Language: Meaning and Definition

2.1 Varieties of Meaning

Ordinary language, as most of us are at least vaguely aware, serves various functions in our day-to-day lives. The twentieth-century philosopher Ludwig Wittgenstein thought the number of these functions to be virtually unlimited. Thus, among other things, language is used to

- ask questions
- tell stories
- tell lies
- guess at answers
- form hypotheses
- launch verbal assaults
- tell jokes
- flirt with someone
- give directions
- sing songs
- issue commands
- greet someone

and so on.

For our purpose, two linguistic functions are particularly important: (1) to convey information and (2) to express or evoke feelings. Consider, for example, the following statements:

The death penalty, which is legal in thirty-six states, has been carried out most often in Georgia; however, since 1977 Texas holds the record for the greatest number of executions.

The death penalty is a cruel and inhuman form of punishment in which hapless prisoners are dragged from their cells and summarily slaughtered only to satiate the bloodlust of a vengeful public.

The first statement is intended primarily to convey information about the death penalty, while the second is intended to persuade us that the death penalty is bad. The second accomplishes this function by engaging our feelings, and not, as in an argument, by establishing the truth of a claim.
These statements accomplish their respective functions through the distinct kinds of terminology in which they are phrased. Terminology that conveys information is said to have **cognitive meaning**, and terminology that expresses or evokes feelings is said to have **emotive meaning**. Thus, in the first statement the words “legal,” “thirty-six,” “most often,” “Georgia,” “record,” and so on have primarily a cognitive meaning, while in the second statement the words “cruel,” “inhuman,” “hapless,” “dragged,” “slaughtered,” “bloodlust,” and “vengeful” have a strong emotive meaning. Of course, these latter words have cognitive meaning as well. “Cruel” means tending to hurt others, “inhuman” means inappropriate for humans, “hapless” means unfortunate, and so on.

The emotively charged statement about the death penalty illustrates two important points. The first is that statements of this sort usually have both cognitive meaning and emotive meaning. Therefore, since logic is concerned chiefly with cognitive meaning, it is important that we be able to distinguish and disengage the cognitive meaning of such statements from the emotive meaning. The second point is that part of the cognitive meaning of such statements is a value claim. A **value claim** is a claim that something is good, bad, right, wrong, or better, worse, more important or less important than some other thing. For example, the statement about the death penalty asserts the value claim that the death penalty is wrong or immoral. Such value claims are often the most important part of the cognitive meaning of emotive statements. Thus, for the purposes of logic, it is important that we be able to disengage the value claims of emotively charged statements from the emotive meaning and treat these claims as separate statements.

These observations suggest the reason that people use emotive terminology as often as they do: Value claims as such normally require evidence to support them. For example, the claim that the death penalty is immoral cannot simply stand by itself. It cries out for reasons to support it. But when value claims are couched in emotive terminology, the emotive “clothing” tends to obscure the fact that a value claim is being made, and it simultaneously gives psychological momentum to that claim. As a result, readers and listeners are inclined to swallow the value claim whole without any evidence. Furthermore, the intellectual laziness of many speakers and writers, combined with their inability to supply supporting reasons for their value claims, reinforces the desirability of couching such claims in emotive terminology.

Many people, for example, will refer to someone as “crazy,” “stupid,” or “weird” when they want to express the claim that what that person is doing is bad or wrong and when they are unable or unwilling to give reasons for this claim. Also, many people will refer to things or situations as “awesome” or “gross” for the same reasons. Those who happen to be listening, especially if they are friendly with the speaker, will often accept these claims without hesitation.

For a subtler example of emotive terminology, consider the word “harvest.” This word evokes feelings associated with honest, hardworking farmers being rewarded for their labor in planting and tending their crops. To capitalize on this positive feeling, wood products companies speak of harvesting the trees in 200-year-old forests, even though they had nothing to do with planting them, and surgeons speak of harvesting the organs from the bodies of donors and the tissue from aborted fetuses. In all of these cases, the
use of the word “harvest” is specifically calculated to elicit a favorable or agreeable response from the listener.

Let us now consider emotive terminology as it occurs in arguments. In arguments, emotive terminology accomplishes basically the same function as emotive terminology in statements. It allows the arguer to make value claims about the subject matter of the argument without providing evidence, and it gives the argument a kind of steamroller quality by which it tends to crush potential counterarguments before the reader or listener has a chance to think of them. This steamroller quality also tends to paralyze the logical thought processes of readers or listeners so that they are not able to see illogical arguments in their true light. These effects of emotive terminology can be avoided if the reader or listener will disengage the value claims and other cognitive meanings from the emotive meaning of the language and reexpress them as distinct premises.

Consider, for example, the following emotively charged argument taken from the letters to the editor section of a newspaper:

Now that we know that the rocks on the moon are similar to those in our backyard and that tadpoles can exist in a weightless environment, and now that we have put the rest of the world in order, can we concentrate on the problems here at home? Like what makes people hungry and why is unemployment so elusive?

(Robert J. Boland)

The conclusion of this argument is that our government should take money that has been spent on the space program and on international police actions and redirect it to solving domestic problems. The author minimizes the importance of the space program by covertly suggesting that it amounts to nothing more than work on ordinary rocks and tadpoles (which by themselves are relatively insignificant), and he exaggerates the scope of the international effort by covertly suggesting that it has solved every problem on earth but our own. Also, the phrase “put...i n o r der” suggests that the international effort has been no more important than restoring order to a room in one’s house. We might rephrase the argument in emotively neutral language, making the implicit suggestions and value claims explicit, as follows:

The space program has been confined to work on ordinary rocks and tadpoles. Ordinary rocks and tadpoles are less important than domestic hunger and unemployment. Our international efforts have restored order to every nation on earth but our own. These efforts have been directed to problems that are less important than our own domestic problems. Therefore, our government should redirect funds that have been spent on these projects to solving our own domestic problems.

By restructuring the argument in this way, we can more easily evaluate the degree to which the premises support the conclusion. Inspection of the premises reveals that the first, third, and possibly fourth premises are false. Thus, the actual support provided by the premises is less than what we might have first expected. If the argument were to be rephrased a second time so that the premises turned out true (for example, the first premise might read “Part of the space program has been devoted to research on ordinary
rocks and tadpoles”), the support given to the conclusion would still be weaker than the author intended.

Now that we have distinguished emotive meaning from cognitive meaning, let us explore some of the ways that cognitive meanings can be defective. Two of them are vagueness and ambiguity. A linguistic expression is said to be **vague** if there are borderline cases in which it is impossible to tell if the expression applies or does not apply. Vague expressions often allow for a continuous range of interpretations. The meaning is hazy, obscure, and imprecise. For example, words such as “love,” “happiness,” “peace,” “excessive,” “fresh,” “rich,” “poor,” “normal,” “conservative,” and “polluted” are vague. We can rarely tell with any precision whether they apply to a given situation or not. How fresh does something have to be in order to be called fresh?

Vagueness can also affect entire statements. Such vagueness may arise not so much from the individual words as from the way in which the words are combined. For example, suppose someone were to say, “Today our job situation is more transparent.” First, what is the meaning of “job situation”? Does it refer to finding a job, keeping a job, filling a job, completing a job, or bidding on a job? And what exactly does it mean for a job situation to be “transparent”? Does it mean that the job is more easily perceived or comprehended? That the job is more easily completed? That we can anticipate our future job needs more clearly? Or what else?

Not all cases of vagueness, however, are problematic. To describe an acquaintance as “tall” or “thin” often causes no trouble in ordinary conversation. Indeed, it may be overly burdensome to describe this person in more precise language. Trouble arises only when the language is not sufficiently precise for what the situation demands.

The other way in which cognitive meanings can be defective is ambiguity. An expression is said to be **ambiguous** when it can be interpreted as having more than one clearly distinct meaning in a given context. For example, words such as “light,” “proper,” “critical,” “stress,” “mad,” “inflate,” “chest,” “bank,” “sound,” and “race” can be used ambiguously. Thus, if one were to describe a beer as a light pilsner, does this mean that the beer is light in color, light in calories, or light in taste? If one were to describe an action as proper, does this mean proper in a moral sense or proper in the sense of being socially acceptable? Or if one were to describe a person as critical, does this mean that the person is essential for a certain task or that the person tends to criticize others?

As is the case with vagueness, ambiguity can also affect entire statements. Such ambiguity often results from the way in which certain words are combined. For example, there was a newspaper headline that read, “Tuna are biting off the Washington coast.” Does this mean that the tuna are nibbling away at the coastline or that fishermen are catching them off the coast? Presumably it means the latter. And another headline read, “College students are turning to vegetables.” Does this mean that the students are metamorphosing into vegetables or that they are incorporating more vegetables into their diet? Again, the intended meaning is probably the latter.

The difference between ambiguity and vagueness is that vague terminology allows for a relatively continuous range of interpretations, whereas ambiguous terminology allows for multiple discrete interpretations. In a vague expression there is a blur of meaning, whereas in an ambiguous expression there is a mix-up of otherwise clear meanings. However, there are many forms of expression that are ambiguous in one context and
vague in another. For example, the word “slow” in one context could mean either mentally retarded or physically slow, but when the word refers to physical slowness, it could be vague. How slow is slow? Similar remarks apply to “light,” “fast,” and “rich.”

Ambiguity and vagueness are important in logic because there are countless occasions in which the evaluation of an argument leads to the observation, “Well, that depends on what you mean by . . .” Certain phraseology in the argument is vague or ambiguous, and its meaning must be clarified before any evaluation can proceed. For example, Scientologists argue that their organization should be exempt from paying taxes because, they claim, Scientology is a religion. Evaluating their argument requires that we clarify the meaning of “religion.” Pro-life advocates argue that abortion is wrong because it results in the killing of human beings. But what is the meaning of “human being”? And some feminists argue that leering glances constitute sexual harassment. To evaluate their arguments we must clarify the meaning of “leering glances” and “sexual harassment.”

The role of vagueness and ambiguity in arguments may be conveniently explored in the context of conflicting arguments between individuals. Such conflicts are called disputes:

**CLAUDIA:** Mrs. Wilson abuses her children. And how do I know that? I saw her spank one of her kids the other day after the kid misbehaved.

**JANE:** Don’t be silly. Kids need discipline, and by disciplining her children, Mrs. Wilson is showing that she loves them.

Here the problem surrounds the vagueness of the words “abuse” and “discipline.” When does discipline become abuse? The line separating the two is hazy at best, but unless it is clarified, disputes of this sort will never be resolved.

