CHAPTER 3

Logic and Language

*T*o construct, analyze, and evaluate arguments *well*, one must pay close attention to language. Many errors of logic stem from a careless or imprecise use of language, and many misunderstandings about logic stem from misunderstandings about the nature of language. This chapter provides a series of clarifications about the relationships between logic and language.

3.1 Logic, Meaning, and Emotive Force

Let us begin by noting that the meaning of words can change over time. In Jane Austen's time, the term "mother-in-law" referred to stepmothers. So, at that time, someone might have said, "John sat in his mother-in-law's lap while she read him a story," without raising any eyebrows. We might also note that words can have different meanings in different parts of the world—even the English-speaking world. Peter plays soccer but is not permitted to play (American) football. His father might say, "Peter does not play football," while his British grandparents say, "Peter does play football," and both say something true. These phenomena have led some people to think that what is true varies from time to time and from place to place and is somehow a conventional matter. They believe this because they believe that truths are made up of words and the meaning of words, changes from time to time and from place to place and is a conventional matter that depends on our collective choices.

We need to be careful, however. In Chapter 1, we said that arguments are composed of statements and that statements are declarative sentences that have a truth value (i.e., are either true or false). Most philosophers and logicians would prefer to say that arguments are composed of propositions and that

propositions, not sentences, are the real bearers of truth value. To grasp the concept of a proposition, consider the following sentences:

1. Grass is green.

2. Das Gras ist grun.

If someone said (2) and you didn't understand, it would be appropriate for a bilingual friend to say (1). In that case, she would have told you what the German speaker said. In some important sense, (1) and (2) *say the same thing*. This thing that (1) and (2) have in common is what philosophers and logicians call a **proposition**—a truth or falsehood that may or may not be expressed in a sentence.

> A **proposition** is a truth or falsehood that may or may not be expressed in a sentence.

Note that, just as a single proposition can be expressed in two different sentences, so a single sentence can express two different propositions. This happens when meaning changes over time or across cultures. The sentence "The boy is playing football" expresses different propositions in England and the United States. Similarly, if you say, "I am hungry," at 4 o' clock, it is, let us suppose, true. If you say, "I am hungry," after supper, it is false. The single sentence "I am hungry" has been used to express two different propositions, one true and one false.

If propositions are the bearers of truth value, the things that are really true or false, and if propositions get expressed by different sentences as meanings change, this gives us resources to respond to the suggestion, mentioned above, that truth changes as meaning changes and that, as a result, truth is merely conventional.

Consider the question "How many legs would a dog have if we called a tail a leg?" It is tempting to answer "five." But if that were right, then we could change how many legs a dog has by changing the meaning of our words. We might also imagine that we could make ourselves tall by redefining the word "tall" so that it means "over 4'7"" or make snow pink by switching the meaning of "white" and "pink." If this line of thought is right, then, you might think, anything is possible because it is always possible to change the meaning of a word, and any truth is expressed with words. This has led some people to deny the existence of necessary truths. If you changed the meaning of "square" to "curved figure," then there would be square circles, and if you changed the meaning of "4" to "5," then 2 + 2 would be 5. So, it is not necessarily true that there are no square circles, and not necessarily true that 2 + 2 = 4, and not necessarily true that if the premises of a *modus ponens* argument are true, then the conclusion is true also.

This would give us fantastic powers—we could make objects travel faster than light, make ourselves fantastically wealthy, raise the dead to life! It would be truly astonishing if we had these powers. Sadly, we don't.

To see this, think about what happens when you change the meaning of a word. For example, suppose you redefine "square" as "curved figure." Let's suppose you even manage to get all English speakers to accept this change. Before the change, you said, "There are square circles," and thereby expressed a false proposition—about figures with four corners and no corners. After the change, you say, "There are square circles." Now you have said something true, but you have expressed a *different proposition*—one that has nothing to do with figures with corners. There is no proposition that you have changed from being true to being false, and no geometric object that you have changed either. Similarly, if you change the meaning of "pink" so that it now refers to the color of vanilla ice-cream, you haven't changed the color of snow. You have made it the case that the sentence "Snow is pink" is true and that that sentence expresses a different proposition from the one it expressed before the change in meaning.

This means that what is true does not vary from time to time and from place to place as word meaning varies. "Peter plays football" expresses different propositions in two different places, one proposition that is true and one proposition that is false. The thing—the proposition—that is true in one place does not become false in another place. Moreover, although the meaning of a word is a conventional matter dependent on our collective choices, *truth* is not a conventional matter (except perhaps in unusual cases where the subject of the truth is itself a convention). So we don't have reason to deny that $2 + 2 = 4$ is a necessary truth or that it is necessarily true that if the premises of a *modus ponens* argument are true, then its conclusion is true also.

If this is right, then logic is about the relationship between truths and falsehoods. This means that logic is not simply a word game as some have supposed. It also means that in trying to clarify the nature of an argument, we can replace some words with others, as long as we don't alter the propositions thereby expressed. As we saw in Chapter 2, in reconstructing an argument, it is sometimes a good idea to replace a word with a synonym if that makes the underlying structure of the argument clearer. Notice that replacing words with synonyms doesn't alter the propositions expressed.

Statements often have emotive force as well as cognitive meaning. Failure to distinguish these two factors can easily lead to errors in logic. Consider the following statements:

3. There are approximately 20,000 homicides in the United States each year, with handguns being the most frequently used instrument of death.

4. The number of murders per year in America is now so high that you've got to have a death wish to walk the streets, day or night. Every lunatic and every thug carries a "heater," just waiting to blow you away.

Statement (3) is designed primarily to provide information, whereas statement (4) is designed, at least in part, to express feelings or elicit an emotional response.

The **cognitive meaning** of a sentence is the information conveyed by the sentence. Words such as "approximately," "20,000," and "homicides" help give (3) its cognitive meaning.

> The **cognitive meaning** of a sentence is the information conveyed by the sentence.

The **emotive force** of a sentence is the emotion the sentence expresses or tends to elicit. Words and phrases such as "death wish," "lunatic," "thug," and "blow away" contribute heavily to the emotive force of (4).

> The **emotive force** of a sentence is the emotion the sentence expresses or tends to elicit.

Of course, a single sentence can have both cognitive meaning and emotive force. Take (3), for instance. It conveys information, and so it has cognitive meaning, but the information conveyed is itself apt to provoke emotions such as fear or outrage; hence, (3) also has emotive force.

Logic has to do with cognitive meaning—that is, with the logical connections between the informational content of statements. So we often need to distinguish between the cognitive meaning and the emotive force of a sentence to understand its logical relationships, for emotionally loaded language is apt to interfere with logical insight. This can happen in at least two ways. First, loaded language can interfere with our attempt to understand the cognitive meaning of a sentence. We may be so carried away with or blinded by the feelings a sentence evokes that we fail to grasp its informational content precisely. Second, emotionally loaded language can blind us to the need for evidence. When our positive emotions are aroused, we may be inclined to accept a statement without argument even though an argument is definitely called for.

Let's consider some examples:

5. Should capital punishment be abolished? No way! The inmates on death row are nothing but human vermin.
6. You should ignore the company's arguments against the strike. Those arguments are nothing but capitalist propaganda aimed at workers.

The phrase "human vermin" in argument (5) is apt to have considerable emotive force. Vermin are small, troublesome animals (such as mice or rats) that we routinely kill without qualms. So, if we accept the label "vermin" for the inmates

on death row, we may readily accept the claim that they should be killed. But what exactly is the *cognitive meaning* of the premise "The inmates on death row are nothing but human vermin"? Perhaps this: "The inmates on death row are very bad people, morally speaking." Putting the premise into emotionally neutral terms helps us not to be swayed too easily by the emotive force of the original wording. It also helps us to think of relevant critical questions to ask about the argument. For example, do we really believe that *all* "very bad people" should be put to death? Can't a person be very bad, morally speaking, without committing murder? If so, does argument (5) in effect extend the death penalty to many persons who have never killed anyone? It would seem so.

Argument (6) illustrates the way in which the emotive force of language may blind us to the need for evidence. Once we've labeled someone's reasoning as propaganda, we are apt to dismiss it out of hand. After all, propaganda is a systematic form of indoctrination, often involving deliberate deception or distortion of the facts. But if arguments have been offered, then we need to explain *why* they are rightly labeled as propaganda. For example, wherein lies the deception or distortion of facts? Perhaps some of the company's arguments against the strike are sound, even if it *is* in the company's interest to avoid a strike.

To underscore the distinction between cognitive meaning and emotive force, let's consider two further arguments:

> **7.** If we harvest the organs (hearts, liver, kidneys, etc.) of certain animals, such as baboons, and transplant the organs into humans who need them, many human lives will be saved. Therefore, we ought to harvest the organs of baboons and use the organs to save human lives.
>
> **8.** Most of the people at the party were bureaucrats. Therefore, not surprisingly, the party was quite boring.

Argument (7) illustrates how a word with positive emotive force can be used to downplay certain negative facts or aspects of an issue. Literally speaking, "to harvest" means "to gather in a crop," an agricultural activity that has everyone's approval. But, of course, "harvesting" the vital organs of animals involves killing the animals, and this unsavory or questionable aspect of obtaining the organs is to some degree obscured by the emotive force of the word "harvest." Again, there is less likelihood of downplaying negative aspects of the case if we express the argument in more neutral language—for instance, "If we remove the vital organs of certain kinds of animals, such as baboons, and transplant their organs into humans who need them, the animals will die, but many human lives will be saved. So, we ought to remove the vital organs of baboons and use the organs to save human lives."

As for argument (8), the word "bureaucrat" has a strong negative connotation. And the emotive force of the word may lead us to suppose that the premise of (8) supports its conclusion. But in less emotionally loaded language, the argument would look like this: "Most of the people at the party were government officials. So, the party was quite boring." Again, the more neutral language

immediately suggests relevant critical questions: Are government officials on average less interesting than other people? If so, how is this known? What is the evidence? If not, then the premise seems to provide little support for the conclusion.

