciation of individual sounds is less important for intelligibility than intonation or idiomatic word choice. Unfortunately, the public at large does not share the perspective of SLA, so that those who speak with a noticeable accent or use faulty grammar can face prejudice and discrimination, despite being eminently intelligible.

One of the other determiners of language learning ease or difficulty is the similarity or dissimilarity of the second language to one's native tongue. It is clearly much easier for a native English speaker to learn Spanish or German than to learn Arabic or Mandarin. For those languages, a completely different writing system must be learned. It's also the case that Spanish and German, like English, are members of the same language family of Indo-European, which means that they have similar genealogies. As a result, there are similarities in grammar and vocabulary. A high number of **cognates** – words which resemble each other – between the two languages can be very helpful, especially in the early stages of language learning.

Ultimately, if or how well learners acquire a second language depends on the individual. One's attitude is a crucial factor. If one is highly motivated to learn because of extrinsic factors, such as a migrant's need for functional ability in an adopted country, that can lead to more intense and faster learning. There may be compelling professional reasons for needing to learn a second language, such as being posted to a foreign country. Intrinsic motivating factors may play a role. Those might include a desire to learn more about another culture to maintain or establish a connection to one's ethnic heritage. **Polyglots**, speakers of multiple languages, are motivated to learn as many languages as possible (see resource list for examples).



Figure 10.2.2.2: Author JRR Tolkien knew many languages and invented languages

In any case, maintaining a positive attitude is important in intercultural communication generally, and is of great benefit as well in language learning. A spirit of openness and curiosity is needed. If one is willing to use the language learned to engage in conversation with other learners or native speakers, faster progress is likely. The author of a well-known textbook on intercultural communication entitled one of the chapters "Language as a barrier" (Jandt, 2012). In fact, the opposite is true, learning a second language is a gateway into another culture, the most effective way to get an inside track on the perspective from which speakers of the language view the world.

English as a world language

Often there is a close and natural connection between the language one learns and the culture represented by that language. In fact, interest in the target culture may be the starting point for learning a new language. In some cases, there is a tighter connection to a single culture than for others. Learners of Japanese, for example, are in a different position from learners of Spanish in that there are fewer regional variations and only one nation-state where Japanese is spoken. From that perspective, English is even more diverse culturally than Spanish. That derives not just from the fact that English is the official language of a variety of countries, but that it also functions as the lingua franca for exchanges between people with different native languages. In fact, it's estimated that there are today a larger number of people worldwide who speak English as a second language than as a native language (Crystal, 2003). English is seen in many countries as an essential tool for social and economic advancement. At the same time, English is sometimes seen as an instrument of cultural imperialism, given the history of colonization, evangelization and, spread of US consumer/popular culture from the Anglophone world. The spread of English is often accompanied by Western, more specifically Anglo-Saxon cultural values.

The role that English as a language plays in a given culture may vary considerably. Given its history as a former English colony, Hong Kong, for example, is a city in which there are many people who speak English in their everyday lives. Hong Kongers use English "quite comfortably with one another when they are at school or in the office. It is considered strange, however, to use it in daily conversation" (Scollon, Scollon & Jones, 2012, p. 6). This is in contrast to Singapore, India, or South Africa, where there may be speakers of a variety of other languages so that English is needed as a lingua franca. In Hong Kong, by contrast, English is not needed, as native Hong Kongers speak Cantonese. Scollon, Scollon & Jones (2012) point out that using English in Hong Kong outside of institutional settings carries with it social significance:

[This is] based partly on the groups of people that use it such as teachers and other authority figures as well as non-Cantonese speaking "foreigners," and so by appropriating English into casual conversation with another Cantonese speaker, one might be claiming a certain affiliation with those groups of people, or one might be thought by the people to whom one is talking to be claiming such an affiliation, to be "showing of," or, at the very least, to be acting unduly formal (p. 6).

The different social significance of speaking English across cultures points to the inherent cultural forces language embodies beyond serving as a means of communication. Language choice can be a way to position oneself socially. In many cultures, English may be an important component of individual identity and agency.

The interest in English has resulted in a boom in English classes in many countries. At the same time, there has been a shift in how English is taught as a second language. It is no longer the case that learning English is tied necessarily to learning as well about the culture of Great Britain or the USA. The kind of English taught may in fact not be either British English or North American English, but rather a version which adapts to a local variety of English or strives to model International or World English. The latter concept has evolved out of the desire to minimize cultural influences from North America and Great Britain in language learning, as well as to deal with differences in usage (spelling, vocabulary, pronunciation) among Englishes in Anglophone countries. There have even been attempts, such as Basic Global English, to create a kind of neutral, bare-bones version of the language (Grzega, 2006). On the other hand, there have been efforts locally to teach English within the context of a local culture. That has been the case, for example, in Vietnam (Kramsch & Sullivan, 1996) and Pakistan (Malik, 1993).