Another example:

**BRENDA:** I’m afraid that Smiley is guilty of arson. Last night he confided to me that he was the one who set fire to the old schoolhouse.

**WARREN:** No, you couldn’t be more mistaken. In this country no one is guilty until proven so in a court of law, and Smiley has not yet even been accused of anything.

In this case the dispute arises over the ambiguity of the word “guilty.” Brenda is using the word in the moral sense. Given that Smiley has admitted to setting fire to the old schoolhouse, it is very likely that he did indeed set fire to it and therefore is guilty of arson in the moral sense of the term. Warren, on the other hand, is using the word in the legal sense. Because Smiley has not been convicted in a court of law, he is not legally guilty of anything.

Disputes that arise over the meaning of language are called *verbal disputes.* But not all disputes are of this sort. Some disputes arise over a disagreement about facts, and these are called *factual disputes.* Example:

**KEITH:** I know that Freddie stole a computer from the old schoolhouse. Barbara told me that she saw Freddie do it.

**PHYLLIS:** That’s ridiculous! Freddie has never stolen anything in his life. Barbara hates Freddie, and she is trying to pin the theft on him only to shield her criminal boyfriend.
Here the dispute centers on the factual issues of whether Barbara told the truth and whether Freddie stole the computer.

In dealing with disputes, the first question is whether the dispute is factual, verbal, or some combination of the two. If the dispute is verbal, then the second question to be answered is whether the dispute concerns ambiguity or vagueness.

**EXERCISE 2.1**

I. The following selection is taken from a speech delivered by George C. Wallace, former Governor of Alabama, on July 4, 1964. In this speech Wallace attacked Lyndon Johnson’s signing of the Civil Rights Act. The speech is liberally sprinkled with emotive terminology. Make a list of what you consider to be the twenty-five most highly charged words or phrases, and then indicate whether they are intended to evoke a favorable or an unfavorable attitude from the listener.

We come here today in deference to the memory of those stalwart patriots who on July 4, 1776, pledged their lives, their fortunes, and their sacred honor to establish and defend the proposition that governments are created by the people, empowered by the people, derive their just powers from the consent of the people, and must forever remain subservient to the will of the people.

Today, 188 years later, we celebrate that occasion and find inspiration and determination and courage to preserve and protect the great principles of freedom enunciated in the Declaration of Independence.

It is therefore a cruel irony that the President of the United States has only yesterday signed into law the most monstrous piece of legislation ever enacted by the United States Congress.

It is a fraud, a sham, and a hoax.

This bill will live in infamy. To sign it into law at any time is tragic. To do so upon the eve of the celebration of our independence insults the intelligence of the American people.

It dishonors the memory of countless thousands of our dead who offered up their very lives in defense of principles which this bill destroys.

Never before in the history of this nation have so many human and property rights been destroyed by a single enactment of the Congress. It is an act of tyranny. It is the assassin’s knife stuck in the back of liberty.

With this assassin’s knife and a blackjack in the hand of the federal force-cult, the left-wing liberals will try to force us back into bondage. Bondage to a tyranny more brutal than that imposed by the British Monarchy which claimed power to rule over the lives of our forefathers under sanction of the omnipotent black-robed despots who sit on the bench of the United States Supreme Court.

This bill is fraudulent in intent, in design and in execution.

It is misnamed. Each and every provision is mistitled. It was rammed through the Congress on the wave of ballyhoo, promotions, and publicity stunts reminiscent of P. T. Barnum.

It was enacted in an atmosphere of pressure, intimidation, and even cowardice, as demonstrated by the refusal of the United States Senate to adopt an amendment to submit the bill to a vote of the people.
To illustrate the fraud—it is not a civil rights bill. It is a federal penal code. It creates federal crimes which would take volumes to list and years to tabulate because it affects the lives of 192 million American citizens. Every person in every walk and station of life and every aspect of our daily lives become subject to the criminal provisions of this bill.

It threatens our freedom of speech, of assembly, of association, and makes the exercise of these freedoms a federal crime under certain conditions.

It affects our political rights, our right to trial by jury, our right to the full use and enjoyment of our private property, the freedom from search and seizure of our private property and possessions, the freedom from harassment by federal police and, in short, all the rights of individuals inherent in a society of free men.

Ministers, lawyers, teachers, newspapers, and every private citizen must guard his speech and watch his actions to avoid the deliberately imposed booby traps put into this bill. It is designed to make federal crimes of our customs, beliefs, and traditions. Therefore, under the fantastic powers of the federal judiciary to punish for contempt of court and under their fantastic powers to regulate our most intimate aspects of our lives by injunction, every American citizen is in jeopardy and must stand guard against these despots.

II. The following selections were taken from the letters to the editor section of a newspaper. Each can be interpreted as expressing one or more arguments. Begin by identifying the conclusion of each. Then disengage the covert assumptions, value claims, and other cognitive assertions from the emotive language and translate them into emotively neutral premises. Use the two examples in the text as models. Finally, evaluate the restructured arguments. Some may turn out to be good ones.

1. Why don’t animal lovers do something about these dog sled races? Have you ever witnessed a race on television? Talk about torture. It’s sickening to watch the dogs, panting and their tongues hanging out, pull a heavily laden sled with a driver through snow and ice in bitter cold.

   (Joe Shapiro)

2. How anyone who has seen even one photo of the fly-covered, starving children in Somalia can still believe in a loving, everpresent, omnipotent God is beyond intelligent reasoning.

   (William Blanchard)

3. The creationists have no right to impose their mistaken, ignorant, superstitious beliefs on others. They claim the constitutional right to the free exercise of religion. How about the rights of the majority of people who want their children taught the scientific truth about evolution—not fallacious myths and superstitions from primitive societies.

   (Andrew M. Underhill, Jr.)

4. God, guts, and guns made this great country of ours free, and you can bet your buns it will take more of the same to keep it that way. One of the very last things in this world we need is handgun control.

   (R. Kinzie)

5. The insanity plea should be done away with; criminals should lose this easy way out. Killers can theoretically spend as little as six months in a mental hospital,
then be released. It’s time to take a stand for safety and put psychotic killers in prison.

(Keith Aikens)

6. Until now, the protest against the holocaust in our own nation has been vocal but far too small. The massacre of an unwanted generation through abortion and infanticide has sounded an alarm that should wake up every Christian. Helpless and guiltless little infants are mercilessly butchered daily in hospitals and clinics across our land. For the love of God, let us all urge the passage of the Human Life Bill, now before Congress.

(Jim Key)

7. It’s time to challenge all this nonsense about the “celebration of diversity” in our society. The more the schizophrenics preach the glories of diversity, the more we pull apart. This is not to deny appreciation of the ethnic roots, rituals, and foods, which add color to life. But to lay undue emphasis upon diversification results in destruction of the “social glue” that binds us together. Our forefathers framed one nation, indivisible. In the misguided effort to “celebrate” the uniqueness of every disparate culture and subculture, we betray our heritage and dilute our identities as Americans.

(Ruth M. Armstrong)

8. A kind and loving God surely favors the pro-choice attitude. He wants his world inhabited by happy, well-fed children with parents who love and care for them. Our burgeoning population in Third World nations with constant famine and disease, and many other human miseries, could be relieved if the Catholic Church were to adjust more of its ancient policies to our current civilization.

(Art Bates)

9. Thousands of years of organized religion have done nothing to solve any problems and have almost always exacerbated them by promoting fear, superstition and irrational mythologies. Kneeling in prayer to some supernatural entity seeking “divine guidance” or, even more implausibly, “divine intervention,” is not only a waste of time, it is counterproductive because it lulls the supplicant into inactivity. We must stand up, open our eyes and face life’s challenges head-on in a problem-solving approach that is reality based, empirical, and above all, rational.

(James W. Baugh)

10. Liberalism has turned our welfare system from a social safety net into a hammock. We hand out money with few questions asked. When welfare recipients are asked for some contribution to our society in return, liberals scream that it’s unconstitutional.

Liberalism has transformed our criminal justice system into one that cares more about the criminal’s past childhood problems than for the victim. Liberalism in its never ending quest for “social justice” has sacrificed the rights of the majority while continuing to push the rights of a few to new limits. Liberalism has turned our school system from one of excellence to one where condoms and metal detectors are more important than prayer.

(Marc Sexton)
III. Determine whether the following disputes are verbal, factual, or some combination of the two. If verbal, discuss whether the dispute arises from vagueness or ambiguity.

1. **FRANK:** Look at that huge tree that fell last night. It must have made a tremendous crash when it came down.
   **SHIRLEY:** No, I’m afraid you’re quite wrong. Sound is a perception, and perceptions depend on a perceiver. Therefore, since nobody was around here last night, there was no crash.

2. **VICKIE:** Yesterday I visited the exhibition of the work of Jean Michel Basquiat at the Central Gallery. What an interesting artist he is!
   **BARBARA:** Don’t be ridiculous! That’s not art, it’s just graffiti.

3. **PHIL:** That was a great basketball game last night. Shaquille O’Neal scored 37 points.
   **ARTHUR:** Your statistics are all wet. O’Neal scored only 34 points.

4. **ROGER:** I think modern society is becoming more and more violent every day. Just look at the increase in murder, rape, and robbery. Violence is clearly an evil that must be eradicated.
   **MARK:** You might be right about the increase in crime, but the idea that violence is an evil is nonsense. Violence is quite natural. The universe was created in a tremendously violent Big Bang, the nuclear reactions that bring us sunlight are extremely violent, and insects and animals kill and devour one another all the time.

5. **KATHY:** I was saddened to hear about the death of your uncle. He was such a wonderful man. You must be consoled knowing that he’s enjoying his heavenly reward.
   **ANNE:** Thanks, but I’m afraid I don’t know what you mean. If death is the end of life, how could my uncle be alive right now in heaven?

6. **HEIDI:** This morning I heard a lecture on the life of Jane Austen. She was such a wonderfully educated woman.
   **DAVID:** That’s not true at all. Jane Austen dropped out of school when she was only eleven, and she never even attended high school, much less college or graduate school.

7. **LESLIE:** Your friend Paul told us that he would be visiting his parents in Knoxville this weekend. Therefore, he must not be at home.
   **DIANA:** I agree that Paul is probably not at home, but you didn’t hear him right. He said that his parents live in Nashville.