Emotionally loaded language appears in advertisements, as these examples illustrate:

> **9.** If you are facing criminal prosecution, hiring an aggressive and experienced defense attorney who has a proven record of ability and skill should be your first priority. An inadequate defense could cost you everything. That's why you need John Jacobsen!

> **10.** Give your child the gift of education. Seeing a child work toward a college degree is a parent's dream. But with rapidly escalating costs of higher education, this dream can become a financial nightmare.

Example (9) plays on the fear of someone facing criminal prosecution. Example (10) plays on the intensity of parental love and anxiety. We also find such emotionally loaded language in political contexts. For example:

> **11.** In the United States, an obscene alliance of corporate supremacists, desperate labor unions, certain ethnocentric Latino activist organizations and a majority of our elected officials in Washington works diligently to keep our borders open, wages suppressed and the American people all but helpless to resist the crushing financial and economic burden created by the millions of illegal aliens who crash our borders each year. (Lou Dobbs, CNN)

These examples are rather crass, suggesting that the use of emotionally loaded language is the province of political hacks and manipulative advertisers. Although that is often true, sometimes it is not.

For example, emotionally loaded language can be the stuff of great poetry. Consider these two examples, the first from a poem titled *Dulce et Decorum est* (which translated reads: "Sweet and right it is [to die for one's country]"):

> **12.** Bent double, like old beggars under sacks,
> Knock-kneed, coughing like hags, we cursed through sludge,
> Till on the haunting flares we turned our backs
> And towards our distant rest began to trudge.
> Men marched asleep. Many had lost their boots
> But limped on, blood-shod. All went lame; all blind;
> Drunk with fatigue; deaf even to the hoots
> Of tired, outstripped Five-Nines that dropped behind.[1]

The metaphors and choice of words and images that Owen uses in this passage evoke a horrific impression of war, expressing his own feelings about it, and moving readers to share those feelings.

Consider, by contrast, the following passage from Shakespeare's *Henry V*. In the play, which is loosely based on historical events, the English forces are poised for a decisive battle against the French, who vastly outnumber them. The

English are, understandably, pessimistic about their chances. Henry stands up and speaks to them in a passage known as the "St. Crispin's Day Speech" because the battle is fought on that day. Here's part of the speech:

> **13.** And Crispin Crispian shall ne'er go by,
> From this day to the ending of the world,
> But we in it shall be remembered—
> We few, we happy few, we band of brothers;
> For he today that sheds his blood with me
> Shall be my brother; be he ne'er so vile,
> This day shall gentle his condition;
> And gentlemen in England now-a-bed
> Shall think themselves accurs'd they were not here,
> And hold their manhoods cheap whiles any speaks
> That fought with us upon Saint Crispin's day.

This passage is filled with emotional language, designed to arouse (male) pride and confidence with thoughts of glory, fame, and comradeship. Note, however, in spite of their great beauty, that these passages encourage or discourage participation in a war without (at least in the passages quoted) giving any reasons for or against that particular war. Powerful and enriching as such passages are, if they are likely to move us to *action,* to fight and perhaps kill or die, or to refuse to fight for any cause at all, even to prevent the destruction of our country, we need to find and evaluate reasons for such action, and not simply be swept along by the passion and beauty of the words.

Although emotionally loaded language can interfere with logical insight, this does not mean that arguments should always be expressed in emotionally neutral language. In fact, it is neither possible nor desirable to rid argumentative speech and writing of emotive force. For example, the information conveyed in the premises of almost any argument about a controversial moral issue is apt to have emotive force. Furthermore, it is often appropriate to engage the emotions of your audience when defending an important belief or course of action. For example, it is entirely proper for a person to be stirred by a profound insight or by the revelation of serious injustice. "If you have a logical argument to back up a conclusion, there is nothing wrong with stating it in such a way that your audience will endorse it with their feelings as well as with their intellects."[2]

► Summary of Definitions

A **proposition** is a truth or falsehood that may or may not be expressed in a sentence.

The **cognitive force** of a sentence is the information conveyed by the sentence.

The **emotive force** of a sentence is the emotion the sentence expresses or tends to elicit.

EXERCISE 3.1

Cognitive Meaning and Emotive Force   Each of the following arguments involves the use of emotionally loaded language. Write well-crafted versions of the arguments, replacing the emotionally loaded wording with more neutral language. You may find it helpful to use a dictionary.

* **1.** Sir, terrorism in the Middle East is one of the greatest threats to world peace today. Therefore, I strongly recommend that we neutralize the leaders of each of the main terrorist groups.

 2. Since the Chinese have a lousy record on human rights, to give China "Most Favored Nation" status is simply to give in to injustice.

 3. What's wrong with playing the lottery? Nothing. Playing the lottery simply involves making a modest investment with the possibility of a substantial return.

* **4.** Ever since Franklin D. Roosevelt introduced welfare programs into American life, this country has become increasingly socialistic. But Americans reject socialism. So, the sooner we eliminate welfare, the better.

 5. Your reluctance to take this job is beyond comprehension. The pay is good and the hours are reasonable. Furthermore, the work of a sanitary removal engineer is of great importance.

 6. If you're against genetic engineering, you're against progress. So, why don't you just accept the fact that genetic engineering is here to stay?

* **7.** Plato lured us into a mystical realm of ideas separated from physical reality. Aristotle taught us how to be logic choppers. Descartes tried to frighten us with the possibility that we might be dreaming all the time. Kant did nothing but take ordinary moral rules and put them into his own pompous and obscure technical language. Haven't philosophers done a lot for the world?

 8. I utterly repudiate the notion that God will punish the immoral, for it is nothing but a deception used to frighten children and weak-minded adults.

 9. Gun control is utterly misguided! Do not be deceived: There is a war on. And politicians who promote gun control are collaborating with the enemy. But the enemy will remain fully armed—you can bet on that!

 10. The lyrics of many rock songs are obscene. We must cleanse our society of this moral filth. That's why I think rock music should be banned.

 11. While the right wing of the Republican party masquerades as the bastion of moral values, it has in fact done little but provide rationalizations for the selfishness of the yuppies. As for the Democrats, they are a loose-knit coalition of left-wing ideologues and social outcasts. So, cast your lot with the moderate Republicans.

* **12.** The world is full of horror, shocking cruelty, grinding poverty, starvation, and debilitating illness. In short, we humans inhabit one gigantic disaster area. And yet, some people believe that a loving God controls the universe. It just goes to show: People believe what they want to believe regardless of the facts.

13. If a gang of criminals were systematically executing 1.6 million citizens per year in our society, decent folks would take a stand, using force of arms if necessary. But this is precisely the situation America is in given the current rate of abortion. Hence, I think that those who have bombed abortion clinics are fully justified.

14. The insanity plea is a joke. Here's how the process works: (a) Vicious murderers go out and kill innocent people in cold blood; (b) the police haul the sadistic killers into court, where the killers claim to have been temporarily insane at the time they performed their cruel deeds; and (c) the psychotic killers spend a few months being treated in a mental hospital, are miraculously "cured," and then are released so they can go out and massacre more law-abiding citizens.

15. Son, you must not marry her! She's nothing but a selfish little Barbie Doll.

16. Once again, the hopeless cowardly Americans were back to repeat their cowardly act hiding behind a technological advance that God, most gracious, wanted it to be their curse and cause for shame.

   The aggressors came back launching their failed cowardly raids to commit a damned third attack which has very significant implications. The courageous resistance and great steadfastness of the noble Iraqi people gave the aggressors what they deserved. They will be taught a lesson and their wanton attack will be resisted.

   The missile attack on Iraq took place around 9 o'clock this morning, 3rd of September 1996, corresponding to 20th Rabi' Athani 1417 Hijri. This is going to be a glorious day. The Iraqi people will, in the name of God, add to their honorable record. It will be a day when the cowardly aggressors will be condemned by both history and the whole world, having been condemned by God Almighty.

   Oh, Iraqi people and members of the brave Iraqi armed forces, the apple of our eye, this is another day you can call your own. So, resist them as you have done. God Almighty wishes you to take your pride of place under the sun and on the heights of your good land—Saddam Hussein, speech to the Iraqi people, 1996

17. Obama has "pivoted" on unemployment so many times he's spun himself dizzy. And all of Obama's pirouettes are nothing but empty words—the man cares only about big bankers, and Obama disdainfully detests working people.

18. Would it be wrong to fight a nuclear war? Yes, of course. Just imagine it: Millions of people vaporized in a few moments. Millions more, including children and the aged, literally melting from the intense heat. Of those who aren't killed immediately, many freeze to death as great clouds of dust block out the sun's rays. The rest perish in agony from the nasty effects of radioactive fallout.

19. The public is being held hostage by avaricious employers who threaten us with economic collapse if we should become serious about border enforcement. A guest worker program, if properly implemented, might be an effective response.

20. The jobs issue is accurately described and if anything, understated. Democrats and Obama have been cowed by the undereducated blithering idiots who now lead the GOP, in the pay of the people who brought down the world economy through fraud and greed.

3.2   Definitions

Ambiguous or vague language often interferes with clear thinking. A word is **ambiguous** if it has more than one meaning. For example, in the statement "He lies in this grave," the word "lies" might mean *tells a falsehood* or *is prostrate on a horizontal surface*.

> An **ambiguous** word has more than one meaning.

A word is **vague** if there are borderline cases in which there is no way to determine whether the word applies. For example, how much does a person have to have in the way of material possessions to count as rich? We would all agree that billionaires are rich. How about millionaires? How about multi-thousandaires? As we mention successively lesser sums, perhaps somewhere in the hundreds of thousands, there would come a point at which we would not be sure whether a person who has such-and-such a net worth is rich. Such a person would be a borderline case of "rich." "Tall," "bald," and "heap" are other vague terms.

