Good definitions are plainly very helpful in eliminating verbal disputes, but there are other uses of definition that are important in logic. Before distinguishing these uses, one feature of all definitions must be emphasized: Definitions are definitions of symbols (not of objects), because only symbols have the meanings that definitions may explain. To illustrate, we can define the word “chair” because it has meaning; but a chair itself we cannot define. We can sit on a chair, or paint it, or burn it, or describe it—but we cannot define it because an actual chair is not a symbol that has a meaning to be explained. Sometimes we say, misleadingly, that the thing is being defined; in fact, what we define are always symbols.

Two commonly used technical terms are useful in discussing definitions. The **definiendum** is the symbol being defined. The **definiens** is the symbol (or group of symbols) used to explain the meaning of the definiendum. Put otherwise, the definiendum is the term to be defined, the definiens is the definition of it. However, it would be a mistake to say that the definiens is the meaning of the definiendum—rather, it is another symbol (or group of symbols) that has the same meaning as the definiendum.

With this preface, we may say that definitions, depending on how they are used, are of five kinds: (1) stipulative, (2) lexical, (3) precising, (4) theoretical, and (5) persuasive. We shall consider each in turn:

## A. STIPULATIVE DEFINITIONS

A definition that has a meaning that is deliberately assigned to some symbol is called a **stipulative definition**. One who introduces a new symbol is free to assign to it, or stipulate, whatever meaning she cares to. Even an old term put into a new context may have its meaning stipulated. Definitions of this sort are sometimes called *nominal*.

Why introduce a term by stipulation? Many reasons can justify doing so. It may simply be convenient; one word may stand for many words in a message. It may protect secrecy, if the sender and the receiver are the only persons who understand the stipulation. It may advance economy of expression. In the sciences, new symbols are often defined by stipulation to mean what has been meant by a long sequence of familiar words, thus saving time and increasing clarity. Many numbers that would be cumbersome to write out, for example, have been given names by stipulation: The number equal to a billion trillions \((10^{21})\) has been named a “zeta,” and the number equal to a trillion trillions \((10^{24})\) is called a “yotta.”

Some stipulative definitions are introduced in science to free the investigator from the distractions of the emotive associations of more familiar terms. In modern psychology, for example, the word “intelligence” is widely replaced by Spearman’s “g factor”—a term intended to convey the same descriptive meaning without any emotional baggage. Excitement and interest may also be provided by introducing a catchy new term, as when “black hole” was introduced to replace “gravitationally completely collapsed star.” The word “quark,” now widely used in physics, was introduced by the physicist Murray Gell-Mann in 1963 to name a type of subatomic particle about which he had been theorizing. In philosophy, Charles Sanders Pierce had long referred to his philosophy as “pragmatism,” but when that word came to be used carelessly he stipulated that his views would henceforth be known as “pragmaticism”—a word that is ugly enough, he said, that no one would want to steal it!

A stipulative definition is neither true nor false; it is neither accurate nor inaccurate. A symbol defined by a stipulative definition did not have that meaning before it was given that meaning by the definition, so the definition cannot be a report of the term’s meaning. For anyone who accepts the stipulative definition, the definiendum and the definiens have the same meaning; that is a consequence of the definition, not a fact asserted by it. A stipulative definition is a proposal (or a resolution or a request or an instruction) to use the definiendum to mean what is meant by the definiens. Such a definition is therefore directive rather than informative. Proposals may be rejected, requests refused, instructions disobeyed—but they can be neither true nor false.

Stipulative definitions may be evaluated as useful in advancing some purpose, or as useless because they are too complex or unclear, but they cannot resolve genuine disagreements. By reducing the emotive role of language, however, and by simplifying discourse, they can help to prevent fruitless conflict.

