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Morphology: the analysis of word structure

Carve every word before you let it fall.

OLIVER WENDELL HOLMES, SR., *URANIA: A RHYMED LESSON* (1846)

NOTHING IS more important to language than words. Unlike phonemes and syllables, which are simply elements of sound, words carry meaning. And unlike sentences, which are created as needed and then discarded, words are permanently stored in a speaker's mental dictionary, or **lexicon**. They are arguably the fundamental building blocks of communication.

The average high school student knows about sixty thousand basic words—items such as *read, language, on, cold*, and *if*, whose meaning cannot be predicted from their component parts. Countless other words can be constructed and comprehended by the application of general rules to these and other elements. For example, any speaker of English who knows the verb *phish* ('fraudulently obtain sensitive information via email') recognizes *phished* as its past tense form and can construct and interpret words such as *phisher, phishing*, and *unphishable*.

Linguists use the term **morphology** to refer to the part of the grammar that is concerned with words and word formation. As we will see, the study of morphology offers important insights into how language works, revealing the need for different categories of words, the presence of word-internal structure, and the existence of operations that create and modify words in various ways.

Language Matters **How Many Words Does English Have?**

The Oxford English Dictionary (20 volumes), whose stated goal is to present all of English vocabulary "from the time of the earliest records to the present day," contains a total of 616 500 word forms. But no dictionary can ever be up to date, because new words and new uses of old words are being added to the language all the time. *The Oxford English Dictionary* offers quarterly updates (http://public.oed.com/the-oed-today/recent-updates-to-the-oed/), and the online *Urban Dictionary* (www.urbandictionary.com) adds hundreds of new definitions EVERY DAY!

The Oxford English Dictionary, 2nd ed. (1989). By permission of Oxford University Press, www.oup.com

4.1 Words and word structure

As speakers of English, we rarely have difficulty segmenting a stream of speech sounds into words or deciding where to leave spaces when writing a sentence. What, though, is a word?

Linguists define the **word** as the smallest **free form** found in language. A free form is simply an element that does not have to occur in a fixed position with respect to neighbouring elements; in many cases, it can even appear in isolation. Consider, for instance, the following sentence.

(1) Dinosaurs are extinct.

We all share the intuition that *dinosaurs* is a word here and that the plural marker *-s* is not. But why? The key observation is that *-s* is not a free form: it never occurs in isolation and cannot be separated from the noun to which it belongs. (Elements that must be attached to something else are written here with a hyphen; an asterisk indicates unacceptability.)

(2) *Dinosaur are -s extinct.

In contrast, *dinosaurs* is a word because it can occur both in isolation, as in example (3), and in different positions within sentences, as in example (4):

(3) *Speaker A*: What creatures do children find most fascinating?
Speaker B: Dinosaurs.

(4) *a.* Paleontologists study *dinosaurs*.
b. *Dinosaurs* are studied by paleontologists.
c. It's *dinosaurs* that paleontologists study.

Some words—like *are*—normally do not occur in isolation. However, they are still free forms because their positioning with respect to neighbouring words is not entirely fixed, as shown in (5).

(5) *a.* Dinosaurs *are* extinct.
b. *Are* dinosaurs extinct?

4.1.1 Morphemes

Words have an internal structure consisting of smaller units organized with respect to each other in a particular way. The most important component of word structure is the **morpheme**, the smallest unit of language that carries information about meaning or function. The word *builder*, for example, consists of two morphemes: *build* (with the meaning 'construct') and *-er* (which indicates that the entire word functions as a noun with the meaning 'one who builds'). Similarly, the word *houses* is made up of the morphemes *house* (with the meaning 'dwelling') and *-s* (with the meaning 'more than one').

Some words consist of a single morpheme. For example, the word *train* cannot be divided into smaller parts (say, *tr* and *ain* or *t* and *rain*) that carry information about the word's meaning or function. Such words are said to be **simple** and are distinguished from **complex** words, which contain two or more morphemes (see table 4.1).

TABLE 4.1 Words consisting of one or more morphemes

One	Two	Three	More than three
and			
couple	couple-s		
hunt	hunt-er	hunt-er-s	
act	act-ive	act-iv-ate	re-act-iv-ate

Free and bound morphemes

A morpheme that can be a word by itself is called **free**, whereas a morpheme that must be attached to another element is **bound.** The morpheme *boy*, for example, is free because it can be used as a word on its own; plural *-s*, however, is bound.