> A **vague** word has borderline cases.

Definitions play an important role in argument because definitions can be used to clear up ambiguity and to make vague terminology more precise. In this section, we will examine various types of definitions, focusing on those types that are most helpful in clarifying and sharpening arguments.

Extensional and Intensional Definitions

We can attain greater clarity about linguistic meaning if we distinguish between the **extension** and the **intension** of a term. The extension of a term consists of the set of things to which the term applies. Thus, the extension of the term "mountain" consists of Mt. Rainier, Mt. Everest, Mt. Kilimanjaro, and so on. The intension of a term consists in the properties a thing must have to be included in the term's extension. In the case of "mountain," the intension includes *being a landmass that projects conspicuously above its surroundings* and *being higher than a hill*.

> The **extension** of a term consists of the set of things to which the term applies.

> The **intension** of a term consists of the properties a thing must have to be included in the term's extension.

As Wesley Salmon observes, we "may specify the meaning of a word through its extension, or we may specify its meaning through its intension. There is thus a basic distinction between extensional definitions and intensional definitions."[3] We will explore each of these kinds of definitions in what follows.

An **extensional definition** specifies the meaning of a term by indicating the set of things to which the term applies. Extensional definitions themselves come in two basic types: nonverbal (or ostensive) and verbal. To give an **ostensive definition,** one specifies the meaning of a term by pointing to objects in its extension. Usually, we can't point to them all, but only to a representative sample. Thus, if you are trying to teach a child the meaning of the word "rock," you might point to a rock, utter the word "rock," then point to another rock, utter the word "rock" again, and so on. Of course, this type of definition is not without its problems. For instance, if the rocks you point to are all small, the child may fail to realize that large rocks are rocks as well.

> An **extensional definition** specifies the meaning of a term by indicating the set of things to which the term applies.

> An **ostensive definition** specifies the meaning of a term by pointing to objects in its extension.

Many times, however, we use *verbal* extensional definitions to specify the meaning of a term. We can do this by naming the members of the extension *individually* or *in groups*. An **enumerative definition** names the members of the extension *individually*. For example:

14. "Philosopher" means someone such as Socrates, Plato, Aristotle, Descartes, Kant, or Hegel.

Such a definition may be either partial or complete. Definition (14) is partial because we have not listed every philosopher. An enumerative definition is complete if all members of the extension are listed. For instance:

15. "Scandinavia" means Denmark, Norway, Sweden, Finland, Iceland, and the Faroe Islands.

Generally speaking, however, it is either impossible or impractical to list all the members of a term's extension. For example, it is impossible to list all the whole numbers because there are infinitely many of them. And it would be impractical for most purposes to define "Ohioan" by listing all the inhabitants of that state.

> An **enumerative definition** specifies the meaning of a term by naming the members of its extension individually.

Another kind of verbal extensional definition names the members of the extension *in groups* (rather than individually). This is called a **definition by subclass.** For instance:

16. "Feline" means tigers, panthers, lions, leopards, cougars, cheetahs, bobcats, house cats, and the like.

Definitions by subclass can also be partial or complete. Definition (16) is partial because some classes (kinds or types) of felines have been omitted, such as jaguars and lynxes. Here is an example of a complete definition by subclass:

17. "North American marsupial" means an opossum.[4]

> A **definition by subclass** specifies the meaning of a term by naming the members of its extension in groups.

Although extensional definitions are sometimes very useful, they also have their drawbacks. One drawback is this: Some terms cannot be defined extensionally because their extensions are empty. To illustrate:

18. "Unicorn" means a horselike creature having one long, straight horn growing from the center of its forehead.

Because unicorns are mythical creatures, the extension of the term "unicorn" is empty. Nevertheless, "unicorn" has a meaning that can be specified via an intensional definition. A second drawback of extensional definitions is that they are often inadequate for the purposes of argument and rational dialogue. For example, suppose Smith and Jones are debating whether affirmative action is just. Jones requests a definition of "justice." Smith mentions a few examples of just social practices—for example, punishment only for the guilty, the progressive income tax, and the prohibition against poll taxes for voters. Even if Jones agrees that these practices are just, such an extensional definition is unlikely to facilitate an

enlightening discussion of the justice of affirmative action. Careful and insightful thinking about controversial issues demands more precise terminology—hence the need for **intensional definitions,** which specify the meaning of a term by indicating the properties a thing must have to be included in the term's extension.

> An **intensional definition** specifies the meaning of a term by indicating the properties a thing must have to be included in the term's extension.

There are a number of different types of intensional definition with different criteria for success. It is important to understand the differences among these.

A **lexical definition** reports the conventional or established intension of a term. Dictionary definitions are standard examples of lexical definitions. For example:

19. "Immanent" means existing or remaining within, that is, inherent.

20. "Imminent" means about to occur.

Note that lexical definitions have truth values—that is, they are either true or false. They are true if they correctly report the established intension of the term and false if they fail to do this. For purposes of critical thinking, it is important to know when conventional meanings are at issue. To illustrate, if two people are debating the question of whether Bill Clinton was *impeached,* they might agree on all the nonlinguistic facts, but just attach slightly different meanings to the term "impeach." In that case, appeal to a dictionary would be appropriate and would settle the matter in favor of the claim that Clinton was indeed impeached because impeaching someone involves charging him with misconduct. As words change their meaning, there is often some disagreement about the correct lexical definition. Is it the established use, or is it the current, most widely heard use? The term "impeach" seems to be widely used to mean, "Remove from office on the grounds of misconduct." In response to such changes, dictionaries are regularly updated to reflect the way words are used.

> A **lexical definition** reports the conventional or established intension of a term.

A **stipulative definition** specifies the intension of a term independently of convention or established use. For various reasons, a writer or speaker may wish to introduce a new word into the language or give an old word a new meaning.

For example, the word "double-dodge" currently has no generally accepted meaning. But we could make a proposal:

> **21.** "Double-dodge" means the anticipatory movements people commonly make when they nearly collide (as when walking toward each other in a confined space) and are trying to avoid such collision.[5]

To illustrate: "Marsha and Fred nearly ran into each other in the hallway; but at the last moment they double-dodged and then came to a full stop, whereupon Fred burst into laughter." Thus, by introducing a stipulative definition, we can gain a shorthand means of expressing a complex idea.

> ▶ A **stipulative definition** specifies the intension of a term independently of convention or established use.

Stipulative definitions are often useful in science. For example, in 1967, the physicist John Wheeler introduced the term "black hole" as shorthand for a star that has completely collapsed in on itself due to gravitational forces.[6] When first introduced, this definition was stipulative, for there was then no conventional use of "black hole" to refer to astronomical entities. (Of course, since 1967, "black hole" has come into common use so that it now has a conventional meaning that can be reported in a *lexical* definition.)

Note that a stipulative definition is a *recommendation* or *proposal* to use a term in a certain manner. In other words, a stipulative definition has the form "Let's use term X to mean . . ." And since a recommendation or proposal is neither true nor false, a stipulative definition is neither true nor false. However, if the recommendation to use a term in a certain manner takes hold and becomes part of established use, then the stipulative definition turns into a lexical one, as is the case with "black hole." And as we have seen, lexical definitions are true (or false) because they report conventional meanings.

A **precising definition** reduces the vagueness of a term by imposing limits on the conventional meaning. It differs from a stipulative definition because it is not independent of the conventional meaning, but it is like a stipulative definition in that it is a proposal to draw lines at a point not given by the conventional meaning.

> ▶ A **precising definition** reduces the vagueness of a term by imposing limits on the conventional meaning.

For example, suppose we define a "very strong argument" as one such that there is at least a .95 probability that if the premises are true, then the conclusion is true. Obviously, this definition is more precise than the ordinary English

phrase "very strong argument," but the definition is not stipulative because the conventional meaning is not ignored but is rendered more exact.

Precising definitions are common in both science and law. For example, the term "velocity" simply means "speed" in ordinary English, but physicists have given it a more precise meaning for their own purposes, namely:

> **22.** "Velocity" means rate of motion in a particular direction.

Precising definitions are also essential in constructing workable laws. For instance, suppose Congress wishes to write legislation that provides a tax break for the poor. If left at that, the law will be excruciatingly difficult to apply because there will be disputes over who qualifies for the tax break. If someone receives the tax break, then someone in similar circumstances who earns a dollar more will insist that justice requires that he or she receive it too. And if so, then the next person will make the same claim, and pretty soon, everyone will have the tax break. We need to draw lines, even if they are somewhat arbitrary. So, for example, the law might contain a precising definition to the effect that a family of four counts as poor if it has an annual income of $15,000 or less. Or again, suppose a law is being written to determine when caregivers may remove a patient from life-support systems. A precising definition of "dead" will be helpful for this purpose because presumably there are no objections to removing life-support systems if the patient is dead. But is a person dead when her heart has ceased to function? When she stops breathing? When she is permanently unconscious? When her brain has stopped functioning? For legal purposes, we obviously want to be rather precise about this. In most states, a person is now considered legally dead if he or she is "brain-dead." That is, a precising definition along these lines is used:

> **23.** A "dead" person is one whose brain functions have permanently ceased.

And an electroencephalograph can be used to determine whether this definition applies in a given case.

Keep in mind that precising definitions should draw lines within the range of borderline cases. Inappropriate uses of precision definitions draw lines in such a way that they classify clear cases incorrectly. For example, if legal purposes require that we precisify the concept of *a child,* it seems appropriate to offer the precising definition that anyone under 15 is a child, or that anyone under 16 is a child. It would not be appropriate to offer the precising definition that anyone under 25 is a child, since this would wrongly classify 24-year-olds, who are clear cases of adults.