8. **KARL:** There’s a euthanasia measure on the ballot today, and I think I’ll vote for it. It seems reasonable that terminally ill patients should be allowed to be disconnected from life-support systems so that they can die peacefully and naturally.
   **SERGIO:** You must be crazy! Euthanasia means giving people lethal injections, and that’s clearly murder.

9. **CHERYL:** Tomorrow I’m going to the Megadeath concert. Their music is fabulous.
   **OLIVER:** You call that music? Really it’s just noise, and incredibly loud noise at that.
10. **CAROL:** Nelson could not have fought in the battle of Trafalgar, because that battle occurred in 1806, and Nelson died in 1804.
   **JUSTIN:** Your knowledge of history is atrocious! Nelson did fight in Trafalgar, and the date was October 21, 1805.

11. **ERIC:** I’ve just signed up for Philosophy 502—Dr. Peterson’s class in metaphysics. I know I’m going to enjoy it because I’ve always been fascinated by magic and ghosts.
   **LEAH:** I’m afraid you’re in for a surprise.

12. **HAROLD:** Professor Steinbeck is the most intelligent man I know. His lecture series on matter and consciousness was simply brilliant.
   **JOYCE:** Steinbeck is actually an idiot. Yesterday I watched while he tried to get his car started. When it wouldn’t start, he opened the hood, and he didn’t even notice that someone had stolen the battery.

13. **THOMAS:** George Foreman committed those crimes of child abuse through his own free choice. Nobody put a gun to his head. Therefore he should be punished for them.
   **EMILIE:** That’s not true. It’s been established that Foreman was severely abused himself when he was a child, and such children have an irresistible obsession to abuse others when they grow up.

14. **ANTHONY:** The sun is much smaller than the earth. You see, it’s just a small thing up there in the sky. Therefore, since the sun’s gravitational attraction is proportional to its mass, the sun’s gravity is less than the earth’s.
   **CINDY:** You are as stupid as they come. I agree the mass of the sun is less than that of the earth, but its volume is greater. Therefore, since gravitational attraction is proportional to volume, the sun’s gravity is greater than the earth’s.

15. **MINDY:** President Clinton should have been removed from office because he lied about having sexual relations with Monica Lewinsky.
   **KAREN:** Don’t be silly. President Clinton only had oral sex with Lewinsky, and oral sex does not constitute sexual relations.

16. **FRED:** Today’s professional athletes are overpaid. Many of them make millions of dollars a year.
   **SHAWN:** I don’t think they are overpaid at all. Just look at the owners of some of these teams. They make ten times as much as the athletes do.

17. **BRIAN:** That new morning-after pill, RU-486, causes abortion. Therefore, since abortion is wrong, you should never take that pill.
   **ELAINE:** How ignorant you are! RU-486 merely prevents implantation of the fertilized ovum. Therefore, since the woman never gets pregnant, there is no abortion.

18. **PENNY:** In my mind, the use of marijuana should be legalized. After all, caffeine and alcohol are no less of a drug than marijuana, and it’s not illegal to enjoy a glass of beer or drink a cup of coffee.
   **SAM:** Your conclusion is way off. Beer and coffee are not drugs, they’re foods.
*19. JERRY: In spite of the great strides technology has made in this country, poverty remains a terrible problem. Why, some people earn less than $10,000 per year. The government should do something about it.

FRANKIE: I hardly think that $10,000 per year constitutes poverty. Why, in many third world countries the majority of inhabitants earn less than $1,000 per year.

20. JOSEPH: Adult human beings have the right to marry whomever they please, as long as that person is not a close relative. From this it follows that homosexuals have the right to marry someone of their own sex.

STEPHEN: Your argument makes no sense. Rights are created by laws, and since there is no federal or state law that gives homosexuals the right to marry, they have no such right.

### 2.2 The Intension and Extension of Terms

The main task of logic is the evaluation of arguments. However, as we saw in the previous section, there are countless arguments in which this task leads to the observation, “Well, that depends on what you mean by...” Such an observation usually indicates that the meaning of certain words in the argument is vague or ambiguous. Clearing up the problem often involves supplying a definition. Thus, the study of meaning and definition is closely related to the main task of logic. In this section we continue our inquiry into aspects of linguistic meaning, and the results of this inquiry provide the basis for the theory of definition in the next section.

The basic units of any ordinary language are *words*. Our main concern in this chapter, however, is not with words in general but with terms. A *term* is any word or arrangement of words that may serve as the subject of a statement. Terms consist of proper names, common names, and descriptive phrases. Here are some examples:

<table>
<thead>
<tr>
<th>Proper names</th>
<th>Common names</th>
<th>Descriptive phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Napoleon</td>
<td>animal</td>
<td>first president of the United States</td>
</tr>
<tr>
<td>North Dakota</td>
<td>restitution</td>
<td>author of <em>Hamlet</em></td>
</tr>
<tr>
<td>The United States</td>
<td>house</td>
<td>books in my library</td>
</tr>
<tr>
<td>Senate</td>
<td>activity</td>
<td>officers in the Swiss Navy</td>
</tr>
<tr>
<td>Gore Vidal</td>
<td>person</td>
<td>blue things</td>
</tr>
<tr>
<td>Robinson Crusoe</td>
<td></td>
<td>those who study hard</td>
</tr>
</tbody>
</table>

Words that are not terms include verbs, nonsubstantive adjectives, adverbs, prepositions, conjunctions, and all nonsyntactic arrangements of words. The following words or phrases are not terms; none can serve as the subject of a statement:

- dictatorial
- runs quickly
- above and beyond
- moreover
- craves
- cabbages into again the forest

The last example is a nonsyntactic arrangement.
At this point it is important to distinguish the *use* of a word from the *mention* of a word. Without this distinction any word can be imagined to serve as the subject of a statement and, therefore, to count as a term. The word “wherever,” for example, is not a term, but “wherever” (in quotes) can serve as the subject of a statement, such as “‘Wherever’ is an eight-letter word.” But in this statement, it is not the word itself that is the subject but rather the *quoted* word. The word is said to be *mentioned*—not *used*. On the other hand, “wherever” is *used* in this statement: “I will follow you wherever you go.” In distinguishing terms from non-terms one must be sure that the word or group of words can be *used* as the subject of a statement.

The previous section of this chapter explored the cognitive meaning of language in general. The cognitive meaning of terms comprises two kinds: intensional and extensional. The **intensional meaning** consists of the qualities or attributes that the term *connotes*, and the **extensional meaning** consists of the members of the class that the term *denotes*. For example, the intensional meaning of the term “cat” consists of the attributes of being furry, of having four legs, of moving in a certain way, of emitting certain sounds, and so on, while the extensional meaning consists of cats themselves—all the cats in the universe. The term connotes the attributes and denotes the cats.

The intensional meaning of a term is otherwise known as the **intension**, or **connotation**, and the extensional meaning is known as the **extension**, or **denotation**. “Intension” and “extension” are roughly equivalent to the more modern terms “sense” and “reference,” respectively. Also, it should be noted that logic uses the terms “connotation” and “denotation” differently from the way they are used in grammar. In grammar, “connotation” refers to the subtle nuances of a word, whereas “denotation” refers to the word’s direct and specific meaning.

Exactly how a term connotes a set of attributes allows for at least two different interpretations. Some philosophers take an objective approach and hold that a term connotes whatever attributes something must have in order to be denoted by the term. Others take what might be called a subjective approach and hold that a term connotes the attributes that occur in the minds of the people who use that term. This book takes the latter approach.
In connection with this approach, however, we encounter the problem of terms connoting different things to different people. Thus, to a cat lover the term “cat” might connote the attributes of being cuddly and adorable, while to someone who hates cats it might connote the attributes of being obnoxious and disgusting. To avoid this problem, we restrict the meaning of connotation to what is usually called the conventional connotation. The conventional connotation of a term includes the attributes that the term commonly calls forth in the minds of competent speakers of the language. Under this interpretation, the connotation of a term remains more or less the same from person to person and from time to time.

The denotation of a term also typically remains the same from person to person, but it may change with the passage of time. The denotation of “currently living cat,” for example, is constantly fluctuating as some cats die and others are born. The denotation of the term “cat,” on the other hand, is presumably constant because it denotes all cats, past, present, and future.

Sometimes the denotation of a term can change radically with the passage of time. The terms “currently living dodo bird” and “current king of France,” for example, at one time denoted actually existing entities, but today all such entities have perished. Accordingly, these terms now have what is called empty extension. They are said to denote the empty (or “null”) class, the class that has no members. Other terms with empty extension include “unicorn,” “leprechaun,” “gnome,” “elf,” and “griffin.” While these terms have empty extension, however, they do not have empty intension. “Currently living dodo bird” and “current king of France,” as well as “unicorn,” “elf,” and “griffin,” connote a variety of intelligible attributes.

The fact that some terms have empty extension leads us to an important connection between extension and intension—namely, that intension determines extension. The intensional meaning of a term serves as the criterion for deciding what the extension consists of. Because we know the attributes connoted by the term “unicorn,” for example, we know that the term has empty extension. That is, we know that there are no four-legged mammals having a single straight horn projecting from their forehead. Similarly, the intension of the word “cat” serves as the criterion for determining what is and what is not a member of the class of cats.

One kind of term that raises problems for the intension-determines-extension rule is proper names. For example, the name “David” might not appear to have any intension, but it denotes the person who has this name. Although philosophers have disagreed about this, it would seem that proper names must have some kind of intension or we would not know what persons, if any, they denote. One possible solution to this problem is that names are shorthand symbols for descriptions or bundles of descriptions. For example, “David” could be shorthand for “the person who lives next door” or “the person who works at the corner store and who drives a green Chevy.”

Another possible solution to the problem of proper names is that the intension of proper names consists of the causal chain of events leading from the point at which the name is first assigned to the point at which a certain person learns about the name. Thus, the first link in such a chain might be the baptismal event at which the name “David” is given to a certain infant, the second link would be the event in which a certain third party is informed of the first event, and so on. This entire chain of events extending...
through the linguistic community would then constitute the intension of “David.” Thus, we conclude that for all terms, including proper names, intension determines extension.

The distinction between intension and extension may be further illustrated by comparing the way in which these concepts can be used to give order to random sequences of terms. Terms may be put in the order of increasing intension, increasing extension, decreasing intension, and decreasing extension. A series of terms is in the order of **increasing intension** when each term in the series (except the first) connotes more attributes than the one preceding it. In other words, each term in the series (except the first) is *more specific* than the one preceding it. (A term is specific to the degree that it connotes more attributes.) The order of **decreasing intension** is the reverse of that of increasing intension.