B. LEXICAL DEFINITIONS

Most often the term being defined has some established use. When the purpose of the definition is to explain that use, or to eliminate ambiguity, the definition is called lexical. A lexical definition reports a meaning the definiendum already has. That report may be correct, or incorrect—and therefore it is clear that a lexical definition may be either true or false. Thus the definition “the word ‘bird’ means any warm-blooded vertebrate with feathers” is true; that is a correct report of how the word “bird” is generally used by speakers of English. On the other hand, the definition “the word ‘bird’ means any two-footed mammal” is obviously false.
Mistakes in word usage are usually not so obvious. We may call muddy water “turgid” when we mean to say that it is “turbid”; the lexical definition of “turgid” is “swollen” or “pompous.” Some mistakes are downright funny, as when Mrs. Malaprop, a comically misspeaking character of the Restoration dramatist Richard Sheridan, gives the order to “illiterate him . . . from your memory” or uses the phrase “as headstrong as an allegory on the banks of the Nile.” Nor are such confusions always fictional. At a U.S. university not long ago, students defined “actuary” as “a home for birds,” and the definition of “duodenum” was given as “a number system in base 2.” Whether they are funny or sad, these are mistakes—incorrect reports of how English-speaking people use these words.

Here lies the central difference between lexical and stipulative definitions: Truth or falsity may apply to the former but not the latter. In a stipulative definition the definiendum has no meaning apart from (or before) the definition that introduces it, so that the definition cannot be true or false. But the definiendum of a lexical definition does have a prior and independent meaning, and therefore its definition may be true, or false, depending on whether that meaning is reported correctly or incorrectly.

What we here call a lexical definition has been referred to by some as a “real” definition—to indicate that the definiendum really does have the meaning identified. However, the question of whether the definiendum names any real or actually existing thing has nothing to do with whether the definition is lexical or stipulative. The definition “the word ‘unicorn’ means an animal like a horse but having a single straight horn projecting from its forehead” surely is a lexical definition, and a correct one; its definiendum means exactly what is meant by the definiens—but the definiendum in this case does not name or denote any existing thing, because there are no unicorns.

A qualification must be made at this point. Some definitions are indeed simply mistaken, but some uses that depart from what is normal may be better described as unusual or unorthodox. Word usage is a statistical matter, subject to variation over time—and therefore we cannot always specify “the” correct meaning of a term, but must give an account of its various meanings, as determined by the uses it has in actual speech and writing.

Some lexicographers try to overcome this variability by referring to “best” usage or “correct” usage. This effort cannot fully succeed, however, because “best” usage is also an inexact matter, measured by the number of prominent authors and speakers whose uses of the given term are in accord with that definition. Literary and academic uses of words lag behind changes in a living language, so definitions that report meanings accepted by some intellectual aristocracy are likely to be out of date. What is unorthodox at a given time may soon become commonplace. So lexical definitions
must not ignore the ways in which a term is used by great numbers of those who speak that language, because if lexical definitions are not true to actual usage, the reports they give will not be entirely correct. To take account of language growth, good dictionaries often indicate which meanings of words are “archaic” or “obsolete,” and which meanings are “colloquial” or “slang.”

With this qualification understood—that is, bearing in mind the variability of a living language—lexical definitions are in essence true or false, in the sense that they may be true to actual usage, or may fail to be true to it.

C. PRECISING DEFINITIONS

Some terms are ambiguous; some terms are vague. A term is ambiguous in a given context when it has more than one distinct meaning and the context does not make clear which meaning is intended. A term is vague when there are borderline cases to which the term might or might not apply. A word or a phrase—for example, “libel” or “freedom of speech”—may be both ambiguous and vague. Precising definitions are those used to eliminate ambiguity or vagueness.

Every term is vague to some degree, but excessive vagueness causes serious practical problems. This is particularly true in the law, where acts that are forbidden (or permitted) by some statute need to be sharply demarcated.

For example, as this is being written the precise meaning of the Second Amendment to the U.S. Constitution is being disputed in the federal courts. The Amendment reads:

“A well regulated militia, being necessary to the security of a free State, the right of the people to keep and bear Arms shall not be infringed.”