A **theoretical definition** is an intensional definition that attempts to provide an adequate understanding of the thing(s) to which the term applies. For example, when philosophers or scientists disagree about the definition of important terms such as "knowledge," "virtue," "mass," "temperature," "space," or "time," they are not disagreeing about the lexical definitions. Nor are they

simply trying to stipulate meanings or make conventional meanings more precise. They are trying to reach a deeper and more accurate understanding of the nature of things.

> A **theoretical definition** attempts to provide an adequate understanding of the things to which the term applies.

Philosophers have traditionally concerned themselves with questions like "What is knowledge?" "What is justice?" and "What is courage?" These questions were discussed by the ancient Greeks (in Greek) but may also come up in an introductory class you take next term. You may wonder why you cannot answer these questions simply by opening a dictionary. Well, let's consider one of them. *Merriam-Webster OnLine Dictionary* defines "knowledge" as "the fact or condition of knowing" and then defines "to know" as "(1) to perceive directly: have direct cognition of (2): to have understanding of . . . (3) to recognize the nature of: 2a: to be aware of the truth or factuality of: be convinced or certain of (b) to have a practical understanding of . . ." This definition doesn't answer the philosophical question, partly because it is somewhat circular—"knowledge" and "cognition" are synonyms; it is indeterminate, in shifting between different ideas; and some of the noncircular definitions seem open to counterexample. You can know something without having direct cognition of it, for example. You know that Sydney is in Australia even if you've never seen it with your own eyes. You can know something even if you are not absolutely certain of it. You can be certain of something even if you do not know it.

Philosophers for a long time favored the theoretical definition of knowledge as "justified true belief." This is different from the lexical, stipulative, or precising definitions. Rather, this definition attempts to provide a deeper insight into the nature of knowledge. Interestingly, however, philosophers have come to find fault with their own definition. In a groundbreaking article, Edmund Gettier described a series of cases of justified true beliefs that don't count as knowledge.[7]

The scientific definition of "temperature" as "the motion of molecules" also provides an example of a theoretical definition (the more rapid the motion of the molecules, the higher the temperature). Obviously, this definition of "temperature" could not be given prior to the development of molecular theory. Note that in offering this definition of "temperature," scientists are not reporting the conventional meaning. Nor are they offering a stipulative definition or making a conventional definition more precise. They are offering a theoretical definition intended to provide a deeper and more adequate understanding of the nature of temperature.

Lexical definitions are not always distinct from theoretical definitions. It sometimes happens that ordinary usage picks up on the best account of the

nature of the thing(s). For example, the dictionary definition of "square" is equivalent to the mathematician's theoretical definition. One of the dictionary definitions for "true" comes close to capturing at least some philosophers' account of the nature of truth. Lexical definitions are correct insofar as they reflect standard usage. Theoretical definitions are correct insofar as they capture the true nature of the property or thing they purport to define.

Summary of Definitions

An **extensional definition** specifies the meaning of a term by indicating the set of things to which the term applies. For example:

> An **ostensive definition** specifies the meaning of a term by pointing to objects in its extension.
>
> An **enumerative definition** specifies the meaning of a term by naming the members of its extension individually.
>
> A **definition by subclass** specifies the meaning of a term by naming the members of its extension in groups.

An **intensional definition** specifies the meaning of a term by indicating the properties a thing must have to be included in the term's extension. For example:

> A **lexical definition** reports the conventional or established intension of a term.
>
> A **stipulative definition** specifies the intension of a term independently of convention or established use.
>
> A **precising definition** reduces the vagueness of a term by imposing limits on the conventional meaning.
>
> A **theoretical** definition attempts to provide an adequate understanding of the thing(s) to which the term applies.

Definition by Genus and Difference

One technique for constructing definitions is worth special attention because it can be applied in a wide variety of cases and because it is one of the best ways to eliminate ambiguity and vagueness. This is the method of definition by *genus* and *difference*. This method is often useful in constructing stipulative, precising, and theoretical definitions, but here we will focus primarily on lexical definitions.

To explain this method, we need some technical terms. First, as is customary among logicians, let us call *the word being defined* the **definiendum,** and let us call *the word or words that do the defining* the **definiens.** To illustrate:

24. "Puppy" means young dog.

Here, "puppy" is the *definiendum*, and "young dog" is the *definiens*.

> The **definiendum** is the word being defined.
> The **definiens** is the word or words that do the defining.

Second, we need to define *proper subclass*. A class X is a **subclass** of class Y given that every member of X is a member of Y. For example, the class of collies is a subclass of the class of dogs. Note, however, that the class of collies is also a subclass of itself. By contrast, class X is a **proper subclass** of class Y given that X is a subclass of Y but Y has members X lacks. Thus, the class of collies is a *proper* subclass of the class of dogs, but the class of collies is not a *proper* subclass of the class of collies.

> Class X is a **subclass** of class Y given that every member of X is a member of Y.
> Class X is a **proper subclass** of class Y given that X is a subclass of Y but Y has members X lacks.

Now we can say that a **genus** is a class of objects and a **species** is a proper subclass of a genus. This use of the terms differs from the use they are given in biology. For example, in logic (unlike biology), we may speak of the genus *dog* and the species *puppy,* of the genus *animal* and the species *dog,* or of the genus *animal* and the species *mammal.*

> A **genus** is a class of objects.
> A **species** is a proper subclass of a genus.

The **difference** (or specific difference) is the attribute that distinguishes the members of a given species from the members of other species in the same genus. For example, suppose *sibling* is the genus and *sister* is the species. Then the difference is the attribute of *being female,* which distinguishes sisters from brothers, which also belong to the genus *sibling.* Or suppose *dog* is the genus and *puppy* is the species. Then the difference is the attribute of *being young,* which distinguishes puppies from other species in the same genus—for example, adult dogs.

> The **difference** (or specific difference) is the attribute that distinguishes the members of a given species from the members of other species in the same genus.

The relationship among genus, species, and difference is shown in the following diagram, with the rectangles standing for classes.

GENUS (Example: horse)

SPECIES: Filly

DIFFERENCE: Young female

SPECIES: Colt

DIFFERENCE: Young male
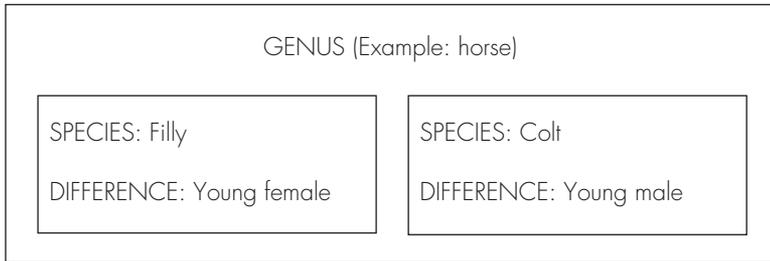
Now, one constructs a definition by genus and difference as follows. First, choose a term that is more general than the term to be defined. This term names the genus. Second, find a word or phrase that identifies the attribute that distinguishes the species in question from other species in the same genus. Here are some examples:

Species		Difference	Genus
"Stallion"	means	male	horse
"Kitten"	means	young	cat
"Banquet"	means	elaborate	meal
"Lake"	means	large	inland body of standing water

In many cases, of course, the difference is a rather complicated attribute that takes many words to describe. For example:

25. "Dinosaur" means any of a group of extinct reptiles of the Mesozoic Era, with four limbs and a long, tapering tail.[8]

The genus here is *reptile*, and the rest of the definition specifies the difference.

A definition by genus and difference is inadequate if it fails to meet certain criteria. Let us now examine the six standard criteria for evaluating definitions by genus and difference. The basic idea behind them is that, first, a definition should have the same extension as the term being defined, and, second, that it should be helpful and illuminating.

Criterion 1: A definition should not be too wide.

It is crucial that definitions be accurate, that is, that they pick out all and only the things that the definiendum applies to. A definition is too wide (or too broad) if the definiens applies to objects outside the extension of the definiendum. For instance:

26. "Bird" means an animal having wings.

Definition (26) is too wide because bats and flies have wings, and yet neither bats nor flies are birds. Bats and flies here constitute counterexamples to the definition, demonstrating that (26) has failed to capture a sufficient condition for being a bird.

Here's a more interesting example:

27. "Person" means something with human DNA.

This definition is too wide because we can think of counterexamples: things that have human DNA but are not persons—for example, a human fingernail clipping.

Criterion 2: A definition should not be too narrow.

A definition is too narrow if the definiens fails to apply to some objects in the extension of the definiendum. To illustrate:

28. "Bird" means a feathered animal that can fly.

Definition (28) is too narrow because some birds cannot fly—for example, penguins and ostriches. Penguins and ostriches here constitute counterexamples to the definition, demonstrating that (28) has failed to capture a necessary condition for being a bird.

A somewhat more interesting example is this:

29. "Person" means a being that can communicate on indefinitely many topics in sentences of indefinite length, can reason, and has a fully developed sense of self and a conscience.

Definition (29) is too narrow because we can think of counterexamples: things that lack the communication, reasoning, and so on skills but are nevertheless persons—a 2-year-old child or someone in a temporary coma, for example.

In general, a **counterexample** to a definition is something to which the term applies but which doesn't meet the conditions, or which meets the conditions but the term does not apply to it.

> A **counterexample** to a definition is something to which the term applies but which doesn't meet the conditions, or which meets the conditions but the term does not apply to it.

Criterion 3: A definition should not be obscure, ambiguous, or figurative.

To illustrate:

> **30.** "Desire" is the actual essence of man, insofar as it is conceived, as determined to a particular activity by some given modification of itself.[9]

This definition employs obscure technical jargon. And since the point of defining a term is to clarify its meaning, one should use the simplest words possible in the definiens.

Sometimes, a definiens contains a word that, in the context, has two possible meanings. Then the definition is ambiguous:

> **31.** "Faith" means true belief.