Many people are learning English for highly utilitarian reasons, to advance socially or professionally. As a result, there is a lot of interest in "English for Special Purposes," English classes tailored to those with particular professional needs, such as business, tourism, or a highly technical field. This may lead to a limited proficiency in English within a narrow semantic field. An example is Aviation English, called *AirSpeak*, the version of English universally used by pilots and air traffic controllers (International Civil Aviation Organization, 2003). There have been some concerns expressed that pilots with *AirSpeak*-level English proficiency can deal very well with routine situations that occur in the air, but might have some difficulty describing unusual events in English. The example given in the sidebar illustrates potential issues with language, but also possibly with sociocultural factors, namely the possible reluctance of a pilot to admit ignorance.

Example: Airspeak

On August 2, 1976, a Boeing 707 cargo flight departed from Tehran to Seoul and collided with the mountain due to a wrong turn. The following is the conversation between Air Traffic Controller (ATC) and the pilot. Standard Instrument Departure (SID) is published flight procedure followed by aircraft immediately after takeoff from an airport

- ATC to Pilot: "Follow SID 11"
- Pilot to ATC: "What is SID 11?"
- ATC to Pilot: "Standard Instrument Departure 11"
- Pilot action: Silence

Hazrati & Touiserkani (2016)

In the early days of the Internet there was concern that English would crowd out all other languages. That has not, however, been the case. Statistics show much faster Internet growth in countries where English is not the dominant language (Internet World Stats, 2017). In 1996, more than 80 percent of Internet users were native English speakers. By 2010, that percentage had dropped to 27.3 percent. Online services are increasingly available in multiple languages, Wikipedia in 295 languages and Facebook in 101 (Ortega, 2017). However, it remains a reality that English growth may lead to the decline of other languages. In some countries, private universities have opened up in which the language of instruction is English. The popularity since 2012 of MOOCs (massively open online courses), which have predominantly been offered in English, from US universities, has led some to worry about that form of distance learning in English replacing local educational resources (Godwin-Jones, 2014). Whether the cause is or is not the spread of English, it does remain that a large number of the world's languages are today threatened with extinction (Choi, 2014). Given the close connection we have discussed here between language and culture, losing language communities also means a loss of human cultural capital, which is irreplaceable. For the majority of the world languages which do not have a written language, losing the last remaining speakers can mean the disappearance of the spoken stories and traditions. It can also mean a significant loss of knowledge of the natural world. Losing words for native plants can mean loss of knowledge of how that plant can be used for medicinal or other purposes. Ultimately, losing a language entails losing a unique view of our world.

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10.2.3: Technically Speaking - Language Learning and Technology

Today online resources have become invaluable for all language learners. Language learners may be using online resources in conjunction with instructed language learning in a formal school setting, or they may be independently learning or maintaining a second language. For the latter, there are a variety of options available. There are online language learning services online such as [DuoLingo](#) or [Mango Languages](#). These typically provide instruction in multiple languages and, in addition to basic language instruction, also offer access to other learners and/or native speakers. These are typically commercial services, which usually offer a free trial. They vary considerably in scope and effectiveness. A free alternative is to connect online with other language learners through a site such as the [Mixxer](#). One of the methods that has been popular in recent years is tandem learning, in which two learners of each other's language serve as conversation partners and native informants, sharing equally in time spent practicing with each language (Brammerts, 1996).

Informal language learning through the Internet has become increasingly popular, as it offers just-in-time learning, anytime access, and low cost. Depending on the tool or service used, it also offers the possibility of creating relationships with other learners or native speakers. This can provide valuable venues for real language use. Often classroom language learning is preparation or practice for actual communication, but the Internet provides opportunities for authentic communication. It supplies both opportunities for language use in real contexts and the opportunity for cultural learning. Having real conversations with real people (face-to-face or online) can be a powerful learning motivator. Using and learning languages online has the potential to expose learners to both high volumes and diverse ranges of language. This is an ideal environment for language learning.

The current view of language has been shaped by research based on corpus linguistics, discourse analysis, and related fields, which see language above all as a set of patterns and conventional word groupings (Godwin-Jones, 2017b). Studies examining real language exchanges show that language use is characterized by repetition, reuse, and re-purposing of chunks of language (Ellis, 2017). This construction-based view of language means that it is essential for the learner to have access to a sufficient volume of language in different contexts to be able to identify patterns, as well as to gain insight into how usage can vary according to formality or other contexts. The need is for exposure to real language in real and meaningful contexts. That, in fact, is the big advantage of informal language learning online: being able to engage in substantial communicative activities in authentic and meaningful contexts, supplying both more volume and more variety than is the case in instructed language learning. In this way, language is learned through meaningful experiences, and language structures emerge from repeated use (Godwin-Jones, 2018).