A series of terms is in the order of **increasing extension** when each term in the series (except the first) denotes a class having more members than the class denoted by the term preceding it. In other words, the class size gets larger with each successive term. **Decreasing extension** is, of course, the reverse of this order. Examples:

- **increasing intension:** animal, mammal, feline, tiger
- **increasing extension:** tiger, feline, mammal, animal
- **decreasing intension:** tiger, feline, mammal, animal
- **decreasing extension:** animal, mammal, feline, tiger

These examples illustrate a fact pertaining to most such series: The order of increasing intension is usually the same as that of decreasing extension. Conversely, the order of decreasing intension is usually the same as that of increasing extension. There are some exceptions, however. Consider the following series:

- unicorn; unicorn with blue eyes; unicorn with blue eyes and green horn; unicorn with blue eyes, green horn, and a weight of over 400 pounds

Each term in this series has empty extension; so, while the series exhibits the order of increasing intension, it does not exhibit the order of decreasing extension. Here is another, slightly different, example:

- living human being; living human being with a genetic code; living human being with a genetic code and a brain; living human being with a genetic code, a brain, and a height of less than 100 feet

In this series none of the terms has empty extension, but each term has exactly the same extension as the others. Thus, while the intension increases with each successive term, once again the extension does not decrease.

**EXERCISE 2.2**

1. The following exercises deal with words and terms.

   1. Determine which of the following words or groups of words are terms and which are nonterms.
2. Name some of the attributes connoted by the following terms. Express your answer with adjectives or adjectival phrases. Example: The term “elephant” connotes the attributes of being large, having tusks, having a trunk.

- drum
- politician
- devil
- wolf
- fanatic
- riot
- Mona Lisa
- carrot
- piano
- tallest mountain on earth
- prime number less than 10
- governor of New York
- language of Canada
- Scandinavian country

3. Name three items denoted by the terms in the left-hand column below and all items denoted by the terms in the right-hand column.

- newspaper
- scientist
- manufacturer
- river
- opera
- tallest mountain on earth
- prime number less than 10
- governor of New York
- language of Canada
- Scandinavian country

4. Put the following sequences of terms in the order of increasing intension:

- conifer, Sitka spruce, tree, spruce, plant
- Italian sports car, car, vehicle, Maserati, sports car
- doctor of medicine, person, brain surgeon, professional person, surgeon
- wallaby, marsupial, mammal, animal, kangaroo
- parallelogram, polygon, square, rectangle, quadrilateral

5. Construct a series of four terms that exhibits increasing intension but non-decreasing extension.

II. Answer “true” or “false” to the following statements:

1. All words have an intensional meaning and an extensional meaning.
2. The intensional meaning of a term consists of the attributes connoted by the term.
3. The extensional meaning of a term consists of the members of the class denoted by the term.
4. The extension of a term always remains the same with the passage of time.
5. Some terms have empty intension.
6. Some terms have empty extension.
7. The intension of a term determines the extension.
8. The intension of a term determines how specific the term is.
9. The order of increasing intension is always the same as that of decreasing extension.
10. “Leprechaun” and “unicorn” have the same extension.

2.3 Definitions and Their Purposes

Over the years philosophers have held various conflicting views about the purpose of definitions. For Plato, to mention just one, definitions were intended to explicate the meaning of certain eternal essences or forms, such as justice, piety, and virtue. For most logicians today, however, definitions are intended exclusively to explicate the meaning of words. In conformity with this latter position, we may define **definition** as a group of words that assigns a meaning to some word or group of words. Accordingly, every definition consists of two parts: the definiendum and the definiens. The **definiendum** is the word or group of words that is supposed to be defined, and the **definiens** is the word or group of words that does the defining. For example, in the definition “‘Tiger’ means a large, striped, ferocious feline indigenous to the jungles of India and Asia,” the word “tiger” is the definiendum, and everything after the word “means” is the definiens. The definiens is not itself the meaning of the definiendum; rather, it is the group of words that symbolizes (or that is supposed to symbolize) the same meaning as the definiendum. Because we presumably know in advance what the definiens symbolizes, we are led, via the definition, to understand what the definiendum symbolizes. It is in this way that the definition “assigns” a meaning to its definiendum.
Once it has been decided that definitions explicate the meaning of words, other disagreements emerge among the philosophers. Some argue that since a definition is merely a rule that allows one set of words (the definiens) to be used in place of another set (the definiendum), definitions communicate no information at all about the subject matter of the definiendum. Others take the opposite tack and argue that since definitions result in a clarification of language, they provide a means for the discovery of deeper philosophical truths. It seems, however, that neither of these approaches is able to make good sense of all the various kinds of definitions that are actually employed in ordinary usage. As a result, instead of beginning their analysis of definitions with a set of a priori criteria, many logicians take a pragmatic approach and begin with a survey of the various kinds of definitions that are actually used and of the functions that they actually serve. This is the approach taken here.

Stipulative Definitions

A stipulative definition assigns a meaning to a word for the first time. This may involve either coining a new word or giving a new meaning to an old word. The purpose of a stipulative definition is usually to replace a more complex expression with a simpler one.

The need for a stipulative definition is often occasioned by some new phenomenon or development. For example, a few years ago the attempt was made at a certain zoo to crossbreed tigers and lions. Because of the genetic similarity of the two species, the attempt succeeded. Offspring were produced from a male tiger and a female lion and from a male lion and a female tiger. When the offspring were born, it became appropriate to give them names. Of course, the names “offspring of male tiger and female lion” and “offspring of male lion and female tiger” could have been used, but these names were hardly convenient. Instead, the names “tigon” and “liger” were selected. Any two new words would have sufficed equally well for naming the offspring—“topar” and “largine” for example—but “tigon” and “liger” were considered more appropriate, for obvious reasons. “Tigon” was taken to mean the offspring of a male tiger and a female lion, and “liger” the offspring of a male lion and a female tiger. These assignments of meanings were accomplished through stipulative definitions.

Another use for stipulative definitions is to set up secret codes. For example, during World War II, “Tora, Tora, Tora” was the code name Admiral Yamamoto transmitted to the war office in Tokyo signaling that the Japanese fleet had not been spotted in the hours preceding the bombing of Pearl Harbor; “Operation Barbarosa” was the name the Germans gave to the invasion of Russia; and “Operation Overlord” was the name the allied forces gave to the planned invasion of Normandy. More recently, “Operation Desert Storm” was the code name given to the military invasion of Iraq; and the campaign in Afghanistan, at least in its early phase, was called “Operation Enduring Freedom.” Law enforcement organizations have adopted similar code names for sting operations against organized crime.

Because people are continually coming up with new creations, whether it be food concoctions, inventions, modes of behavior, or kinds of apparel, stipulative definitions are continually being introduced to name them. The invention of computers provides a prime example. Today we have dozens of new terms or new uses of old terms that did
not exist a few years ago: “cyberspace,” “e-mail,” “browser,” “hacker,” “dot com,” “hardware,” “software,” “download,” “web site,” “webmaster,” “server,” “boot,” “barcode,” “mouse,” “modem,” “cookies,” and “spam”—to name just a few. Earlier, in the area of biology, when a certain excretion of the pancreas was refined to its pure form, the word “insulin” was chosen to name it, and the word “penicillin” was chosen for an antibacterial substance produced by certain *Penicillium* molds. In mathematics, the symbol “$10^5$” was chosen as a simple substitute for “$10 \times 10 \times 10 \times 10 \times 10$.”

Because a stipulative definition is a completely arbitrary assignment of a meaning to a word for the first time, there can be no such thing as a “true” or “false” stipulative definition. Furthermore, for the same reason, a stipulative definition cannot provide any new information about the subject matter of the definiendum. The fact that the word “tigon” was selected to replace “offspring of a male tiger and a female lion” tells us nothing new about the nature of the animal in question. One stipulative definition may, however, be more or less convenient or more or less appropriate than another.

Stipulative definitions are misused in verbal disputes when one person covertly uses a word in a peculiar way and then proceeds to assume that everyone else uses that word in the same way. Under these circumstances that person is said to be using the word “stipulatively.” In such cases the assumption that other persons use the word in the same way is rarely justified.

**Lexical Definitions**

A *lexical definition* is used to report the meaning that a word already has in a language. Dictionary definitions are all instances of lexical definitions. Thus, in contrast with a stipulative definition, which assigns a meaning to a word for the first time, a lexical definition may be true or false depending on whether it does or does not report the way a word is actually used. Because words are frequently used in more than one way, lexical definitions have the further purpose of eliminating the ambiguity that would otherwise arise if one of these meanings were to be confused with another.

As we saw in the first section of this chapter, an expression is **ambiguous** when it can be interpreted as having two or more clearly distinct meanings in a given context. Words such as “light,” “mad,” and “bank” can be used ambiguously. Because a lexical definition lists the various meanings that a word can have, a person who consults such a definition is better prepared to avoid ambiguous constructions of his or her own and to detect those of others. Undetected ambiguity causes the most trouble. In many cases the problem lies not with the obvious differences in meaning that words such as “light” and “bank” may have but with the subtle shadings of meaning that are more likely to be confused with one another. For example, if a woman is described as “nice,” any number of things could be intended. She could be fastidious, refined, modest, pleasant, attractive, or even lewd. A good lexical definition will distinguish these various shadings and thereby guard against the possibility that two such meanings will be unconsciously jumbled together into one.

**Precising Definitions**

The purpose of a *precising definition* is to reduce the vagueness of a word. As we saw in the first section of this chapter, an expression is **vague** if there are borderline cases in
which it is impossible to tell if the word applies or does not apply. Words such as “fresh,” “rich,” and “poor” are vague. Once the vagueness of such words is reduced by a precising definition, one can reach a decision as to the applicability of the word to a specific situation. For example, if legislation were ever introduced to give direct financial assistance to the poor, a precising definition would have to be supplied specifying exactly who is poor and who is not. The definition “‘Poor’ means having an annual income of less than $4,000 and a net worth of less than $20,000” is an example of a precising definition.

Whenever words are taken from ordinary usage and used in a highly systematic context such as science, mathematics, medicine, or law, they must always be clarified by means of a precising definition. The terms “force,” “energy,” “acid,” “element,” “number,” “equality,” “contract,” and “agent” have all been given precising definitions by specific disciplines.