Does "true belief" here mean "sincere or genuine belief," or does it mean "belief that is true as opposed to false"? Either meaning seems possible in the context of a definition of "faith," so the definition is ambiguous. Note, however, that many words have multiple meanings listed in the dictionary, and this mere fact does not render the words ambiguous in a given case. For instance, the word "store" may mean "a place where merchandise is sold," as in "I bought a shirt at the store"; or it may mean "to provide for a future need," as in "Squirrels store nuts for the winter." But the context usually indicates which of the meanings is relevant. It is only when the context does not make clear which meaning is relevant that ambiguity occurs.

Figurative (or metaphorical) definitions are generally either obscure or ambiguous. For example:

> **32.** "Art" is the stored honey of the human soul, gathered on wings of misery and travail.[10]

Definition (32) may be suggestive and interesting, but as is common with figurative language, it invites multiple interpretations and so is ambiguous.

> Criterion 4: A definition should not be circular.

A definition is **circular** if the definiendum (or some grammatical form thereof) appears in the definiens. To illustrate:

> **33.** "Metaphysics" means the systematic study of metaphysical issues.

Of course, if one doesn't know the meaning of the term "metaphysics," one isn't likely to find a definition employing the word "metaphysical" informative. Note, however, that depending on the context, some kinds of circularity in definitions are not problematic. For instance, suppose my audience knows what a triangle is

but does not know what an acute triangle is. In such a context, I might define "acute triangle" as follows:

> **34.** "Acute triangle" means any triangle in which each of the three angles is less than 90 degrees.

This type of circularity is harmless because (in the context) the part of the definiendum that appears in the definiens (namely, "triangle") is not what needs to be defined.
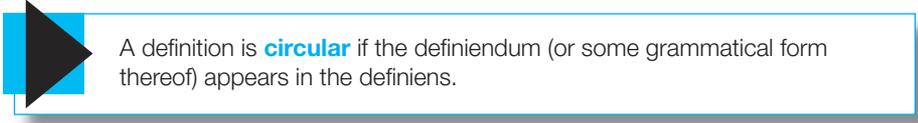
> A definition is **circular** if the definiendum (or some grammatical form thereof) appears in the definiens.

Criterion 5: A definition should not be negative if it can be affirmative.

For example:

> **35.** A "mineral" is a substance that is not an animal and not a vegetable.
>
> **36.** "Mammal" means an animal that is not a reptile, not an amphibian, and not a bird.

A relatively affirmative definition is more informative than a relatively negative one and is therefore to be preferred. However, it is impossible to give affirmative definitions in every case. For instance, a typical dictionary definition of "geometrical point" is "something that has position in space but no size or shape." And the word "spinster" is defined as "a woman who has never married." These definitions would be hard to improve on, though they are largely negative.

Criterion 6: A definition should not pick out its extension via attributes that are unsuitable relative to the context or purpose.

For example, suppose we are trying to construct a lexical definition of the word "triangle." The following definition would violate criterion 6:

> **37.** "Triangle" means Steve's favorite geometrical figure.

Since triangles are Steve's favorite geometrical figure, the definiens applies to the correct extension, namely, the members of the class of triangles. But the attribute

of *being Steve's favorite geometrical figure* is unsuitable to the context of forming a lexical definition. What would be suitable is the attribute English speakers implicitly agree to mean by the term "triangle," namely, *being a closed-plane figure with three angles (or three sides)*.

Because criterion 6 is not always easy to apply, let us consider some further examples. For instance:

> **38.** "Seven" means the number of days in a week.

There are indeed seven days in a week, so the definiens picks out the right extension. But taken as a lexical definition, this definition is flawed because it does not make reference to the attribute associated with established usage, namely, *being one more than six*. (In principle, one could know the ordinary meaning of "seven" without knowing how many days there are in a week.) Furthermore, taken as a theoretical definition, (38) is flawed because it fails to pick out attributes relevant for mathematical purposes—for example, that of *being a whole number between six and eight*.

If we translate the proposal of certain ancient Greek philosophers into English, we get the following definition of "human":

> **39.** "Human" means featherless biped.

Now, let's assume that this definition is neither too narrow nor too wide—that is, that all and only humans lack feathers *and* normally walk upright on two legs. Still, if (39) is taken as a lexical definition, it violates criterion 6. As evidence, we can cite the fact that the attribute of *being a featherless biped* is not alluded to in dictionary definitions of the term "human." We might add that the attribute seems unsuitable if the definition is taken to be theoretical in nature, for (39) surely fails to provide any noteworthy insight into the nature of human beings. In support of the thought that "featherless biped" is an inadequate theoretical definition of "human," philosophers often offer examples of *possible* objects that would satisfy the definiens without being examples of the definiendum. For example, a perfectly plucked chicken would be a featherless biped without being human. Similarly, we might object that a talking, thinking, feeling elephant would be a person and hence that "human being" is too narrow as a definition of "person."

To sum up, definitions can be used to eliminate ambiguity and vagueness. Both extensional and intensional definitions can be used for these purposes, but certain kinds of intensional definitions (e.g., stipulative, lexical, precising, and theoretical definitions) are especially useful in argumentation. The method of definition by genus and difference can often be used to construct stipulative, lexical, precising, and theoretical definitions; hence, this method is very

useful for the purposes of constructing and evaluating arguments. Finally, definitions by genus and difference must conform to the six criteria set down in this section.

Summary of Criteria for Definitions by Genus and Difference

Criterion 1: A definition should not be too wide.

Criterion 2: A definition should not be too narrow.

Criterion 3: A definition should not be obscure, ambiguous, or figurative.

Criterion 4: A definition should not be circular.

Criterion 5: A definition should not be negative if it can be affirmative.

Criterion 6: A definition should not pick out its extension via attributes that are unsuitable relative to the context or purpose.

Summary of Definitions

An **ambiguous** word has more than one meaning.

A **vague** word has borderline cases.

The **extension** of a term consists of the set of things to which the term applies.

The **intension** of a term consists of the properties a thing must have to be included in the term's extension.

The **definiendum** is the word being defined.

The **definiens** is the word or words that do the defining.

Class X is a **subclass** of class Y given that every member of X is a member of Y.

Class X is a **proper subclass** of class Y given that X is a subclass of Y but Y has members X lacks.

A **genus** is a class of objects.

A **species** is a proper subclass of a genus.

The **difference** (or specific difference) is the attribute that distinguishes the members of a given species from the members of other species in the same genus.

A **counterexample** to a definition is something to which the term applies but which doesn't meet the conditions, or which meets the conditions but the term does not apply to it.

A definition is **circular** if the definiendum (or some grammatical form thereof) appears in the definiens.

EXERCISE 3.2

PART A: Types of Definitions Match the definition on the left to the letter of the item on the right that best characterizes it.

_____ * **1.** Let us use the word "grellow" to mean the color of things that are either green or yellow.

_____ **2.** "Vixen" means female fox.

_____ **3.** "Southern state" means Alabama, Arkansas, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia.

_____ * **4.** "Tall man" means male human over 6 feet in height.

_____ **5.** "Living things" means plants and animals.

_____ **6.** "Motorized vehicle" means cars, motorcycles, trucks, and the like.

_____ * **7.** "Tome" means large book.

_____ **8.** A "wrong act" is one that fails to promote the general happiness.

_____ **9.** "Aunt" means sister of one's father or mother.

_____ * **10.** A "sound argument" is one that (a) has only true premises and (b) is valid (i.e., its conclusion cannot be false while its premises are true).

_____ **11.** "Religion" means Hinduism, Christianity, Judaism, Buddhism, Islam, Sikhism, and the like.

_____ **12.** Let us use the term "zangster" to mean a person who steals zirconium.

_____ * **13.** "Human" means rational animal.

_____ **14.** "Subatomic particles" means electrons, protons, neutrons, quarks, and the like.

_____ **15.** "Miracle" means an event that (a) is an exception to a law of nature and (b) is brought about by the decision of a divine being.

A. Enumerative definition

B. Definition by subclass

C. Lexical definition

D. Stipulative definition

E. Precising definition

F. Theoretical definition

PART B: Lexical Definitions Identify one defect in each of the following definitions, using the six criteria for definition by genus and difference.

  1. Too wide   **4.** Circular
  2. Too narrow   **5.** Unnecessarily negative
  3. Obscure, ambiguous, or figurative **6.** Unsuitable attribute

Explain your answer briefly. For example, if you say a definition is too narrow, give an example that illustrates your point. Assume that the definitions are meant to be lexical definitions. You may find it helpful to use a dictionary.

* **1.** "Penguin" means a bird that can't fly, but not an ostrich, cassowary, or emu.

  2. "Quadrilateral" means a closed-plane figure having four sides of equal length and four right (i.e., 90-degree) angles.

  3. "Marsupial" means an Australian mammal.

* **4.** An "octagon" is a figure shaped like a stop sign.

  5. "Square" means a closed-plane figure having four right (i.e., 90-degree) angles.

  6. "Right" means not wrong.

* **7.** A "triangle" is a closed-plane figure having three sides of equal length.

  8. "Jellyfish" means an animal without a spine.

  9. "Wine" means a beverage made from grapes.

***10.** An "ellipse" is a cross between a circle and a rectangle.

  11. "Coward" means a spineless person.

  12. "Wolf" is defined as a flesh-eating mammal having four legs.

***13.** "Homosexual" means a man who is erotically attracted exclusively (or at least primarily) to other men.

  14. "Dog" means a flesh-eating domestic mammal similar to a wolf but having specifically doglike characteristics.

  15. A "murderer" is a human who has killed another human.

***16.** A "wealthy person" is one who has as much money as Bill Gates or Donald Trump.

  17. "Camel" means ship of the desert.

  18. "Snake" means a widely feared animal that symbolizes evil or deception in many cultures.