How one might use technology for language learning depends to a large extent on one's level of proficiency, time available, and the purpose for wanting to learn the language. For tourists, there are phrase books, virtual guided tours, and other language and cultural resources in electronic form. These are typically available as apps for mobile access (Godwin-Jones, 2017d). Also popular are flashcard programs for vocabulary learning as well as basic grammar tutorials. For those focused on learning to read in another language, dual-language and annotated texts are available, depending upon the L1 and L2 combination. Also possible are four-skill online courses or software programs for many languages. These include freely available Internet courses such as MOOCs or (paid) for-credit university classes.

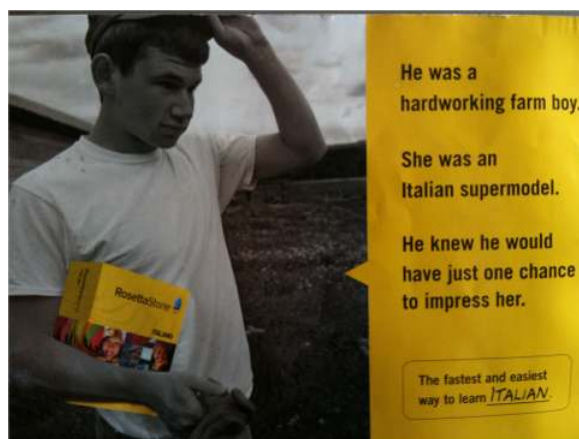


Figure 10.2.3.1: Ad for Rosetta Stones promising social benefits

Among the self-directed language learning software packages, one of the better-known products is [Rosetta Stone](#). It features a sequenced presentation of the target language, initially in phrases and short sentences, and then moving on gradually to larger language chunks. It incorporates listening practice as well as speaking, providing feedback through automatic speech recognition.

Rosetta Stone has been criticized for not incorporating a cultural component: the same generic sentences and stock illustrations are used for all languages. Moreover, it shares with other dedicated language learning software the disadvantage of not supplying opportunities for language use beyond simple phrases and sentences. One recent study of the use of Rosetta Stone in elementary Spanish found that students had gained considerable knowledge in the areas of vocabulary and grammar (Lord, 2015). However, they had considerable difficulty in conducting even a basic conversation in Spanish. They lacked **strategic competence**, the ability to negotiate conversations through rephrasing or asking for explanations or repetitions.

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10.2.4: Language and Culture (Summary)

From theory to practice...

- *Don't expect your language learning progress to be linear.* The typical language learning experience is more like a spiral than a straight line, with lots of starts and stops. One often has the feeling of standing still or even moving 1 step forward and 2 steps back, particularly in the stages of advanced novice ([CEFR](#) level A2) and intermediate (B1 to B2). It can happen at the upper levels as well. This is normal, that progress comes through fits and starts. Often you are learning without realizing it, building up your store of language until it reaches a point where what you've accumulated starts to come together.
- *Textbook language is not real.* In real-life use, be prepared to encounter language differences from what's in language textbooks. This is one of the advantages of exploring L2 use through online exchanges, getting a taste of authentic language use in context.
- *Language in everyday use is culturally determined.* This means that how we carry out routine tasks such as exchanging greetings, asking for a favor, or expressing thanks can vary significantly from culture to culture. In these "speech acts" being grammatically correct is not nearly as important as being culturally appropriate.
- *Explore language learning on the Internet.* As described in this chapter, there are rich opportunities for language study, both learning and maintaining, on the Internet. Some may work for you better than others – there are many different tools and services, which use quite different approaches.

For discussion and reflection...

1. Language and human behavior

After watching the TED talks by [Chen](#) and [Tran](#)...

How do you judge the validity of the claims in the videos that the structure of a language (such as the presence or absence of a particular verb tense) can influence human behavior? When you are using a second language, do you feel you see the world differently?

2. Words

After watching the TED talks by [Curzan](#) and [Shargaa](#) and listening to (or reading the transcript of) the [conversation with John McWhorter](#)...

Do words matter? Is it a problem if someone uses a word incorrectly in a non-standard way? Are there particular contexts in which word usage is important? What's your view on the use of "awesome" and "thug", as discussed by Shargaa and McWhorter?

3. Language learning and multilingualism

After watching the TED talks by [Doner](#) and [Lonsdale](#) and reading the [piece by Foer](#):

What have been for you the most effective approaches to language learning? What mechanisms have you found for maintaining your second language abilities? How would you judge the approaches advocated in these videos? If you have tried learning Chinese, what is your assessment of the "[Chineasy](#)" approach?

4. English as a world language

After watching the [Ryan](#) and [Walker](#) TED talks and reading the articles by [Pullum](#) and [McWhorter](#)...

Are we moving towards one language = English? What are the advantages and disadvantages if that were to be the case? Why English and not another language, particularly Chinese? What's your take on McWhorter's statement that "...if the Chinese rule the world, they will likely do so in English"? Is it a problem (culturally), that, as Pullum discusses, higher education in a number of non-English speaking countries is moving towards English as the language of instruction?

5. Endangered languages and technology

After watching the TED talks by [Davis](#) and [Plotkin](#)...

Is it important to preserve the world's languages? Isn't it crucially important for individual advancement in any country to speak English? Does it matter in that case that a native language disappears?