Many U.S. states have passed laws that prohibit handguns, and that require even lawfully owned guns to be kept in the home, unloaded and disassembled. Some appellate courts have struck down such laws as infringing the right to “bear arms.” If the Amendment refers only to military affairs, then the right to bear arms is a civic but not an individual right. If, on the other hand, the Amendment’s reference to a militia indicates only the purpose of the Amendment, while the right guaranteed is that of an individual “to keep and bear arms,” such laws are unconstitutional. A precising definition of the phrase “keep and bear arms” is surely needed, and is likely to be soon forthcoming from the Supreme Court of the United States.*

*In March 2007 a précising definition by the U.S. Supreme Court was made more likely when the Circuit Court of the District of Columbia decided the case of Parker v. District of Columbia, striking down some gun control laws as violations of the Second Amendment, viewed (in this decision) as being a guarantee of the right of individuals to keep and bear arms.
The vagueness of units of measurement in science is a serious problem. “Horsepower” for example, is commonly used in reporting the power of motors, but its vagueness invited commercial deception. To overcome that, a precise definition was needed. “One horsepower” is now defined precisely as “the power needed to raise a weight of 550 pounds by one foot in one second”—calculated to be equal to 745.7 watts.*

A meter is the internationally accepted unit of measure for distance. Originally it was defined, by stipulation, as one ten-millionth of the distance from one of the earth’s poles to the equator, and this was represented by a pair of carefully inscribed scratches on a metal bar made of platinum-iridium, kept in a vault near Paris, France. However, scientific research required more precision. A “meter” is now defined, precisely, as “the distance light travels in one 299,792,458th of a second.” Building on this, a “liter” is defined precisely as the volume of a cube having edges of 0.1 meter.

The vagueness of terms such as “horsepower” and “meter” cannot be eliminated by appealing to ordinary usage, because ordinary usage is not sufficiently exact. If it were, the terms would not have been vague. Therefore, borderline cases can be resolved only by going beyond the report of normal usage with the definition given. Such definitions are called precising definitions.

A precising definition differs from both lexical and stipulative definitions. It differs from stipulative definitions in that its definiendum is not a new term, but one whose usage is known, although unhappily vague. In constructing a precising definition, therefore, we are not free to assign to the definiendum any meaning we please. Established usage must be respected as far as possible, while making the known term more precise. Neither can a precising definition be a simple report, because it must go beyond established usage if the vagueness of the definiendum is to be reduced. How that is done—how the gaps in ordinary language are filled in—may indeed be a matter of outright stipulation.

Appellate court judges are often obliged to define some common terms more precisely. The definitions they provide are not mere stipulations, because even when the judges go beyond established usage, they will explain their reasons for the refinements being introduced. For example, unreasonable searches and seizures are forbidden by the Fourth Amendment of the U.S. Constitution, and evidence obtained though an unreasonable seizure is

*The power of one real horse—say, one weighing 600 kilograms (or 1323 pounds)—is much greater, estimated to be about equal to 18,000 watts! A 200-horsepower automobile, therefore, has approximately the power of ten real horses.
generally held to be inadmissible in court. But what is a “seizure”? Suppose a suspect, running from the police, throws away a packet of drugs, which is then confiscated. Have those drugs been seized? A precising definition was formulated by the U.S. Supreme Court to resolve this matter. A seizure, the Court concluded, must involve either the use of some physical force that restrains movement, or the assertion of authority (such as an order to stop) to which a subject yields. If the subject keeps running, no seizure has occurred; the packet of drugs he throws while running from the police therefore cannot be the product of an unreasonable seizure, and will be admissible as evidence.

The precise definitions of terms can be very important in the world of commerce. For example, is a sport utility vehicle (SUV) a car or a light truck? The fuel economy standards applied to “light trucks” are more lenient than those applied to “cars,” and therefore auto manufacturers must know the criteria that will be used by the U.S. Department of Transportation to define these categories precisely.