***19.** "Evil" is defined as the darkness that lies within the human soul.

  20. "Wife" means spouse who is not a husband.

PART C: More Lexical Definitions Evaluate the following definitions, using the six criteria for definition by genus and difference.

  1. Too wide   **4.** Circular
  2. Too narrow   **5.** Unnecessarily negative
  3. Obscure, ambiguous, or figurative **6.** Unsuitable attribute

Explain your answer briefly. For example, if you say a definition is too narrow, give an example that illustrates your point. Assume that the definitions are meant to be lexical definitions. If a definition meets all six criteria, simply write "OK."

* **1.** "Blue" means having a bluish color.

  2. "Fifty" means the number of states in the U.S.A.

  3. "Rectangle" means a plane figure having four equal sides and four right (i.e., 90-degree) angles.

* **4.** Time is the great container into which we pour our lives.

  5. "Wise person" means one who displays wisdom.

  6. A "trapezoid" is a closed-plane figure that is not a triangle or a rectangle or a circle or an ellipse.

* **7.** "Oligarchy" means a form of government in which the ruling power belongs to a few persons.

  8. A "circle" is a closed-plane figure bound by a single curved line, every point of which is equally distant from the point at the center of the figure.

  9. "Atheist" means person who believes that there is no God.

* **10.** "Spherical" means shaped like the earth.

  11. A "trumpet" is a brass wind instrument with three valves.

  12. A "painting" is a picture made with water colors.

* **13.** "Reptile" means snake.

  14. A "scrupulous person" is one who has scruples.

  15. "God" means a being Billy Graham often speaks about.

PART D: Precising Definitions Evaluate the following as precising definitions *in the context of making law*. Since these are precising definitions, they may, without fault, depart from ordinary usage in some degree, but if they inaccurately classify clear cases, they may appropriately be judged too wide or too narrow (or otherwise flawed).

* **1.** The elderly shall receive subsidized health care; "the elderly" means citizens over 92 years of age.

  2. Euthanasia is permissible when a patient is permanently comatose. A patient shall be deemed permanently comatose when he or she has been in a coma for at least one week.

  3. All serial killers shall receive the death penalty, a "serial killer" being anyone who has killed more than one person.

* **4.** Pacifists shall be exempt from the draft, a "pacifist" being anyone who is willing to swear under oath that he or she is opposed to the use of violence against human beings under any circumstances.

  5. Religion shall not be taught in public schools; "religion" means any belief system involving supernatural beings.

6. The penalty for terrorism shall be life imprisonment; "terrorism" means any use of violence against persons or property for political purposes.

* 7. Evolution shall be taught in the public high schools; "evolution" means the view that all life, including human life, came into existence through entirely natural causes, there being no supernatural Creator.

8. Killing in self-defense is justifiable homicide; one kills in self-defense when one kills a person who is immediately threatening one's life. A person's life shall be deemed under immediate threat provided that he or she passes a lie detector test indicating that he or she believed (at the time of the event) that he or she was about to be attacked with a lethal weapon.

9. Torture, defined as *inflicting physical pain on another person*, is a grave offense and merits incarceration.

*10. The penalty for telling a lie shall be a fine of $1000; "one tells a lie" means one asserts a falsehood without being coerced.

11. It is illegal for adults to engage in sexual relations with minors. "A minor" is defined as someone under the age of 25.

12. Drive at 20 miles per hour when children are present. "Children" is defined as persons under the age of 10.

*13. Do Not Resuscitate forms signed by mentally competent patients shall be binding. "Mentally competent" patients are those who have been tested and found to have an IQ over 120.

PART E: Theoretical Definitions Match the definiendum on the left with the *best* definiens available on the right. These definitions are theoretical in type.

____ **1.** Courage

____ **2.** Justice

____ **3.** Faith

____ **4.** Evidence

____ **5.** Wisdom

____ **6.** Virtues

____ **7.** Belief

____ **8.** Suspending judgment

____ **9.** Vices

____ **10.** Disbelief

A. Confidence that a proposition is true

B. A tendency to perform acts the agent considers dangerous but worth the risk

C. Knowledge of which ends are worth achieving and of how to achieve them

D. Traits that hinder one from living well

E. Considerations relevant to the truth of the proposition in question

F. Confidence that a proposition is false

G. Believing in spite of factors that may tend to cause doubt

H. Giving each individual his or her due

I. Traits enabling one to live well

J. A lack of confidence in the truth of a proposition combined with a lack of confidence in its falsehood

3.3 Using Definitions to Evaluate Arguments

If we are not careful about language, two negative results are likely to occur: equivocation and merely verbal disputes. **Equivocation** occurs when a word (or phrase) is used with more than one meaning in an argument, but the validity of the argument depends on the word's being used with the same meaning throughout.

> **Equivocation** occurs when a word (or phrase) is used with more than one meaning in an argument, but the validity of the argument depends on the word's being used with the same meaning throughout.

For example:

> **40.** John has a lot of pride in his work. He is already a superb craftsman, and he is constantly improving. But, unfortunately, pride is one of the seven deadly sins. So, John is guilty of one of the seven deadly sins.

Here, of course, the word "pride" is used with two different meanings. In the first occurrence, it means "appropriate self-respect." In the second occurrence, it means "arrogance" or "excessive self-regard." These two meanings differ, and it is invalid to argue that John has a serious moral flaw (namely, arrogance) simply because he has appropriate self-respect with regard to his work.

The use of the single word "pride" in argument (40) gives it a superficial appearance of validity. But if we rewrite the gist of the argument, plugging in words that capture the two different meanings of "pride," any appearance of validity vanishes completely:

> **41.** John has appropriate self-respect with regard to his work. Arrogance is one of the seven deadly sins. So, John is guilty of one of the seven deadly sins.

Etymologically, "equivocate" comes from two Latin words, one meaning "equal" or "same" and one meaning "voice" or "word." When one equivocates, one makes it sound as if the same word (or phrase) is being used with the same meaning throughout the argument, when, in fact, more than one meaning is present. Let's consider another example of equivocation:

> **42.** I cannot trust my son, Jack, to prepare and serve a five-course meal to 15 guests. I cannot trust my son! If one cannot trust someone, that means he is dishonest. So, that means my son is dishonest.

Here the phrase "cannot trust Jack" is used with two different meanings. In the first occurrence, it means "am not entitled to believe that Jack is willing and able

to complete a certain task." In the second occurrence, it means "have reason to believe that Jack is dishonest." These two meanings differ, and it is invalid to argue that Jack is dishonest simply because he is incapable of completing a difficult task. The use of the phrase "cannot trust" in argument (42) gives it a superficial appearance of validity.

A **merely verbal dispute** occurs when two (or more) disputants appear to disagree (i.e., appear to make logically conflicting assertions), but an ambiguous word (or phrase) hides the fact that the disagreement is unreal.

> A **merely verbal dispute** occurs when disputants appear to disagree, but an ambiguous word (or phrase) hides the fact that the disagreement is unreal.

A really simple example of this occurs when two people use a single name with two different extensions. For example:

43. Mary: I'm travelling to Moscow this weekend.
Tom: Be careful! I've heard there are high rates of crime and corruption there.
Mary: Really, a small town in Idaho with high rates of crime and corruption! I'm surprised to hear that.

Tom and Mary are not disagreeing. They're simply talking about different cities.

Similarly, two people may be talking about the same person and may seem to be disagreeing about whether the person has a certain characteristic but, in fact, be talking about two different characteristics.

44. Mr. X: Bob is a good man. I can always count on him to do his job. And he doesn't make excuses. I wish I had more employees like him.
Ms. Y: I disagree. Bob is not a good man. He has been divorced four times, he drinks too much, and he is addicted to gambling.

For Mr. X, "good man" means "good man for the job"—that is, a man who does high-quality work efficiently. But for Ms. Y, "good man" means "a morally virtuous man." Accordingly, there is no real disagreement here between Mr. X and Ms. Y, for there is no logical conflict between the statement that Bob does high-quality work efficiently and the statement that Bob is not morally virtuous. Even if Bob does have some moral vices, it may still be true that he is a good employee.

A merely verbal dispute is similar to equivocation in that a double meaning is involved. But a merely verbal dispute necessarily involves *two or more people* who misunderstand each other because of the ambiguity of a key word or phrase, whereas equivocation occurs when an ambiguity destroys the validity of an argument (and no dialogue partner need be involved). The American

philosopher and psychologist William James provides a striking and humorous example of a merely verbal dispute:

> Some years ago, being with a camping party in the mountains, I returned from a solitary ramble to find everyone engaged in a ferocious . . . dispute. The *corpus* of the dispute was a squirrel—a live squirrel supposed to be clinging to one side of a tree-trunk; while over against the tree's opposite side a human being was imagined to stand. This human witness tries to get sight of the squirrel by moving rapidly round the tree, but no matter how fast he goes, the squirrel moves as fast in the opposite direction, and always keeps the tree between himself and the man, so that never a glimpse of him is caught. The resultant . . . problem now is this: *Does the man go round the squirrel or not?* He goes round the tree, sure enough, and the squirrel is on the tree; but does he go round the squirrel? In the unlimited leisure of the wilderness, discussion had been worn threadbare. Everyone had taken sides, and was obstinate. . . .[11]

At this point, the dispute can be summed up as follows:

45. Side 1: The man goes around the squirrel.
Side 2: No. The man does not go around the squirrel.

James goes on to explain how he resolved the dispute:

> Mindful of the scholastic adage that whenever you meet a contradiction you must make a distinction, I immediately sought and found one, as follows: "Which party is right," I said, "depends on what you practically mean by 'going round' the squirrel. If you mean passing from the north of him to the east, then to the south, then to the west, and then to the north of him again, obviously the man does go round him, for he occupies these successive positions. But if on the contrary you mean being first in front of him, then on the right of him, then behind him, then on his left, and finally in front again, it is quite as obvious that the man fails to go round him, for by the compensating movements the squirrel makes, he keeps his belly turned toward the man all the time, and his back turned away."[12]

Here, the dispute is merely verbal because of the ambiguity in the phrase "going round." The disputants fail to communicate because they do not realize that their assertions are logically compatible. There is an appearance of contradiction, but no real logical conflict is present.