Key Concepts

- **Accent:** Version of language distinguished by pronunciation
- **Ambilingualism:** Situation when two or more languages are used interchangeably and seemingly randomly by an individual or in a community
- **Argot:** A secret language used by a group to prevent outsiders from understanding [from French *argot*, meaning slang]
- **Behaviorism:** Emphasizes the role of environmental factors in learning (rather than innate factors); learning involves conditioning through repeated stimulus and response
- **Cognate:** A word having the same linguistic derivation as another; from the same original word or root
- **Collocation:** The frequent juxtaposition of a particular word with another word or words with a frequency greater than chance
- **Communicative approach:** Language learning pedagogy which stresses meaningful and real communication in interactions among learners and the use of authentic texts
- **Comparative linguistics:** Branch of historical linguistics concerned with comparing languages to establish their historical relatedness
- **Computational linguistics:** Branch of linguistics that includes automatic speech recognition, computer-assisted translation, and other uses associated with the use of computers to predict and interpret human communication
- **Connotation:** Commonly understood cultural association of a word, rather than its literal meaning (denotation)
- **Creole:** Full-fledged language that originated from a pidgin or combination of other languages
- **Denotation:** A word's explicit or literal meaning
- **Descriptive linguistics:** the study of the grammar, classification, and arrangement of the features of a language at a given time, without reference to the history of the language or comparison with other languages.
- **Dialect:** A language variety associated with a particular region or social group
- **Diglossia:** Situation in which two languages or dialects are regularly spoken in a community
- **Discourse analysis:** A general term for a number of approaches to analyze language use, usually involving breaking down conversations into individual units, which are studied for their meaning and context
- **Endangered language:** A language that is at risk of falling out of use as its speakers die out or shift to speaking another language
- **Ethnography:** The scientific description of the customs of individual peoples and cultures
- **Field linguistics:** An applied area that collects data on little-studied languages, particularly those with few speakers that are in danger of dying out
- **Fossilization:** Refers to the loss of progress in the acquisition of a L2 following a period where learning occurred, despite regular exposure to and interaction with the L2
- **Generative grammar:** A linguistic theory that sees grammar as a system of rules that generates combinations of words that form grammatical sentences in a given language (originated by Noam Chomsky)
- **Grammar:** The mental representation of a speaker's linguistic competence; what a speaker knows about a language.
- **Historical linguistics:** Study of the origins, development and relationships of various languages
- **Idioms:** Whole phrases that extended the meaning beyond the literal meaning of the words
- **Indo-European:** A large language family of related languages and dialects originating in Eurasia, with the most widely spoken languages being Spanish, English, Hindi, Portuguese, Bengali, Russian, Persian, and Punjabi
- **IPA:** The international phonetic alphabet, a set of symbols and diacritics representing phonemes of the world's languages
- **Jargon:** A set of words/terms that are shared by those with a common profession or experience
- **Language:** A systematic set of sounds, combined with a set of rules, for the purpose of communicating
- **Language family:** A group of languages related through descent from a common ancestor
- **Language isolate:** Language with no known relationship with other languages or membership in a language family
- **Language socialization:** Gradual development of skills and behaviors in expected ways of speaking and acting through participation in social interactions
- **Language variety:** The way a particular group of people uses language
- **Lexical approach:** Method of teaching foreign language stressing the understanding and production of lexical phrases as chunks
- **Lingua franca:** Common language used by speakers of different languages
- **Linguistic determinism:** The hypothesis that the differences among languages are reflected in the differences in the worldviews of their speakers
- **Linguistic relativity:** Theory that the way one thinks is determined by the language one speaks