Sometimes the substance of a court trial may revolve around the precise usage of a term. A trial in California addressed the question of whether a man who had driven a bicycle while intoxicated violated the motor vehicle code. The question concerned whether, for these purposes, a bicycle could be considered a “vehicle.” The court decided in the affirmative, and the decision amounted to an incremental extension of an already existent precising definition of the word “vehicle.”

Another example involves the practice of surgical transplantation of vital organs. Before a heart transplant can be conducted, the donor must be dead; otherwise the surgeon will be accused of murder. If the donor is dead for too long, however, the success of the transplant will be imperiled. But exactly when is a person considered to be dead? Is it when the heart stops beating, when the person stops breathing, when rigor mortis sets in, or some other time? The question involves the meaning of the term “moment of death.” The courts have decided that “moment of death” should be taken to mean the moment the brain stops functioning, as measured by an electroencephalograph. This decision amounts to the acceptance of a precising definition for “moment of death.”

A precising definition differs from a stipulative definition in that the latter involves a purely arbitrary assignment of meaning, whereas the assignment of meaning in a precising definition is not at all arbitrary. A great deal of care must be taken to ensure that the assignment of meaning in a precising definition is appropriate and legitimate for the context within which the term is to be employed.

Theoretical Definitions

A theoretical definition assigns a meaning to a word by suggesting a theory that gives a certain characterization to the entities that the term denotes. Such a definition provides a way of viewing or conceiving these entities that suggests deductive consequences, further investigation (experimental or otherwise), and whatever else would be entailed by the acceptance of a theory governing these entities. The definition of the term “heat” found in texts dealing with the kinetic theory of heat provides a good example: “‘heat’ means the energy associated with the random motion of the molecules of a substance.” This definition does more than merely assign a meaning to a word; it provides a way of conceiving the physical phenomenon that is heat. In so doing, it suggests the deductive
consequence that as the molecules of a substance speed up, the temperature of the substance increases. In addition, it suggests a number of experiments—experiments investigating the relationship between molecular velocity and the phenomena of radiation, gas pressure, molecular elasticity, and molecular configuration. In short, this definition of “heat” provides the impetus for an entire theory about heat.

Other examples of theoretical definitions are the definition of “light” as a form of electromagnetic radiation and the definition of “force,” “mass,” and “acceleration” in Newton’s second law of motion as expressed in the equation \( F = MA \). The latter is a kind of contextual definition in which each term is defined in terms of the other two. Both definitions entail numerous deductive consequences about the phenomena involved and suggest numerous avenues of experimental investigation.

Not all theoretical definitions are associated with science. Many terms in philosophy, such as “substance,” “form,” “cause,” “change,” “idea,” “good,” “mind,” and “God,” have been given theoretical definitions. In fact, most of the major philosophers in history have given these terms their own peculiar theoretical definitions, and this fact accounts in part for the unique character of their respective philosophies. For example, Gottfried Wilhelm Leibniz’s definition of “substance” in terms of what he called “monads” laid the foundation for his metaphysical theory, and John Stuart Mill’s definition of “good” as the greatest happiness of the greatest number provided the underpinnings for his utilitarian theory of ethics.

Like stipulative definitions, theoretical definitions are neither true nor false, strictly speaking. The reason is that theoretical definitions function as proposals to see or interpret some phenomenon in a certain way. Since proposals have no truth value, neither do theoretical definitions. They may, however, be more or less interesting or more or less fruitful, depending on the deductive consequences they entail and on the outcome of the experiments they suggest.

**Persuasive Definitions**

The purpose of a **persuasive definition** is to engender a favorable or unfavorable attitude toward what is denoted by the definiendum. This purpose is accomplished by assigning an emotionally charged or value-laden meaning to a word while making it appear that the word really has (or ought to have) that meaning in the language in which it is used. Thus, persuasive definitions amount to a certain synthesis of stipulative, lexical, and, possibly, theoretical definitions backed by the rhetorical motive to engender a certain attitude. As a result of this synthesis, a persuasive definition masquerades as an honest assignment of meaning to a term while condemning or blessing with approval the subject matter of the definiendum. Here are some examples of opposing pairs of persuasive definitions:

- “Abortion” means the ruthless murdering of innocent human beings.
- “Abortion” means a safe and established surgical procedure whereby a woman is relieved of an unwanted burden.
- “Liberal” means a drippy-eyed do-gooder obsessed with giving away other people’s money.
“Liberal” means a genuine humanitarian committed to the goals of adequate housing and health care and of equal opportunity for all of our citizens.

“Capitalism” means the economic system in which individuals are afforded the God-given freedom to own property and conduct business as they choose.

“Capitalism” means the economic system in which humanity is sacrificed to the wanton quest for money, and mutual understanding and respect are replaced by alienation, greed, and selfishness.

“Taxation” means the procedure by means of which our commonwealth is preserved and sustained.

“Taxation” means the procedure used by bureaucrats to rip off the people who elected them.

The objective of a persuasive definition is to influence the attitudes of the reader or listener; thus, such definitions may be used with considerable effectiveness in political speeches and editorial columns. While persuasive definitions may, like lexical definitions, be evaluated as either true or false, the primary issue is neither truth nor falsity but the effectiveness of such definitions as instruments of persuasion.

**EXERCISE 2.3**

1. Determine whether the following definitions are stipulative, lexical, precising, theoretical, or persuasive.

   1. “Blind” means, for federal income tax purposes, either the inability to see better than 20/200 in the better eye with glasses or having a field of vision of 20 degrees or less.
   2. “Football” means a sport in which modern-day gladiators brutalize one another while trying to move a ridiculously shaped “ball” from one end of the playing field to the other.
   3. “Wristovision” means a miniature television set that can be worn on the wrist.
   4. “Diffident” means lacking confidence in oneself; characterized by modest preserve.
   5. “Magnetism” means a property of certain substances such as iron, cobalt, and nickel that arises from the spin of the electrons in the unfilled inner shell of the atoms that compose the substance.
   6. “Fiduciary” means having to do with a confidence or trust; a person who holds something in trust.
   7. “Politician” means a person of unquestioned honesty and integrity whom the people, in their collective wisdom, have duly elected to guide the ship of state and protect it from the reefs and shoals that threaten it on every side.
   8. “Intoxicated,” for purposes of driving a car in many states, means having a blood-alcohol content of 0.1% (.001) or greater.
   9. “Gweed” means a thoroughly immature person who feigns intellectual prowess; a total loser.
10. “Sound” means a compression wave in air or some other elastic medium having a frequency ranging (for humans) from 20 to 20,000 vibrations per second.

11. “Radioactive area” means, for purposes of the U.S. Nuclear Regulatory Commission, any area accessible to individuals in which there exists radiation at such levels that a major portion of the body could receive in any one hour a dose in excess of 5 millirems or in any five consecutive days a dose in excess of 100 millirems.

12. “Neurosis” means a chronic emotional disturbance that arises from suppressed or forgotten emotional stress (such as resentment, hostility, aggression, or guilt) experienced in early childhood.

13. “Scaling” means a sport in which people race four-wheel drive vehicles up the face of boulder-strewn hillsides.

14. “Smoker” means a rude and disgusting individual who callously emits noxious tobacco fumes into the air, threatening the health and comfort of everyone in the vicinity.

15. “Diadem” means an ornamental headband worn as a badge of royalty; a crown.

16. “Psychiatry” means the fortuitous melding of modern medicine with psychology that promises relief to thousands of poor, desperate souls who suffer the pains of emotional disorder.

17. “Gene” means the hereditary unit that occupies a fixed chromosomal locus, which through transcription has a specific effect on phenotype and which can mutate to various allelic forms.

18. “Subgression” means moving oneself and one’s family to a subterranean bomb shelter for the purpose of escaping nuclear attack.

19. “Intractable” means not easily governed; obstinate; unruly; not disposed to be taught.

20. “Recession” means, for purposes of the National Bureau of Economic Research, two consecutive quarters of negative growth in real GNP or in aggregate output for the entire economy.

21. “Gravity” means a force that results from the universal attraction that every particle of matter has for every other particle, and which varies directly with the mass of the particles and inversely with the square of the distance between them.

22. “Assault” means, for legal purposes, an intentional and unprivileged act resulting in the apprehension of an immediate harmful or offensive contact.

23. “Television” means the electronic medium that keeps an entire nation of viewers in a state of seminarcosis by feeding them a steady stream of inane drivel.

24. “Obelisk” means an upright, four-sided pillar that terminates in a pyramid; a dagger.

25. “Aeromobile” means a vehicle that is normally driven on the ground but that has the capability of flying through the air to avoid traffic congestion.
II. The following exercises involve constructing definitions:

1. Invent stipulative definitions for two new words that you wish to introduce into the language for the first time.
2. Construct lexical definitions for “capital” and “depression,” and indicate two different meanings for each.
3. Construct precising definitions for “middle-aged” and “alcoholic.” Interpret both words as relating to people and specify the purpose for which the definitions are to be used.
4. Construct theoretical definitions for “energy” and “atom.”
5. Construct opposing pairs of persuasive definitions for “conservative” and “socialism.”

III. Answer “true” or “false” to the following statements:

1. From the standpoint of logic, many definitions are concerned not with words but with things.
2. The definiendum is the word or term that is supposed to be defined.
3. The definiens is the word or group of words that assigns a meaning to the word being defined.
4. A stipulative definition is either true or false.
5. A lexical definition reports the way a word is actually used in a language.
6. One of the purposes of a lexical definition is to guard against the ambiguous use of a word.
7. The meaning given to a word by a precising definition is completely arbitrary.
8. Theoretical definitions are either true or false, just as are lexical definitions.
9. Theoretical definitions provide a theoretical characterization of the entity or entities denoted by the word being defined.
10. The purpose of a persuasive definition is to influence attitudes.

### 2.4 Definitional Techniques

In the last section we presented a survey of some of the kinds of definitions actually in use and the functions they are intended to serve. In this section we will investigate some of the techniques used to produce these definitions. These techniques may be classified in terms of the two kinds of meaning, intensional and extensional, discussed in Section 2.2.

#### Extensional (Denotative) Definitions

An extensional definition is one that assigns a meaning to a term by indicating the members of the class that the definiendum denotes. There are at least three ways of indi-
cating the members of a class: pointing to them, naming them individually, and naming them in groups. The three kinds of definitions that result are called, respectively, demonstrative or ostensive definitions, enumerative definitions, and definitions by subclass.

**Demonstrative (ostensive) definitions** are probably the most primitive form of definition. All one need know to understand such a definition is the meaning of pointing. As the following examples illustrate, such definitions may be either partial or complete, depending on whether all or only some of the members of the class denoted by the definiendum are pointed to:

"Chair" means this and this and this—as you point to a number of chairs, one after the other.