Consider one last example of a merely verbal dispute:

46. Mr. X: Modern physics has shown that medium-sized physical objects, such as bricks, walls, and desks, are not solid.
Ms. Y: How absurd! If you think this wall isn't solid, just try putting your fist through it, buster.[13]

Mr. X presumably has in mind the fact that according to modern physics, medium-sized physical objects are composed of tiny particles—atoms, protons, electrons, quarks, and the like. And, according to modern physics, these particles are not packed tightly together. Rather, the spaces between the particles are

vast relative to the size of the particles (just as the spaces between the sun and the planets in the solar system are vast relative to the size of these bodies). In a nutshell, the two parties talk past each other because Mr. X uses "solid" to mean "dense or tightly packed," while Ms. Y uses "solid" to mean "hard to penetrate."

Sometimes, however, what looks like a mere verbal dispute is actually a genuine disagreement about definitions. So, in an earlier example, two people disagreeing about whether Clinton was impeached were engaged in a verbal dispute over the meaning of the word "impeach." It turned out, however, that one of them was wrong. This is particularly important in the case of theoretical definitions. Philosophers disagree about whether some claim is *true*—in part because they disagree about the nature of truth. For example, suppose some philosopher claimed that the statement "It is wrong to break a promise" was true, and another claimed that it was not true. When asked to defend her claim, the second of these philosophers may argue that moral claims cannot be true because they cannot be proven and add that, according to her, a statement is true if and only if it can be proven. The first philosopher may retort that this is not his notion of truth. It would not be appropriate to assert that the matter had now been resolved because these two philosophers will have shown themselves to have a deeper disagreement—a disagreement about the nature of truth.

At this point, we need to consider another error in reasoning that is sometimes confused with the merely verbal dispute. This is the improper use of persuasive definitions. A **persuasive definition** is one *slanted (or biased) in favor of a particular conclusion or point of view*. In practice, persuasive definitions often amount to an attempt to settle an argument by verbal fiat. Here's an example:

> **47.** "Affirmative action" means reverse discrimination. But discrimination is always wrong. So, affirmative action is wrong.

> A **persuasive definition** is a definition that is slanted (or biased) in favor of a particular conclusion or point of view.

By defining "affirmative action" as "reverse discrimination," one puts a particular slant on matters. But this definition hardly characterizes a useful concept for the purposes of rational discussion. Notice that a person who did not know the conventional meaning of "affirmative action" would not get a clear grasp of the concept from this definition. A better definition of "affirmative action" would be "preferential treatment of disadvantaged groups." This definition enables us to focus on the heart of the issue: Should disadvantaged groups receive special treatment?

Persuasive definitions sometimes have considerable rhetorical power, and this power is often exploited in politics. Here's a typical example:

> **48.** I will speak frankly and without the verbal fuzziness so typical of my opponent. "National health care" means socialized medicine. That's why I oppose it and why you should, too.

This argument may well succeed in associating national health care with something an audience fears or disapproves of, namely, socialism. But it is hardly a fair and neutral definition that will enable both sides to confront the issues squarely.

Persuasive definitions generally violate one or more of the six criteria for definition by genus and difference. Thus, they may be obscure, too wide, or too narrow, or they may involve attributes that are unsuitable relative to the context or purpose. The most common failing is this: When the context calls for a neutral (unbiased) definition of a key term for the purposes of rational discussion, then a persuasive definition makes reference to an attribute that is not suited to the purpose. A definition that slants things in favor of one side in the dispute is not a definition acceptable to all parties in the dispute.

The use of persuasive definitions is sometimes confused with the phenomenon of the merely verbal dispute. This is the case especially when disputants trade persuasive definitions slanted in favor of opposing points of view. For example, a political conservative may define "conservative" as "a liberal who has wised up." In retaliation, the liberal may define "conservative" as "a person bent on protecting his or her own privileges." But the use of persuasive definitions differs from the merely verbal dispute precisely because definitions are provided. By contrast, in a merely verbal dispute, different meanings are employed but no definitions are provided.

It is not necessarily an error in reasoning to employ persuasive definitions. The error comes only when persuasive definitions are substituted for substantive argument. This error can be exposed by restating the argument without using any persuasive definitions. If such a restatement is an argument whose premises do not support its conclusion, then an error in reasoning has occurred. But such a summary may reveal a valid or strong argument, with plausible premises, that does not depend on persuasive definitions. In that case, persuasive definitions may well have been used appropriately as a rhetorical device. Persuasive definitions can be both humorous and insightful, and thus legitimate rhetorical tools, provided they are not substituted for arguments where arguments are needed.

Summary of Definitions

Equivocation occurs when a word (or phrase) is used with more than one meaning in an argument, but the validity of the argument depends on the word's being used with the same meaning throughout.

A **merely verbal dispute** occurs when disputants appear to disagree, but an ambiguous word (or phrase) hides the fact that the disagreement is unreal.

A **persuasive definition** is a definition that is slanted (or biased) in favor of a particular conclusion or point of view.

EXERCISE 3.3

PART A: Equivocation Each of the following arguments is invalid because it uses a word or phrase that has a double meaning. Identify the ambiguous word or phrase in each argument, and succinctly describe the double meaning involved. (It is a common tendency to ramble on in an attempt to identify such double meanings. Avoid this. Instead, provide two brief definitions of the relevant word or phrase.) You may find it helpful to use a dictionary. (See the Answer Key for an illustration.)

* **1.** A boring job at the minimum wage is better than nothing. But nothing is better than going to heaven. So, a boring job at the minimum wage is better than going to heaven.

2. If a tree falls in the forest and no one is there to hear it fall, does it make a sound? Modern science says, "Yes, for there are vibrations in the air even if no humans are nearby." But this is easily refuted. Sound is something heard. That's really quite obvious when you think about it. So, if no one was there to hear the sound, there was no sound.

3. John's appendix is undoubtedly human. It is wrong to destroy a human. So, it is wrong to destroy John's appendix.

* **4.** You are standing in this grave and telling a lie when you say that it is your grave. If you lie in a grave, it is your grave. So, this is your grave. —Paraphrased from *Hamlet,* Act V, scene 1

5. I phoned the museum, and the curator said that picture taking is permitted. So, when I visit the museum today, I should be allowed to take some of Rembrandt's pictures home with me.

6. When the recession hit us, I lowered your salary by 20 percent. You moved from $30,000 to $24,000. I know that was tough, and I'm sorry about it. But I have some good news. Things are looking up again. We're showing a profit. So, I'm going to raise your salary by 20 percent. I hope you appreciate this. I lowered your salary by 20 percent; now I'm raising it by 20 percent. So, you see, this policy will bring you back up to where you were before the recession hit.

* **7.** People nowadays say they can't believe in the Christian religion. They say they can't believe in miracles. Is it that they can't or that they won't? They believe in the miracles of modern science, don't they? You bet they do. They believe in vaccines, space-walks, and heart transplants. They believe in fiber optics, laser surgery, and genetic engineering. They can believe in miracles, all right. They just don't want to believe in the Christian miracles.

8. One milliliter of Nuclear Bug-Bomb Aerosol Spray will kill any pest. And Dennis McKenna is a pest. Hence, one-milliliter of Nuclear Bug-Bomb Aerosol Spray will kill Dennis.

9. You are a free creature. So, you are free to do good or evil. But if you are free to do evil, then you should not be punished for doing evil. Hence, you should not be punished for doing evil.

*   **10.** See how foolish and inconsistent it is to say, "I would prefer not to be, than to be unhappy." The man who says, "I prefer this to that," chooses something; but "not to be" is not something, but nothing. Therefore, you cannot in any way choose rightly when you choose something that does not exist. You say that you wish to exist although you are unhappy, but that you ought not to wish this. What, then, ought you to have willed? You answer, "Not to exist." But if you ought to have willed not to exist, then "not to exist" is better. However, what does not exist cannot be better; therefore, you should not have willed this. —St. Augustine, *On Free Choice of the Will,* trans. Anna S. Benjamin and L. H. Hackstaff (Indianapolis, IN: Bobbs-Merrill, 1964), p. 104

    11. I have a duty to do what is right. And I have a right to run for office. Hence, I have a duty to run for office.

    12. We can all agree that sick people should not be punished for displaying the symptoms of their sickness. For instance, you shouldn't punish a flu victim for having a high fever. But, you know, a person has to be sick to commit murder. Murder is a symptom of a sick mind. Thus, contrary to popular belief, murderers should not be punished.

    13. Alice is crazy. She'll do anything to get a laugh! Of course, if she is crazy, then she should be put in a mental hospital. So, Alice should be put in a mental hospital.

    14. Something is better than material well-being. And a speck of dust is something. It follows that a speck of dust is better than material well-being.

    15. It is good to act natural. And it is natural for boys to fight. Therefore, it is good for boys to fight.

PART B: Merely Verbal Disputes and Persuasive Definitions The following brief dialogues provide examples of either merely verbal disputes or the improper use of persuasive definitions. If a persuasive definition is employed, explain its weakness in terms of the six criteria for definitions. Remember, a persuasive definition occurs *only when* an explicit definition of the relevant word or phrase appears. (And, of course, not every explicit definition is persuasive.) In the case of a merely verbal dispute, identify the word or phrase that has a double meaning, and provide a definition for both meanings. (*Note:* A merely verbal dispute is similar to equivocation in that a double meaning is involved, but a merely verbal dispute necessarily involves *two or more people* who misunderstand each other because of the ambiguity of a key word or phrase. Equivocation occurs when an ambiguity destroys the validity of an argument, and no dialogue partner need be involved.)