- **Linguistics:** The scientific study of language, specifically its structure, development, and relationship with other languages
- **Monolingual:** A person who speaks only one language
- **Morpheme:** In a language, the smallest unit that carries meaning; may be a word or a part of a word (such as a prefix)
- **Morphology:** Branch of linguistics with a focus on morphemes, the basic unit of meaning within a language
- **Mutual intelligibility:** The ability of two people to understand each other when speaking
- **Neologism:** A newly coined word or phrase
- **Noam Chomsky:** United States linguist whose theory of generative grammar redefined the field of linguistics (born 1928)
- **Phoneme:** Smallest unit of sound, as in a consonant or vowel
- **Phonetics:** Description and classification of sounds and the study of their production and perception.
- **Phonology:** Study of sound systems and sound change, usually within a particular language or family of languages.
- **Pidgin:** A simplified language that develops as a means of communication between two or more groups that do not have a language in common
- **Polyglot:** A person who knows and is able to use several languages
- **Pragmatics:** The study of how language is actually used and the effect that language has on human perceptions and behaviors
- **Pragmatic competence:** The ability to use language effectively in a contextually appropriate fashion
- **Prefix:** An affix that is attached to the beginning of a morpheme or stem
- **Prescriptive grammar:** Rules of grammar brought about by grammarians' attempts to legislate what speakers' grammatical rules should be, rather than what they are
- **Proto-language:** Hypothetical parent language from which actual languages are derived
- **Prestige:** In sociolinguistics, the level of respect normally accorded to a specific language or dialect within a particular speech community, relative to other languages or dialects
- **Register:** A variety of a language used for a particular purpose or in a particular social setting^[1]
- **Root:** The morpheme that remains when all affixes are stripped from a complex word
- **Sapir-Whorf hypothesis:** The proposition that the structure of a language influences how its speakers perceive the world around them.
- **Semantics:** Systematic study of meaning in language, especially word and sentence meaning
- **SLA: Second Language Acquisition:** References both the process of learning a second language as well as the academic field dealing with that process
- **Sociolinguistics:** The study of how language is used in society, including its differences among cultures, age groups, genders, social class, etc.
- **Speech act:** An utterance that has performative function in language and communication^[2]
- **Strategic competence:** A speaker's ability to adapt use of language to compensate for communication problems caused by a lack of understanding
- **Suffix:** An affix that is attached to the end of a morpheme or word
- **Symbol:** Arbitrarily selected and learned stimulus representing something else
- **Syntax:** Systematic ways in which words combine to create phrases, clauses, and sentences
- **Tone:** The use of pitch in language to distinguish lexical or grammatical meaning – that is, to distinguish or to inflect words
- **Universal grammar:** Noam Chomsky's theory that all the world's languages share a common underlying structure
- **Variation:** A characteristic of language: there is more than one way of saying the same thing. Speakers may vary pronunciation, word choice, or morphology and syntax

Resources

Books: language autobiographies

- **Grosjean, F. (2010). *Bilingual: life and reality*. Harvard University Press.**
- Hoffman, E. (1998). *Lost in translation: A life in a new language*. Random House.
- Kaplan, A. (1994). *French lessons: A memoir*. University of Chicago Press.
- Rodriguez, R. (1983). *Hunger for memory: The education of Richard Rodriguez: An autobiography*. Bantam.

Movies involving language or linguists

- *Apocalypse*, 2006; filmed entirely in the Yucatec Maya language (with subtitles)
- *Arrival*, 2016; science fiction that centers on translation and interpretation, with a linguist as the main protagonist
- *Grammar of Happiness*, 2012; follows the story of Daniel Everett among the Amazonian Piraha tribe

- *Do you speak American?*, 2005; documentary about different versions of English in the US
- *Ghost Warrior*, 1984; A deep-frozen 400-year-old samurai is shipped to Los Angeles, where he comes back to life, speaking an ancient Japanese dialect
- *Nell*, 1994; wild woodswoman in North Carolina who speaks a strange unknown language
- *Pontypool*, 2010; a virus spreads through a community and only a linguist can solve the mystery
- *The Interpreter*, 2005; political thriller about a UN interpreter (Nicole Kidman)
- *The Linguists*, 2008; documentary film about language extinction and documentation
- *The Terminal*, 2004; feature film (Tom Hanks) exploring learning a new language on the fly
- *Windtalkers*, 2002, on the use of the Navajo language as a secret code during World War II

Blogs on language

- [Language Log](#) Long-running, informative blog from the U. of Pennsylvania
- [Lingua franca](#) Associated with the Chronicle of Higher Education
- [The World in words](#) Podcast about language, from PRI's *The World*

The nature of language

- [Keith Chen: Could your language affect your ability to save money?](#)

TED description: "What can economists learn from linguists? Behavioral economist Keith Chen introduces a fascinating pattern from his research: that languages without a concept for the future — 'It rain tomorrow,' instead of 'It will rain tomorrow' — correlate strongly with high savings rates." 

[Can Your Language Influence Your Spending, Eating, and Smoking Habits?](#) from the Atlantic largely supporting the claims as does the piece by David Berreby, [Obese? Smoker? No Retirement Savings? Perhaps It's Because of the Language You Speak](#), while a post in LanguageLog, [Keith Chen, Whorfian economist](#), expresses skepticism

- [Phuc Tran: Grammar, Identity, and the Dark Side of the Subjunctive](#)

TED description: "Phuc Tran grew up caught between two languages with opposing cultural perspectives: the indicative reality of Vietnamese and the power to image endless possibilities with English. In this personal talk, Tran explains how both shaped his identity." 

[Comments](#) from reddit readers and on [Quora](#) (expressing skepticism)

Language in society

- [Anne Curzan: What makes a word "real"?](#)

TED description: "One could argue that slang words like 'hangry,' 'defriend' and 'adorkable' fill crucial meaning gaps in the English language, even if they don't appear in the dictionary. After all, who actually decides which words make it into those pages? Language historian Anne Curzan gives a charming look at the humans behind dictionaries, and the choices they make."

- [Jill Shargaa: Please, please, people. Let's put the 'awe' back in 'awesome'](#)

TED description: "Which of the following is awesome: your lunch or the Great Pyramid of Giza? Comedian Jill Shargaa sounds a hilarious call for us to save the word "awesome" for things that truly inspire awe."