"Washington Monument" means that—as you point to it.

If you were attempting to teach a foreigner your own native language, and neither of you understood a word of each other’s language, demonstrative definition would almost certainly be one of the methods you would use.

Because demonstrative definitions are the most primitive, they are also the most limited. In addition to the limitations affecting all extensional definitions (which will be discussed shortly), there is the obvious limitation that the required objects be available for being pointed at. For example, if one wishes to define the word “sun” and it happens to be nighttime, or the word “dog” and none happens to be in the vicinity, a demonstrative definition cannot be used.

Demonstrative definitions differ from the other kinds of definitions in that the definiens is constituted at least in part by a gesture—the gesture of pointing. Since the definiens in any definition is a group of words, however, a gesture, such as pointing, must count as a word. While this conclusion may appear strange at first, it is supported by the fact that the “words” in many sign languages consist exclusively of gestures.

**Enumerative definitions** assign a meaning to a term by naming the members of the class the term denotes. Like demonstrative definitions, they may also be either partial or complete. Examples:

"Actress" means a person such as Nicole Kidman, Emma Thompson, or Demi Moore.

"Baltic state" means Estonia, Latvia, or Lithuania.

Complete enumerative definitions are usually more satisfying than partial ones because they identify the definiendum with greater assurance. Relatively few classes, however, can be completely enumerated. Many classes, such as the class of real numbers greater than 1 but less than 2, have an infinite number of members. Others, such as the class of stars and the class of persons, while not infinite, have still too many members to enumerate. Therefore, anything approximating a complete enumerative definition of terms denoting these classes is clearly impossible. Then there are others—the class of insects and the class of trees, for example—the vast majority of whose members have no names. For terms that denote these classes, either a demonstrative definition or a definition by subclass is the more appropriate choice.
A definition by subclass assigns a meaning to a term by naming subclasses of the class denoted by the term. Such a definition, too, may be either partial or complete, depending on whether the subclasses named, when taken together, include all the members of the class or only some of them. Examples:

“Tree” means an oak, pine, elm, spruce, maple, and the like.

“Flower” means a rose, lily, daisy, geranium, zinnia, and the like.

“Cetacean” means either a whale, a dolphin, or a porpoise.

“Fictional work” means either a poem, a play, a novel, or a short story.

The first two are partial, the second two complete. As with definitions by enumeration, complete definitions by subclass are more satisfying than partial ones; but because relatively few terms denote classes that admit of a conveniently small number of subclasses, complete definitions by subclass are often difficult, if not impossible, to provide.

Extensional definitions are chiefly used as techniques for producing lexical and stipulative definitions. Lexical definitions are aimed at communicating how a word is actually used, and one of the ways of doing so is by identifying the members of the class that the word denotes. Dictionaries frequently include references to the individual members (or to the subclasses) of the class denoted by the word being defined. Sometimes they even include a kind of demonstrative definition when they provide a picture of the object that the word denotes. Not all lexical definitions have to occur in dictionaries, however. A lexical definition can just as well be spoken, as when one person attempts to explain orally to another how a word is used in a language. Such attempts, incidentally, often have recourse to all three kinds of extensional definition.

Stipulative definitions are used to assign a meaning to a word for the first time. This task may be accomplished by all three kinds of extensional definition. For example, a biologist engaged in naming and classifying types of fish might assign names to the specific varieties by pointing to their respective tanks (demonstrative definition), and then she might assign a class name to the whole group by referring to the names of the specific varieties (definition by subclass). An astronomer might point via his telescope to a newly discovered comet and announce, “That comet will henceforth be known as ‘Henderson’s Comet’” (demonstrative definition). The organizer of a children’s game might make the stipulation: “John, Mary, and Billy will be called ‘Buccaneers;’ and Judy, George, and Nancy will be ‘Pirates’” (enumerative definition).

Although it is conceivable that extensional definitions could also serve as techniques for theoretical and persuasive definitions (though this would be highly unusual), extensional definitions by themselves cannot properly serve as precising definitions for the following reason. The function of a precising definition is to clarify a vague word, and vagueness is a problem affecting intensional meaning. Because the intension is imprecise, the extension is indefinite. To attempt to render the intension precise by exactly specifying the extension (as with an extensional definition) would be tantamount to having extension determine intension—which cannot be done.
The principle that intension determines extension, whereas the converse is not true, underlies the fact that all extensional definitions suffer serious deficiencies. For example, in the case of the demonstrative definition of the word “chair,” if all the chairs pointed to are made of wood, observers might get the idea that “chair” means “wood” instead of something to sit on. Similarly, they might get the idea that “Washington Monument” means “tall” or “pointed” or any of a number of other things. From the definition of “actress,” readers or listeners might think that “actress” means “woman”—which would include countless individuals who have nothing to do with the stage or screen. From the definition of “tree” they might get the idea that “tree” means “firmly planted in the ground,” which would also include the pilings of a building. And they might think that “cetacean” means “aquatic animal,” which includes salmon, tuna, squid, manatees, and so on. In other words, it makes no difference how many individuals or subclasses are named in an extensional definition, there is no assurance that listeners or readers will get the intensional meaning. Extensions can suggest intensions, but they cannot determine them.

**Intensional (Connotative) Definitions**

An intensional definition is one that assigns a meaning to a word by indicating the qualities or attributes that the word connotes. Because at least four strategies may be used to indicate the attributes a word connotes, there are at least four kinds of intensional definitions: synonymous definition, etymological definition, operational definition, and definition by genus and difference.

A synonymous definition is one in which the definiens is a single word that connotes the same attributes as the definiendum. In other words, the definiens is a synonym of the word being defined. Examples:

- “Physician” means doctor.
- “Intentional” means willful.
- “Voracious” means ravenous.
- “Observe” means see.

When a single word can be found that has the same intensional meaning as the word being defined, a synonymous definition is a highly concise way of assigning a meaning. Many words, however, have subtle shades of meaning that are not connoted by any other single word. For example, the word “wisdom” is not exactly synonymous with either “knowledge,” “understanding,” or “sense”; and “envious” is not exactly synonymous with either “jealous” or “covetous.”

An etymological definition assigns a meaning to a word by disclosing the word’s ancestry in both its own language and other languages. Most ordinary English words have ancestors either in old or middle English or in some other language such as Greek, Latin, or French, and the current English meaning (as well as spelling and pronunciation) is often closely tied to the meaning (and spelling and pronunciation) of these ancestor words. For example, the English word “license” is derived from the Latin verb *licere,*
which means to be permitted, and the English word “captain” derives from the Latin noun caput which means head.

Etymological definitions have special importance for at least two reasons. The first is that the etymological definition of a word often conveys the word’s root meaning or seminal meaning from which all other associated meanings are derived. Unless one is familiar with this root meaning, one often fails to place other meanings in their proper light or to grasp the meaning of the word when it is used in its most proper sense. For example, the word “principle” derives from the Latin word principium, which means beginning or source. Accordingly, the “principles of physics” are those fundamental laws that provide the “source” of the science of physics. The English word “efficient” derives from the Latin verb efficere, which means to bring about. Thus, the “efficient cause” of something (such as the motion of a car) is the agent that actually brings that thing about (the engine).

The second reason for the importance of etymological definitions is that if one is familiar with the etymology of one English word, one often has access to the meaning of an entire constellation of related words. For example, the word “orthodox” derives from the two Greek words ortho, meaning right or straight, and doxa, meaning belief or opinion. From this, one might grasp that “orthopedic” has to do with straight bones (originally in children—pais in Greek means child), and that “orthodontic” has to do with straight teeth (odon in Greek means tooth). Similarly, if one is familiar with the etymological definition of “polygon” (from the Greek words poly, meaning many, and ganos meaning angle), one might grasp the meanings of “polygamy” (from gamos, meaning marriage) and “polygraph” (from graphein, meaning to write). A polygraph is a lie detector that simultaneously records pulse rate, blood pressure, respiration, and so on.

An operational definition assigns a meaning to a word by specifying certain experimental procedures that determine whether or not the word applies to a certain thing. Examples:

One substance is “harder than” another if and only if one scratches the other when the two are rubbed together.

A subject has “brain activity” if and only if an electroencephalograph shows oscillations when attached to the subject’s head.

A “potential difference” exists between two conductors if and only if a voltmeter shows a reading when connected to the two conductors.

A solution is an “acid” if and only if litmus paper turns red when dipped into it.

Each of these definitions prescribes an operation to be performed. The first prescribes that the two substances in question be rubbed together, the second that the electroencephalograph be connected to the patient’s head and observed for oscillations, the third that the voltmeter be connected to the two conductors and observed for deflection, and the fourth that the litmus paper be placed in the solution and observed for color change. Unless it specifies such an operation, a definition cannot be an operational definition. For example, the definition “A solution is an ‘acid’ if and only if it has a pH of
less than 7," while good in other respects, is not an operational definition because it
prescribes no operation.

Operational definitions were invented for the purpose of tying down relatively ab-
stract concepts to the solid ground of empirical reality. In this they succeed fairly well;
yet, from the standpoint of ordinary language usage, they involve certain deficiencies.
One of these deficiencies concerns the fact that operational definitions usually convey
only part of the intensional meaning of a term. Certainly “brain activity” means more
than oscillations on an electroencephalograph, just as “acid” means more than blue
litmus paper turning red. This deficiency becomes more acute when one attempts to
apply operational definitions to terms outside the framework of science. For example,
no adequate operational definition could be given for such words as “love,” “respect,”
“freedom,” and “dignity.” Within their proper sphere, however, operational definitions
are quite useful and important. It is interesting to note that Einstein developed his spe-
cial theory of relativity in partial response to the need for an operational definition
of simultaneity.

A definition by genus and difference assigns a meaning to a term by identifying a
genus term and one or more difference words that, when combined, convey the meaning
of the term being defined. Definition by genus and difference is more generally applica-
able and achieves more adequate results than any of the other kinds of intensional defini-
tion. To explain how it works, we must first explain the meanings of the terms “genus,”
“species,” and “specific difference.”

In logic, “genus” and “species” have a somewhat different meaning than they have in
biology. In logic, “genus” simply means a relatively larger class, and “species” means a
relatively smaller subclass of the genus. For example, we may speak of the genus animal
and the species mammal, or of the genus mammal and the species feline, or of the genus
feline and the species tiger, or the genus tiger and the species Bengal tiger. In other
words, genus and species are merely relative classifications.