*   **1. Ms. X:** You promised to pay for the damage you caused to my car.

    Mr. Y: But I am a different person now. I no longer drink; I have a job; I jog every day. I'm not the man who promised to pay you.

    Ms. X: You are the same man: you have the same Social Security number, the same fingerprints, the same DNA, the same parents. Give me my money!

   2. Ms. Y: Pacifists are the only hope for the future of the human species.

        Mr. X: I disagree. "Pacifist" means a wimp who's afraid to stand up for his own rights. I see nothing hopeful about that.

   3. Ms. Y: Secular humanism is a religion, for it is just as much a worldview or way of life as Judaism or Christianity. And yet, secular humanists claim to be free of religious bias.

        Mr. X: No. Secular humanism is not a religion. After all, secular humanists deny the supernatural altogether.

* **4. Mr. X:**   The Republican party will be the salvation of this country.

        Ms. Y: Give me a break! The "Republican party" is best defined as the party whose primary concern is to protect the wealth of its own members. The only "country" Republicans will ever save is the country club.

   5. Mr. X: I don't care for Reverend Boggs myself. Judging from his sermons, I don't even think he is a Christian. He denies the doctrine of the Trinity and the deity of Christ. Once he even preached a sermon claiming that heaven and hell are entirely mythical.

        Ms. Y: How can you say that! Reverend Boggs is a fine Christian man. He is genuinely loving, tolerant of others, and helps people in every way he can.

   6. Ms. Y: This canyon is really beautiful. Look at these sweeping lines of natural geometry! And the background is the brightest blue sky imaginable.

        Mr. X: On the contrary, this canyon is nothing but a big, ugly hole in the ground.

        Ms. Y: You are mistaken. The word "beautiful" simply means enjoyable for the speaker to see or hear, and therefore the canyon is beautiful since I *do* enjoy looking at it.

* **7. Mr. X:**   You are guilty of false advertising, Madam. This orange is labeled "local" but it was grown 1,200 miles from here.

        Ms. Y: It's not false advertising. I'm selling the orange in the same state where it was grown.

   8. Mr. X: Our society is losing its reverence for life. For example, euthanasia is widely practiced in American hospitals.

        Ms. Y: You are misinformed. Euthanasia is illegal, and in our litigious society, doctors have a tremendous motivation to avoid illegal procedures.

        Mr. X: But many patients are taken off respirators when their hearts are still pumping. Then they stop breathing and die. *That* is euthanasia.

        Ms. Y: No, it's not euthanasia because the electroencephalograms of the patients indicate that they were dead before the respirators were removed.

   9. Ms. Y: We are not free because our behavior is determined by our genes in conjunction with environmental influences.

   Mr. X: I disagree. This is a free country. Americans are a free people!

***10. Ms. Y:** Moral codes vary from society to society. For example, polygamy is "right" in some societies but "wrong" in others.

   Mr. X: No. Polygamy is never right. It is degrading to women.

11. Mr. X: I know that I am reincarnated.

   Ms. Y: Nobody can know that.

   Mr. X: I disagree. "To know" means to believe with all your heart. And I believe with all my heart that I am reincarnated. Therefore, I know that I am reincarnated.

12. Ms. Y: Although many people claim to be atheists, there really are no atheists.

   Mr. X: I beg to differ.

   Ms. Y: Beg all you want, but "God" means the greatest being. And everyone thinks that something or other is the greatest being. For example, if you don't believe in supernatural entities, you will probably think that the entire physical universe is the greatest being. So, while not everyone accepts the traditional view of God, everyone does believe that God exists, and hence there are no atheists.

***13. Mr. X:** Did you have a nice weekend?

   Ms. Y: Yes, we went to the Jackson Pollock exhibit at the art museum. He is truly one of the greatest artists of the century.

   Mr. X: On the contrary, Pollock's abstract paintings aren't even art. You can't even tell what the paintings are supposed to be *of*.

14. Ms. Y: I'll never be a political conservative. Never!

   Mr. X: Oh, but you are mistaken. After all, the word "conservative" means a liberal who has been mugged. So, given the rate of violent crime, I think you will likely one day find yourself a conservative.

15. Mr. X: Nietzsche was one of the most intelligent people in the history of the world. His books caused a revolution in philosophy.

   Ms. Y: Intelligent? I don't think so. If Nietzsche was so smart, then why was his personal life such a total disaster? He couldn't keep a job, he alienated all his friends, and the older he got, the weirder he got. Personally, I think Nietzsche was stupid.

PART C: Equivocation and Persuasive Definition Identify any equivocations or persuasive definitions that appear in the following arguments. In the case of equivocation, provide definitions to clarify the double meaning. Where persuasive definitions occur, explain why they are biased or slanted.

* **1.** Every free action is prompted by a motive that belongs to the agent (i.e., the person who performs the action). So, every free act is pursued in an attempt to satisfy one of the agent's own motives. But, by definition, a "self-serving act" is one pursued in an attempt to satisfy one's own motives. Hence, every free act is self-serving.

  2. Many people say there is poverty in America today. They cite the number of homeless men and women living on the streets. But there is no real poverty in America today. The people living on the streets of Calcutta are poor. They are literally starving. Now that's poverty. Therefore, poverty doesn't really exist in America today.

  3. Whenever 2 gallons of water are poured into a barrel and 2 gallons of alcohol are added, the barrel will contain slightly less than 4 gallons of liquid (because of the way water and alcohol combine chemically). Thus, when you add 2 and 2, you do not always get 4. Of course, this is entirely contrary to what any mathematician will tell you—namely, when 2 and 2 are added, you always get 4. Therefore, mathematics is sometimes contrary to empirical fact.

* **4.** There ought to be a law against psychiatry, for "psychiatrist" means person who makes a living by charging money for talking with deeply troubled people. And it is wrong to exploit deeply troubled people.

  5. Many atheists complain about the harshness of nature "red in tooth and claw." They say that a loving Creator would not set up a system in which some animals must kill and eat other animals in order to live. Hogwash! "The law of the survival of the fittest" is best defined as God's way of achieving population control among the animals. Thus, although the struggle for survival *appears* harsh to us, the law of the survival of the fittest is in fact a very good thing. For without it the environment would be destroyed by an overabundance of animals.

  6. Wherever there is a law, there is a person or group who established it. So, since the law of gravity is a law, there is a person or group who established the law of gravity. Now, no human or group of humans could establish the law of gravity. Therefore, some superhuman person or group of superhumans established the law of gravity.

* **7.** Any fetus of human parents is itself human. And if any fetus of human parents is itself human, then abortion is wrong if human life is sacred. Furthermore, since being human consists in having faculties higher than those of other animals (such as the capacity to choose between good and evil), human life is sacred. It follows that abortion is wrong.

  8. Frankly, it amazes me that there are people who oppose capitalism. "Capitalism" means an economic system characterized by a free market, fair competition for the goods available, minimal interference from the state, and the sacred right to keep what you've earned. Accordingly, capitalism is a good thing, indeed, a marvelous thing. I can only conclude that those who oppose capitalism are either seriously confused or perverse.

9. If you become a socialist, you will be making a very big mistake. For "socialist" means someone who thinks the government should own everything and that the individual person has no moral value and no rights. So, the very foundations of socialism are evil.

10. It is reasonable to appeal to legitimate authority to settle disputes. If it is reasonable to appeal to legitimate authority to settle disputes and legitimate authority in a democracy resides in the people, then in America, it is reasonable to appeal to the people to determine whether nuclear weapons are needed. And you will undoubtedly agree that legitimate authority in a democracy resides in the people. So, in America, it is reasonable to appeal to the people to determine whether nuclear weapons are needed. Now, if in America it is reasonable to appeal to the people to determine whether nuclear weapons are needed, then if the majority of Americans regard them as needed, they are needed. The majority of Americans regard nuclear weapons as needed. Hence, nuclear weapons are needed.

NOTES

1. Alexander W. Allison et al., *The Norton Anthology of Poetry,* 3rd ed. (New York: Norton, 1983), p. 1037.
2. David Kelley, *The Art of Reasoning,* exp. ed. (New York: Norton, 1990), p. 114.
3. Wesley Salmon, *Logic,* 3rd ed. (Englewood Cliffs, NJ: Prentice-Hall, 1984), p. 145.
4. This example is borrowed from Frank R. Harrison, III, *Logic and Rational Thought* (New York: West, 1992), p. 463.
5. We owe the interesting observation that the English language has no conventional term for this phenomenon to Dr. Gary Gleb, in conversation.
6. This example is borrowed from Irving M. Copi and Carl Cohen, *Introduction to Logic,* 9th ed. (Englewood Cliffs, NJ: Prentice-Hall, 1994), p. 170.
7. Edmund Gettier, "Is Justified True Belief Knowledge?" *Analysis* 23(1963): 121–123.
8. *Webster's New World Dictionary of the American Language* (New York: World, 1966), p. 412.
9. Benedict de Spinoza, *The Ethics,* trans. R. H. M. Elwes (New York: Dover, 1955), p. 173. Quote marks added.
10. Definition (32) is borrowed from H. L. Mencken, ed., *A New Dictionary of Quotations on Historical Principles from Ancient and Modern Sources* (New York: Knopf, 1978), p. 62. Quote marks added. Mencken attributes (32) to Theodore Dreiser.
11. William James, *Pragmatism and Four Essays from* The Meaning of Truth (New York: New American Library, 1974), p. 41. This quotation is from chap. 2 of *Pragmatism,* "What Pragmatism Means." *Pragmatism* was originally published in 1907 by Longman, Green.
12. James, *Pragmatism,* pp. 41–42.
13. The gist of this example is borrowed from Salmon, *Logic,* p. 162.