If a law is so vague that a citizen cannot be expected to be sure when he is disobeying it, it may be struck down by a court. U.S. Supreme Court Justice Thurgood Marshall long ago explained the need for precising definitions in law:

It is a basic principle of due process that an enactment is void for vagueness if its prohibitions are not clearly defined. Vague laws offend several important values. First . . . we insist that laws give the person of ordinary intelligence a reasonable opportunity to know what is prohibited, so that he may act accordingly. Vague laws may trap the innocent by not providing fair warning. Second, if arbitrary and discriminatory enforcement is to be prevented, law must provide explicit standards for those who apply them. A vague law impossibly delegates basic policy matters to policemen, judges, and juries for resolution on an ad hoc and subjective basis, with the attendant dangers of arbitrary and discriminatory application. Third . . . where a vague statute abuts upon sensitive areas of basic First Amendment freedoms, it operates to inhibit the exercise of those freedoms. Uncertain meanings inevitably lead citizens to “steer far wider of the unlawful zone” than if the boundaries of the forbidden areas were clearly marked.

This principle was applied in 1996 when a federal law making it illegal to transmit “indecent” or “patently offensive” materials on the Internet was struck down as impermissibly vague. To avoid such uncertainties, legislatures often preface the operative portions of a statute with a section called “definitions,” in which the precise meanings of key terms in that statute are spelled out. Similarly, in labor–management contracts, the terms setting forth the agreed-upon rules of the workplace will be very carefully defined. Precising definitions are conceptual instruments of wide importance.
D. THEORETICAL DEFINITIONS

In science, and in philosophy, definitions often serve as a compressed summary, or recapitulation, of some theory. Such definitions, when they are faulty, are criticized not so much because they are not precise as because they are not adequate—they do not correctly encapsulate the theory in question.

How, for example, should we define the word “planet”? For many years it was believed with little controversy, and all children were taught, that planets are simply bodies in orbit around the sun and that there are nine planets in the solar system—of which the smallest is Pluto, made of unusual stuff, with an unusual orbit, and most distant from the Sun. But other bodies, larger than Pluto and oddly shaped, have been recently discovered orbiting the sun. Are they also planets? Why not? Older definitions had become conceptually inadequate. An intense controversy within the International Astronomical Union (IAU), still not fully resolved, has recently resulted in a new definition of “planet,” according to which there are only eight planets in our solar system. And now a new category, “dwarf planet” (for bodies such as Pluto, Ceres, and Eris) has been defined. Needed were definitions that would accommodate new discoveries as well as old, while maintaining a consistent and fully intelligible account of the entire system. Such definitions (not as simple as we might like) were adopted by the IAU in 2006. A planet is “a celestial body that, within the Solar System, (1) is in orbit around the Sun; and (2) has sufficient mass for its self-gravity to overcome rigid body forces so that it assumes a hydrostatic equilibrium (nearly round) shape; and (3) has cleared the neighborhood around its orbit.”

In such controversies it is not simply the use of some word, such as “planet,” that is at issue. What is wanted is a comprehensive grasp of the theory in which that term is a key element. A definition that encapsulates this larger understanding we rightly call a theoretical definition.

In philosophy also, theoretical definitions are sought. When Socrates struggles to find the correct definition of “justice” in Plato’s Republic, he is not simply seeking a set of words that can serve as a synonym for justice. When Spinoza, in the Ethics, seeks to define “bondage” and “freedom,” he is not examining how people use those words, nor is he merely hoping to eliminate borderline cases. Neither lexical nor précising (and certainly not stipulative) definitions are the philosophical objectives. More deeply, philosophers commonly seek to develop an account of human virtues that will help us to understand these and other forms of right conduct.

The quest for theoretical definitions remains compelling. What is a “right”? Is health care a right? Do nonhuman animals have rights? How might we best define the term? Which nations truly manifest “democracy”? Is the fact that leaders are elected by popular vote sufficient to make a government democratic? If not, what other political institutions or patterns of citizen conduct...
characterize democratic communities? What is the most appropriate application of that term? Theoretical definitions are the *products* of our comprehensive understanding in some sphere.