- [The Racially Charged Meaning Behind The Word 'Thug'](#)

NPR's Melissa Block speaks to John McWhorter, associate professor of English and comparative literature at Columbia University, about the use of the word "thug" to describe Baltimore rioters.

[Comments from NPR listeners](#) on McWhorter's views on "thug"

Speaking multiple languages

- [Mia Nacamulli: The benefits of a bilingual brain](#)

It's obvious that knowing more than one language can make certain things easier — like traveling or watching movies without subtitles. But are there other advantages to having a bilingual (or multilingual) brain? Mia Nacamulli details the three types of bilingual brains and shows how knowing more than one language keeps your brain healthy, complex and actively engaged.

- [Patricia Kuhl: The linguistic genius of babies](#)

TED description: "Patricia Kuhl shares astonishing findings about how babies learn one language over another — by listening to the humans around them and "taking statistics" on the sounds they need to know. Clever lab experiments (and brain scans) show how 6-month-old babies use sophisticated reasoning to understand their world."

- [Tim Doner: Breaking the language barrier](#)

Young polyglot talks about superficial view of language learning in the media; explains "method of loci" (memory palace) and experimenting with other methods; about language and culture

- [Benny Lewis: Hacking language learning](#)

Polyglot explains his method for language learning; about polyglots; emphasizes motivation. TED description: "'Some people just don't have the language learning gene.' To prove that this statement is patently untrue is Benny Lewis's life mission. A monoglot till after leaving university, Benny now runs the World's most popular language learning blog and is learning Egyptian Arabic which will be language number twelve, or maybe thirteen. But who's counting?"

On language learning

- [Sid Efromovich: 5 techniques to speak any language](#)

Polyglot explains his approaches to language learning. His first rule: make sure you make mistakes

- [ShaoLan: Learn to read Chinese ... with ease!](#)

For foreigners, learning to speak Chinese is a hard task. But learning to read the beautiful, often complex characters of the Chinese written language may be less difficult. ShaoLan walks through a simple lesson in recognizing the ideas behind the characters and their meaning — building from a few simple forms to more complex concepts. Call it Chineasy.

[Chineasy? Not](#) Victor Mair (prominent Chinese language professor) on this approach (not a fan)

- [Chris Lonsdale: How to learn any language in six months](#)

How he became fluent in Chinese in 6 months

Victor Mair is skeptical: [Fluency in six months](#)

- [How I learned a language in 22 hours](#)

Article from the Guardian by Joshua Foer

[It's not easy and it takes time.](#) Comments on Joshua Foer's article

English as a world language

- [What the World Will Speak in 2115](#)

Article from the Wall Street Journal by John McWhorter

- [Jay Walker: The world's English mania](#)

TED description: "Jay Walker explains why two billion people around the world are trying to learn English. He shares photos and spine-tingling audio of Chinese students rehearsing English, 'the world's second language', by the thousands."

- [Jamila Lyiscott: 3 ways to speak English](#)

TED description: "Jamila Lyiscott is a 'tri-tongued orator'; in her powerful spoken-word essay "Broken English," she celebrates — and challenges — the three distinct flavors of English she speaks with her friends, in the classroom and with her parents. As she explores the complicated history and present-day identity that each language represents, she unpacks what it means to be 'articulate'."

- [Patricia Ryan: Don't insist on English!](#)

TED description: "In her talk, longtime English teacher Patricia Ryan asks a provocative question: Is the world's focus on English preventing the spread of great ideas in other languages? (For instance: what if Einstein had to pass the TOEFL?) It's a passionate defense of translating and sharing ideas."

- [Suzanne Talhouk: Don't kill your language](#)

TED description: "More and more, English is a global language; speaking it is perceived as a sign of being modern. But — what do we lose when we leave behind our mother tongues? Suzanne Talhouk makes an impassioned case to love your own language, and to cherish what it can express that no other language can. In Arabic with subtitles."

- [There Was No Committee](#)

Article by Geoffrey Pullum (from the Lingua Franca blog) on the rise of English in education world-wide

- [The speech accent archive](#)

Fascinating archive of American English accents 

Playing with language and identity

- [Trevor Noah - Live at the Apollo - London](#)

The South African comedian on his identity and the role of languages

- [Hetain Patel and Yuyu Rau: Who am I? Think again](#)

TED description: "How do we decide who we are? Hetain Patel's surprising performance plays with identity, language and accent - and challenges you to think deeper than surface appearances. A delightful meditation on self, with performer Yuyu Rau, and inspired by Bruce Lee."

TED talks on endangered languages

- [Wade Davis: Dreams from endangered cultures](#)

TED description: "With stunning photos and stories, National Geographic Explorer Wade Davis celebrates the extraordinary diversity of the world's indigenous cultures, which are disappearing from the planet at an alarming rate."