The “specific difference,” or “difference,” for short, is the attribute or attributes that
distinguish the various species within a genus. For example, the specific difference
that distinguishes tigers from other species in the genus feline would include the at-
tributes of being large, striped, ferocious, and so on. Because the specific difference is
what distinguishes the species, when a genus is qualified by a specific difference, a
species is identified. Definition by genus and difference is based on this fact. It consists
of combining a term denoting a genus with a word or group of words connoting a
specific difference so that the combination identifies the meaning of the term denoting
the species.

Let us construct a definition by genus and difference for the word “ice.” The first
step is to identify a genus of which ice is the species. The required genus is water.
Next we must identify a specific difference (attribute) that makes ice a special form of
water. The required difference is frozen. The completed definition may now be written
out:

<table>
<thead>
<tr>
<th>Species</th>
<th>Difference</th>
<th>Genus</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Ice&quot;</td>
<td>means</td>
<td>frozen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>water</td>
</tr>
</tbody>
</table>
A definition by genus and difference is easy to construct. Simply select a term that is more general than the term to be defined, then narrow it down so that it means the same thing as the term being defined. Examples:

<table>
<thead>
<tr>
<th>Species</th>
<th>Difference</th>
<th>Genus</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Daughter&quot;</td>
<td>female</td>
<td>offspring.</td>
</tr>
<tr>
<td>&quot;Husband&quot;</td>
<td>married</td>
<td>man.</td>
</tr>
<tr>
<td>&quot;Doe&quot;</td>
<td>female</td>
<td>deer.</td>
</tr>
<tr>
<td>&quot;Fawn&quot;</td>
<td>very young</td>
<td>deer.</td>
</tr>
<tr>
<td>&quot;Skyscraper&quot;</td>
<td>very tall</td>
<td>building.</td>
</tr>
</tbody>
</table>

Other examples are more sophisticated:

"Tent" means a collapsible shelter made of canvas or other material that is stretched and sustained by poles.

"Tent" is the species, "shelter" is the genus, and "collapsible" and "made of canvas..." the difference.

Definition by genus and difference is the most effective of the intensional definitions for producing the five kinds of definition discussed in Section 2.3. Stipulative, lexical, precising, theoretical, and persuasive definitions can all be constructed according to the method of genus and difference. Lexical definitions are typically definitions by genus and difference, but they also often include etymological definitions. Operational definition can serve as the method for constructing stipulative, lexical, precising, and persuasive definitions, but because of the limitations we have noted, it typically could not be used to produce a complete lexical definition. Other techniques would have to be used in addition. Synonymous definition may be used to produce only lexical definitions. Since, in a synonymous definition, the definiendum must have a meaning before a synonym can be found, this technique cannot be used to produce stipulative definitions, and the fact that the definiens of such a definition contains no more information than the definiendum prohibits its use in constructing precising, theoretical, and persuasive definitions.

This account of definitions is inevitably incomplete. At the beginning of the chapter we mentioned that all words—not just terms—stand in need of definitions, but the account given here is based on the intension and extension of terms. Nevertheless, many of the techniques developed here can be applied to words in general, and even to symbols. For example, in Chapters 6 and 8 we will present definitions of various symbols that are used in modern logic to connect one statement with another and to translate ordinary language statements into symbolic form. When these symbols were introduced many years ago, it was accomplished through stipulative definitions. Also, as we will see in Chapter 6, some of these symbols are defined by certain tables, called "truth tables," which establish each symbol’s meaning under all possible arrangements of truth values. These definitions are probably best described as extensional, and they are similar in some ways to demonstrative definitions and enumerative definitions.

The applicability of the seven definitional techniques in producing the five kinds of definition is summarized in Table 2.1.
Table 2.1 Correlation of Definitional Techniques with Types of Definition

<table>
<thead>
<tr>
<th>This technique</th>
<th>Stipulative</th>
<th>Lexical</th>
<th>Precising</th>
<th>Theoretical</th>
<th>Persuasive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrative</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>(unusual)</td>
<td>(unusual)</td>
</tr>
<tr>
<td>Enumerative</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>(unusual)</td>
<td>(unusual)</td>
</tr>
<tr>
<td>Subclass</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>(unusual)</td>
<td>(unusual)</td>
</tr>
<tr>
<td>Synonymous</td>
<td>no</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Etymological</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Operational</td>
<td>(limited)</td>
<td>yes</td>
<td>yes</td>
<td>(unusual)</td>
<td>(unusual)</td>
</tr>
<tr>
<td>Genus &amp; Difference</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

EXERCISE 2.4

1. Determine whether the following are demonstrative definitions, enumerative definitions, definitions by subclass, synonymous definitions, etymological definitions, operational definitions, or definitions by genus and difference.

   ✪ 1. “Plant” means something such as a tree, a flower, a vine, or a cactus.
   2. “Hammer” means a tool used for pounding.
   3. A triangle is “equilateral” if and only if a compass, when placed sequentially on two vertices and properly adjusted, strikes through the other two vertices.
   ✪ 4. “State” means something such as Ohio, Arkansas, Minnesota, and Tennessee.
   5. “Angel” is a word that originates from the Greek word angelos, which means messenger.
   ✪ 7. “House” means this: 🏡
   9. “Dessert” means something such as pie, cake, cookies, or ice cream sundaes.
   ✪ 10. “Hot” means, for an electric iron, that your wetted finger sizzles when placed momentarily in contact with it.
   11. “Universe” originates from the Latin word universus, which means whole or entire.
   12. “Mountain” means something such as Everest, Rainier, Whitney, or McKinley.
   ✪ 13. “Hurricane” means a storm having winds of at least 73 miles per hour that originates at sea.
   14. A substance is “translucent” if and only if when held up to a strong light some of the light comes through.
   15. “Insect” means something such as a fly, an ant, a wasp, or a caterpillar.
16. “Poignant” is a word derived from the Latin word *pungere*, which means to prick, pierce, or sting.

17. “Facade” means face.

18. “Prime number” means a number greater than one that is divisible only by itself and one.

19. “Language means something such as French, German, Spanish, English, and so on.

20. “Tree” means this, and this, and this (as you point to a number of trees).


22. “Rapier” means sword.

23. An “electric current” flows in a circuit if and only if an ammeter connected in series with the circuit shows a reading.

24. “Philosopher” means someone such as Plato, Aristotle, Descartes, or Kant.

25. “Professional person” means a person such as a doctor, a lawyer, a professor, or an architect.


27. “Tale” is a word that derives from the Old English word *talu*, which means talk.

28. “Truck” means a vehicle used for hauling.

29. “Done” means, in reference to a baking cake, that a wooden toothpick poked into the center comes out clean.

30. “Musical composition” means something such as a symphony, a concerto, a sonata, or a toccata.

II. The following exercises involve constructing definitions.

1. Construct a partial enumerative definition for the following terms by naming three members of the class the term denotes. Then find a nonsynonymous term that these members serve equally well to define. Example: “Poet” means a person such as Wordsworth, Coleridge, or Shelley. A nonsynonymous term is “Englishman.”
   a. skyscraper
   b. corporation
   c. island
   d. composer
   e. novel

2. Construct a complete enumerative definition for the following terms:
   a. ocean
   b. continent

3. Construct a definition by subclass for the following terms by naming three subclasses of the class the term denotes. Then find a nonsynonymous term that these subclasses serve equally well to define.
4. Construct a complete definition by subclass for the following terms:
   a. quadrilateral
   b. circulating American coin

5. Construct synonymous definitions for the following terms:
   a. intersection
   b. fabric
   c. nucleus
   d. abode
   e. wedlock
   f. cellar
   g. summit
   h. apparel

6. Construct operational definitions for the following words:
   a. genius
   b. ferromagnetic
   c. fluorescent
   d. alkaline
   e. polarized (light)

7. Construct definitions by genus and difference for the following terms. In each definition identify the genus term.
   a. drake
   b. biologist
   c. felony
   d. widow
   e. library

8. Consult a dictionary to find the etymological roots of the following words, and then explain how they relate to the conventional meaning of these words.
   a. morphology
   b. isomorphic
   c. isotropic
   d. phototropic
   e. photography
III. Answer “true” or “false” to the following statements:

1. The technique of extensional definition may be used to produce precising definitions.

2. The technique of extensional definition may be used to produce stipulative and lexical definitions.

3. Most extensional definitions convey the precise intensional meaning of a term.

4. An intensional definition conveys the meaning of a term by indicating the members of the class the term denotes.

5. In a synonymous definition the definiens must be a single word.

6. The technique of synonymous definition may be used to construct precising definitions.

7. Operational definitions typically convey the entire intensional meaning of a word.

8. The species is a subclass of the genus.

9. The specific difference is an attribute or set of attributes that identifies a species.

10. Definition by genus and difference may be used to produce stipulative, lexical, precising, theoretical, and persuasive definitions.

### 2.5 Criteria for Lexical Definitions

Because the function of a lexical definition is to report the way a word is actually used in a language, lexical definitions are the ones we most frequently encounter and are what most people mean when they speak of the “definition” of a word. Accordingly, it is appropriate that we have a set of rules that we may use in constructing lexical definitions of our own and in evaluating the lexical definitions of others. While some of these rules apply to the other kinds of definitions as well, the unique functions that are served by stipulative, precising, theoretical, and persuasive definitions prescribe different sets of criteria.

**Rule 1: A Lexical Definition Should Conform to the Standards of Proper Grammar**

A definition, like any other form of expression, should be grammatically correct. Examples of definitions that are grammatically *incorrect* are as follows:
Vacation is when you don’t have to go to work or school.
Furious means if you’re angry at someone.
Cardiac is like something to do with the heart.

The corrected versions are:

“Vacation” means a period during which activity is suspended from work or school.
“Furious” means a condition of being angry.
“Cardiac” means pertaining to, situated near, or acting on the heart.

Technically the definiendum should be put in quotation marks or italics, but this convention is not always followed.

Rule 2: A Lexical Definition Should Convey the Essential Meaning of the Word Being Defined

The word “human” is occasionally defined as featherless biped. Such a definition fails to convey the essential meaning of “human” as the word is used in ordinary English. It says nothing about the important attributes that distinguish humans from the other animals, namely, the capacity to reason and to use language on a sophisticated level. A more adequate definition would be “‘human’ means the animal that has the capacity to reason and to speak.”