**E. PERSUASIVE DEFINITIONS**

The four categories we have discussed so far are concerned chiefly with the informative use of language. But definitions are also used at times to express feelings as well, so as to influence the conduct of others. A definition put forward to resolve a dispute by influencing attitudes or stirring emotions may be called a **persuasive definition**.

Persuasive definitions are common in political argument. From the left we hear “socialism” defined as “democracy extended to the economic sphere.” From the right we hear “capitalism” defined as “freedom in the economic sphere.” The directive intent of the emotive language in these definitions is obvious—but emotive coloration may also be injected subtly into wording that purports to be a correct lexical definition, and that appears on the surface to be that. As we seek to distinguish good reasoning from bad, we must be on guard against persuasive definitions.

In summary, we have distinguished five ways in which definitions are used. Thus any definition may be categorized in accordance with its principal function:

- Stipulative
- Lexical
- Precising
- Theoretical
- Persuasive

Of course, some definitions may serve more than one of these functions. A stipulative definition may be intended to influence hearers manipulatively. A lexical definition may be used objectively to make discussion of some matter more precise, and so on. Here, as everywhere in language, context is critical.

**EXERCISES**

A. Find examples of definitions that function in each of the five ways distinguished and explain, in each case, how the definition serves that purpose.

B. Discuss the following.

Federal law imposes a five-year mandatory prison sentence on anyone who “uses or carries a firearm” in connection with a narcotics crime. In 1998 the U.S. Supreme Court faced this question: Does traveling in a car with a gun in a locked glove compartment or trunk—as opposed to carrying a gun on
one’s person—satisfy the meaning of “carry” in that law? Justice Stephen Breyer argued that Congress intended the word in its ordinary, everyday meaning, without the artificial limitation that it be immediately accessible. Quoting Robinson Crusoe and Moby Dick, he pointed to the common use of “carry” to mean “convey in a vehicle.” The mandatory sentence, he concluded, is thus properly imposed. Justice Ruth Bader Ginsburg found Breyer’s literary evidence selective and unpersuasive; in response, she offered quotations from Rudyard Kipling, the TV series M.A.S.H., and President Theodore Roosevelt’s “Speak softly and carry a big stick” to show that “carry” is properly understood in the federal statute to mean “the gun at hand, ready for use as a weapon” [Muscarello v. U.S., U.S. 96-1654 (1998)]. In this controversy, which side puts forward the better precising definition?

3.5 The Structure of Definitions: Extension and Intension

A definition states the meaning of a term. When we look closely at the literal (or descriptive) meaning of a term, however, we see that there are different senses in which that term has meaning. With those different senses distinguished (our object just below), we will also see that definitions may be grouped and understood not only on the basis of their functions (as in the preceding section), but in view of the way those definitions are built: their structure.

We focus on general terms—terms that are applicable to more than one object—which are of critical importance in reasoning. The word “planet” is a typical general term; it is applicable to a number of objects, and it applies in the same sense equally to Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune.* What is meant by the word “planet” is (in one sense) that set of objects. The collection of planets constitutes the meaning of the term, its extensional meaning. If I say that all planets have elliptical orbits, part of what I assert is that Mars has an elliptical orbit, and another part is that Venus has an elliptical orbit, and so on. The extension of the general term “planet” consists of the objects to which the term may be correctly applied. The extensional meaning (also called the denotative meaning) of a general term is the collection of the objects that constitutes the extension (or denotation) of the term.

To understand the meaning of a general term is to know how to apply it correctly. But it is not necessary to know all of the objects to which it may be applied correctly in order to apply it correctly. All the objects within the extension of a given term have some common attributes or characteristics that lead us

*But not to Pluto! As explained in the preceding section, Pluto is now classified by the International Astronomical Union as a “dwarf planet.”