- [Mark Plotkin: What the people of the Amazon know that you don't](#)

TED description: "'The greatest and most endangered species in the Amazon rainforest is not the jaguar or the harpy eagle,' says Mark Plotkin, 'It's the isolated and uncontacted tribes.' In an energetic and sobering talk, the ethnobotanist brings us into the world of the forest's indigenous tribes and the incredible medicinal plants that their shamans use to heal. He outlines the challenges and perils that are endangering them — and their wisdom — and urges us to protect this irreplaceable repository of knowledge."

On the nature of TED talks

- [Terry Moore: Why is 'x' the unknown?](#)

Why is 'x' the symbol for an unknown? In this short and funny talk, Terry Moore gives the surprising answer. 

[Debunking Terry Moore's TED talk](#)

- [The Sound of TED: A Case for Distaste](#)

The case for being skeptical of TED talks



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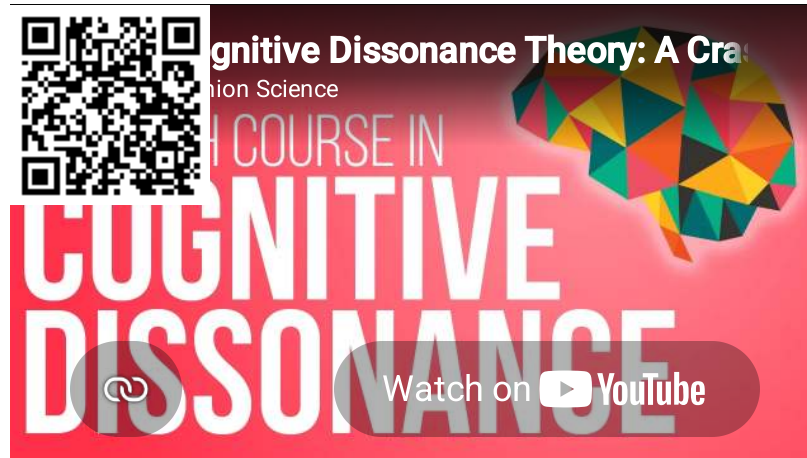
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CHAPTER OVERVIEW

11: Consistency, Cognitive Dissonance

Cognitive Dissonance Theory: A Crash Course



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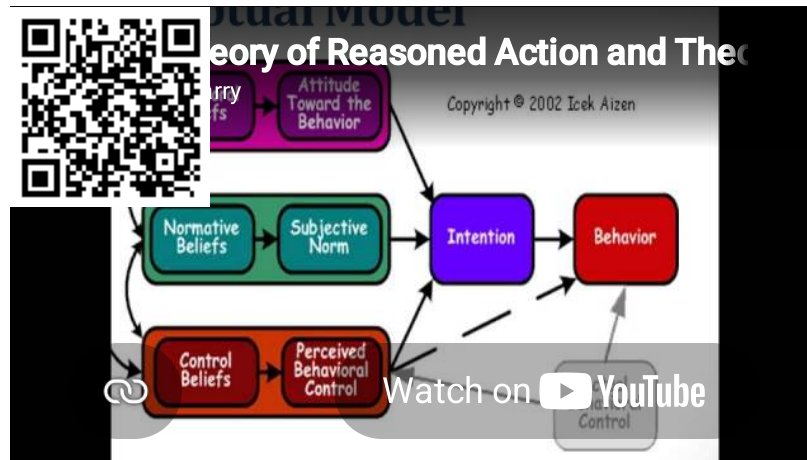


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13: Theory of Reasoned Action

Theory of Reasoned Action and Theory of Planned Behavior



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CHAPTER OVERVIEW

14: Persuasion in Advertising

How Ads (and People) Persuade You



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CHAPTER OVERVIEW

15: Persuasion in Political Campaigns

Persuasive politics: why emotional beats rational for connecting with voters

Politics is mired in a communications crisis. Across the world voters are disillusioned, while in the UK the stock of politicians has [never been lower](#). The task before the next generation of would-be leaders is daunting. They face an electorate that is openly hostile, dismissive of track records, and suspicious of motives.

Yet politicians do seem incapable of helping themselves. The aim of media relations rarely extends beyond underlining previous announcements. Interviewees stick to scripted responses, wilfully evade difficult questions, and rarely add anything new beyond the press release.

Reactions to the UK local elections results in May 2019 were a case in point. With thudding inevitability, senior members of all the major parties reported that everyone else had fared [much worse](#).

It is perhaps with some irony that in order to affect a turnaround in their standing, politicians will likely turn to the only group of professionals with a lower trustworthy rating than themselves: [advertising executives](#). But can the persuasion industries help them to win over a cynical audience worn down by decades of spin?

The art of appeal

Political campaigns have historically been constructed using an approach known as the “[message-into-action](#)” model or the “[rational appeal](#)”. Indeed, this is the way in which almost all brand communication was put together during the 20th century.

Using this approach to generate communications is a fairly straightforward process. It begins with an interrogation of the “product”, to identify a unique benefit or selling point. This is then matched to an insight into the needs of the target audience (usually gleaned from research) to produce a proposition that can be delivered in the form of messages.