If a lexical definition is to be given in terms of an operational definition or in terms of any of the forms of extensional definition, it should usually be supplemented by one of the other forms of intensional definition, preferably definition by genus and difference. As we have noted, from the standpoint of ordinary language usage an operational definition often conveys only part of the intensional meaning of a word, and this part frequently misses the essential meaning altogether. As for extensional definitions, at best they can only suggest the essential meaning of a word; they cannot determine it precisely. As a result, no adequate lexical definition can consist exclusively of extensional definitions.

Rule 3: A Lexical Definition Should Be Neither Too Broad nor Too Narrow

If a definition is too broad, the definiens includes too much; if it is too narrow, the definiens includes too little. If, for example, “bird” were defined as any warm-blooded animal having wings, the definition would be too broad because it would include bats, and bats are not birds. If, on the other hand, “bird” were defined as any warm-blooded, feathered animal that can fly, the definition would be too narrow because it would exclude ostriches, which cannot fly.

The only types of lexical definitions that tend to be susceptible to either of these deficiencies are synonymous definitions and definitions by genus and difference. With synonymous definitions, one must be careful that the definiens really is a synonym of the definiendum. For example, the definition “‘king’ means ruler” is too broad because many rulers are not kings. “Ruler” is not genuinely synonymous with “king.” As for definitions
by genus and difference, one must ensure that the specific difference narrows the genus in exactly the right way. Both of the above definitions of “bird” are definitions by genus and difference in which the specific difference fails to restrict the genus in exactly the right manner.

**Rule 4: A Lexical Definition Should Avoid Circularity**

Sometimes the problem of circularity appears in connection with pairs of definitions. The following pair is circular:

- “Science” means the activity engaged in by scientists.
- “Scientist” means anyone who engages in science.

At other times a definition may be intrinsically circular. Of the following, the first is a synonymous definition, the second a definition by genus and difference:

- “Quiet” means quietude.
- “Silence” means the state of being silent.

Certain operational definitions also run the risk of circularity:

- “Time” means whatever is measured by a clock.

Surely a person would have to know what “time” means before he or she could understand the purpose of a clock.

**Rule 5: A Lexical Definition Should Not Be Negative When It Can Be Affirmative**

Of the following two definitions, the first is affirmative, the second negative:

- “Concord” means harmony.
- “Concord” means the absence of discord.

Some words, however, are intrinsically negative. For them, a negative definition is quite appropriate. Examples:

- “Bald” means lacking hair.
- “Darkness” means the absence of light.

**Rule 6: A Lexical Definition Should Avoid Figurative, Obscure, Vague, or Ambiguous Language**

A definition is *figurative* if it involves metaphors or tends to paint a picture instead of exposing the essential meaning of a term. Examples:

- “Architecture” means frozen music.
- “Camel” means a ship of the desert.
A definition is **obscure** if its meaning is hidden as a result of defective or inappropriate language. One source of obscurity is overly technical language. Compare these two definitions:

"Bunny" means a mammalian of the family Leporidae of the order Lagomorpha whose young are born furless and blind.

"Bunny" means a rabbit.

The problem lies not with technical language as such but with needlessly technical language. Because “bunny” is very much a nontechnical term, no technical definition is needed. On the other hand, some words are intrinsically technical, and for them only a technical definition will suffice. Example:

"Neutrino" means a quasi-massless lepton obeying Fermi-Dirac statistics and having one-half quantum unit of spin.

A definition is **vague** if it lacks precision or if its meaning is blurred—that is, if there is no way of telling exactly what class of things the definiens refers to. Example:

"Democracy" means a kind of government where the people are in control.

This definition fails to identify the people who are in control, how they exercise their control, and what they are in control of.

A definition is **ambiguous** if it lends itself to more than one distinct interpretation. Example:

"Triangle" means a figure composed of three straight lines in which all the angles are equal to $180^\circ$.

Does this mean that each angle separately is equal to $180^\circ$ or that the angles taken together are equal to $180^\circ$? Either interpretation is possible given the ambiguous meaning of “all the angles are equal to $180^\circ$.”

**Rule 7: A Lexical Definition Should Avoid Affective Terminology**

Affective terminology is any kind of word usage that plays upon the emotions of the reader or listener. It includes sarcastic and facetious language and any other kind of language that is liable to influence attitudes. Examples:

"Communism" means that “brilliant” invention of Karl Marx and other foolish political visionaries in which the national wealth is supposed to be held in common by the people.

"Theism" means belief in that great Santa Claus in the sky.

The second example also violates Rule 5 because it contains a metaphor.

**Rule 8: A Lexical Definition Should Indicate the Context to Which the Definiens Pertains**

This rule applies to any definition in which the context of the definiens is important to the meaning of the definiendum. For example, the definition “‘Deuce’ means a tie in
points toward a game or in games toward a set” is practically meaningless without any reference to tennis. Whenever the definiendum is a word that means different things in different contexts, a reference to the context is important. Examples:

"Strike" means (in baseball) a pitch at which a batter swings and misses.
"Strike" means (in bowling) the act of knocking down all the pins with the first ball of a frame.
"Strike" means (in fishing) a pull on a line made by a fish in taking the bait.

It is not always necessary to make explicit reference to the context, but at least the phraseology of the definiens should indicate the context.

EXERCISE 2.5

CRITICIZE THE FOLLOWING DEFINITIONS IN LIGHT OF THE EIGHT RULES FOR LEXICAL DEFINITIONS:

1. A sculpture is a three-dimensional image made of marble.
2. "Elusory" means elusive.
3. “Develop” means to transform by the action of chemicals.
4. A cynic is a person who knows the price of everything and the value of nothing.
   (Oscar Wilde)
5. “Semantics” is when somebody studies words.
6. A dustbuster is a handheld, battery-powered device made of plastic that produces a buzzing sound when the switch is actuated.
7. A theist is anyone who is not an atheist or an agnostic.
8. “Intelligence” means whatever is measured by an IQ test.
9. A symphony is a musical piece written for full orchestra.
10. Feminism is a militant movement originated by a group of deviant women for the purpose of undermining the natural distinction between the sexes.
11. A radio is an electronic device consisting of an antenna, variable-frequency oscillator, and mixer circuitry operating in conjunction with RF, IF, and AF amplification stages, the last of which feeds an AF transducer.
12. Logic is the study of arguments including definitions.
13. “Truculent” is if you’re cruel or fierce.
14. A house is a structure made of wood or stone intended for human habitation.
15. Satire is a kind of glass, wherein beholders do generally discover everybody’s face but their own.
   (Jonathan Swift)
16. A carpenter’s square is a square used by a carpenter.
17. “Safety” means a play in which a player grounds the ball behind his own goal line when the ball was caused to cross the goal line by his own team.
18. Puberty: the time in life in which the two sexes begin first to be acquainted.
   (Johnson’s Dictionary)
19. “Normal” means an attribute possessed by people who are able to get on in the world.

20. An organic substance is any substance that is not inorganic.

21. Faith is the bird that sings when the dawn is still dark. 
   (Rabindranath Tagore)

22. “Schooner” means sort of like a sailboat.

23. “Faith” means reason succumbing to insecurity.

24. “Gammon” means, in backgammon, a victory in which one player defeats another before he can remove any of his men from the board.

25. A cello is a stringed musical instrument played with a bow.

26. Tobacco is a plant grown in the southeastern United States that, when enjoyed in the form of cigars and cigarettes, produces a most delightful and satisfying taste and aroma.

27. History is the unfolding of miscalculations. 
   (Barbara Tuchman)

28. “Camera” means a device for taking photographs.

29. “Photograph” means an image produced by the combined action of electromagnetic radiation in the range of 4000 to 7000 Angstroms and certain organic reducing agents such as diaminophenol hydrochloride on silver halide particles affixed to a backing material of high alpha cellulose content.

   (Johnson’s Dictionary)

31. “Anchor person” means an electronic media guru who has great looks but less than average intelligence and who brings canned news to people incapable of reading a newspaper.

32. “Diet” means like when you cut back on your calories.

33. Animal: a living creature corporeal, distinct, on the one side, from pure spirit, on the other, from pure matter. 
   (Johnson’s Dictionary)

34. “Pen” means an instrument used for writing on paper.

35. Wine is an alcoholic beverage made from grapes.

Summary

Terminology that conveys information is said to have cognitive meaning, and terminology that expresses or evokes feelings is said to have emotive meaning. Statements expressed in emotive terminology often make value claims; when these statements occur in arguments, it is appropriate to disengage the value claims from the emotive language and express them as separate premises. Two ways in which cognitive meanings can be
defective are vagueness and ambiguity. Vagueness involves a blur of meaning, whereas ambiguity involves a mix-up of otherwise clear meanings.

A term is a word or group of words that can serve as the subject of a statement. All terms have intensional meaning (intension or connotation), and those terms that refer to actually existing things also have extensional meaning (extension or denotation). The intensional meaning of a term consists of the attributes that the term connotes, and the extensional meaning consists of the members of the class that the term denotes. Terms that refer to nonexistent things are said to have empty extension.

A definition is a group of words that assigns a meaning to a word or group of words. The definiendum is the word or group of words being defined, and the definiens is the word or group of words that does the defining. Because definitions can serve different purposes, there are different kinds of definitions. Stipulative definitions assign a meaning to a word when it first comes into use, lexical definitions report the meaning that a word already has within a given linguistic community, precising definitions reduce the vagueness of a word, theoretical definitions suggest a theory that gives a certain characterization to the entities that the term denotes, and persuasive definitions are used to influence the attitude of people in the community toward the things the word denotes.

The two kinds of meaning that words have, intensional and extensional, can be used as the basis for producing definitions. Extensional definitions assign a meaning to a word by identifying the things that the word denotes, and intensional definitions accomplish the same purpose by identifying the attributes that the word connotes.

Among the extensional definitions, demonstrative definitions “point” to the things in question, enumerative definitions name various individuals in the class, and definitions by subclass identify subclasses of those things. Among the intensional definitions, synonymous definitions equate the word being defined with another word that connotes the same attributes, etymological definitions disclose the word’s ancestry, operational definitions specify experimental procedures for determining whether the word applies to a certain thing, and definitions by genus and difference identify a larger class of things and then narrow it down so that it matches the class that the word refers to.

There are rules that govern the construction of lexical definitions. Such definitions should conform to grammatical standards, convey the essential meaning of the word being defined, be neither too broad nor too narrow, avoid circularity, avoid negative, figurative, obscure, vague, ambiguous, and affective language, and indicate the context to which the defininiens pertains.