The rational appeal has been finessed over the years and remains the go to for many strategists. It has been used to sell everything from soap powder (“Persil Washes Whiter”) to continued British membership of the EU (“[Stronger In Europe](#)”).



Unfortunately, while the process is simple to understand, putting together an effective campaign based on messages is not so straightforward. Often a proposition just doesn’t cut any ice. Effective communication needs to be based on some truth, otherwise the claims made [can sound ludicrous](#).

This was one of the issues with the UK Conservative Party’s 2017 general election campaign, “[Forward Together](#)”. The proposition was based on the unique selling point that Theresa May was a stronger leader than Labour’s Jeremy Corbyn, matched with the insight that voters perceived strong leadership to be a positive quality. But people [just didn’t buy it](#), and the election left her [significantly weaker](#).

That campaign also highlights another major drawback with rational appeals. They require the audience to use what the psychologist Daniel Kahneman terms “[System 2](#)” thinking – an effortful, slow and considered way of thinking [that becomes more difficult](#) the older we get.

As a consequence tactics typically involve hammering home key messages through a process of repetition. That’s why in 2017 the British electorate became so familiar with [May’s favourite phrases](#): “Strong and stable government”, “Labour’s magic money tree”, and “Hard working families”. The problem is that for the audience this “[rhetorical carpet bombing](#)” quickly becomes boring.

Getting emotional

Over in the commercial world companies have been getting wise to the shortcomings of the rational appeal. The beer company Carlsberg, for example, [recently ditched](#) its famous “Probably the best lager in the world” slogan in favour of the rather more nebulous “Danish Pilsner”.

In stark contrast to its predecessor, the phrase “Danish Pilsner” does not appear to be making any claims for the product at all. This is because it’s an “[emotional appeal](#)”, a different method of brand communication. Rather than explicitly promote a product’s quality and benefits the aim is simply to make an emotional connection with consumers.

In this case, it is hoped that potential customers will buy into a connection with a particular country. It might not be saying anything, but “Danish” implies qualities – provenance or heritage perhaps – that are popular with consumers, leading them to think positively about the beer.

Basing brand communication on emotional rather than rational appeal is a fairly recent – but highly effective – development. Its strength lies in the fact that it is focused on the consumer rather than the product. It considers the wants and needs of the audience – how they actually think, and most importantly, the way they prefer to receive information.

If we think of a rational appeal as a lecture, then an emotional appeal is more like [a story](#). Stories and storytelling are central to achieving a deep understanding of consumer psychology.

As I set out in my book, [The Persuasion Industries](#), learning through storytelling is more memorable and retrievable than lecture based learning. Forms of communication that are lecture based tend to elicit challenging or argumentative responses.

Conversely, communication with a narrative element tends to encourage vicarious participation on the part of the audience. Whatever you think of him politically, there is no doubting Nigel Farage’s capabilities as a [compelling storyteller](#).

Emotional communication not only influences what people pay attention to, but also channels their thoughts and encourage associations, which in turn guide judgements and simplify decision making. It manages to do this because it requires only “[System 1](#)” thinking: an automatic and often unconscious way of thinking that is effortless and demands little or no attention.

With Brexit, Vote Leave’s successful “[Take Back Control](#)” campaign was based on emotional appeals. Instead of presenting a rational argument and a list of supporting reasons that voters could either accept or push against, it told a good story and invited people to project their own meaning onto its slogans.



Vote Leave
@vote_leave



Are you going to [#VoteLeave](#) on Thursday? RETWEET this pledge card to show your support!



7:40 PM · Jun 20, 2016



♡ 1.6K 💬 103 🔗 Copy link to Tweet

[https://twitter.com/vote_leave/status/744857384410058752?](https://twitter.com/vote_leave/status/744857384410058752?src=5Etfw%7Ctwcamp%5Etweetembed%7Ctwterm%5E744857384410058752%7Ctwgr%5E%7Ctwcon%5Es1_&ref_url=https%3A%2F%2Ftheconversation.com%2Fpoly-emotional-beats-rational-for-connecting-with-voters-116098)

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“Emotion-into-action” communication takes place not on the page or screen, but in the mind of the consumer. Phrases such as “Take Back Control” or “Make America Great Again” only resonate once the recipient has decided what it is trying to tell them.

One might just as well ask what is the meaning of “Danish Pilsner” or Nike’s “Just do it”. Ask 100 different people and you’ll get [100 different answers](#), each one nuanced by their individual hopes, desires, and beliefs.

The temptation for many political strategists is to focus on the creation of messages. But that really is the wrong approach today.

Not only are emotional appeals more effective than messages, but by focusing on rational appeals they are likely to [inhibit their chances of success](#). Ultimately they will also be producing less efficient communication – because the objective should be to influence how people feel, not just what they think.

Reference:

Persuasive politics: why emotional beats rational for connecting with voters

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