Concepts that are expressed by free morphemes in English do not necessarily have the same status in other languages. For example, in Hare (an Athabaskan language spoken in Canada's Northwest Territories), morphemes that indicate body parts must always be attached to a morpheme designating a possessor, as shown in table 4.2. (The diacritic ´ marks a high tone.)

TABLE 4.2 Some body part names in Hare

Without a possessor		With a possessor	
*fí	'head'	sefí	'my head'
*bé	'belly'	nebé	'your belly'
*dzé	'heart'	ʔedzé	'someone's heart/a heart'

In English, of course, body part names are free morphemes and do not have to be attached to another element.

Conversely, there are also some bound forms in English whose counterparts in other languages are free. The notion 'past' or 'completed' is expressed by the bound morpheme *-ed* in English (as in *I washed the car*, or *a washed car*), but by the free morpheme *lɛɛw* in Thai. As the following sentence shows, *lɛɛw* can even be separated from the verb by an intervening word. (Tone is not marked here.)

(6) Boon thaan khaaw lɛɛw.
Boon eat rice past
'Boon ate rice.'

Allomorphs

The variant pronunciations of a morpheme are called its **allomorphs**. The morpheme used to express indefiniteness in English has two allomorphs—*an* before a word that begins with a vowel sound and *a* before a word that begins with a consonant sound.

(7) an orange a building
an accent a car
an eel a girl

Note that the choice of *an* or *a* is determined on the basis of pronunciation, not spelling, which is why we say *an M.A. degree* and *a U.S. dollar*.

Another example of allomorphic variation is found in the pronunciation of the plural morpheme *-s* in the following words.

(8) cats
dogs
judges

Whereas the plural is /s/ in *cats*, it is /z/ in *dogs*, and /əz/ in *judges*. Here again, selection of the proper allomorph is dependent on phonological facts. (For more on this, see section 4.6.)

Yet another case of allomorphic variation is found in the pronunciation of the prefix *in-*, with the meaning 'not'. The final consonant is pronounced as /n/ in most cases—*indirect, inactive*, and so on. But it is pronounced as /m/ in front of another labial consonant (*impossible, immodest*), as /l/ in front of another /l/ (*illegal*), and as /r/ in front of another /r/ (*irregular*). These changes are easy to spot because of the spelling, but remember that allomorphic variation involves pronunciation. In some cases, this is reflected in the spelling, but in other cases (such as plural *-s*), it is not.

4.1.2 Analyzing word structure

In order to represent the internal structure of words, it is necessary not only to identify each of the component morphemes but also to classify them in terms of their contribution to the meaning and function of the larger word.

Roots and affixes

Complex words typically consist of a **root** morpheme and one or more **affixes**. The root constitutes the core of the word and carries the major component of its meaning. Roots typically belong to a **lexical category**, such as noun (N), verb (V), adjective (A), or preposition (P).

Language Matters **Having Trouble Figuring Out a Word's Category?**

Here are some rules of thumb:

- Nouns typically refer to people and things (*citizen, tree, intelligence*, etc.).
- Verbs tend to denote actions, sensations, and states (*depart, teach, melt, remain*, etc.).
- Adjectives usually name properties (*nice, red, tall*, etc.).
- Prepositions generally encode spatial relations (*in, near, under*, etc.).

Unlike roots, affixes do not belong to a lexical category and are always bound morphemes. For example, the affix *-er* is a bound morpheme that combines with a verb such as *teach*, giving a noun with the meaning 'one who teaches'. The internal structure of this word can be represented in figure 4.1. ('Af' stands for affix.)

FIGURE 4.1
The internal structure of the word *teacher*

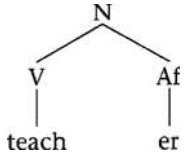
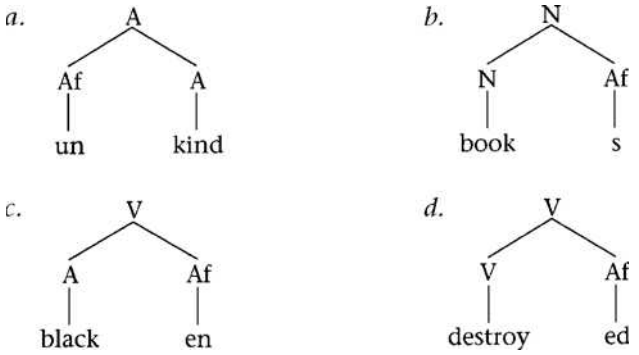


Figure 4.2 provides some additional examples of word structure.

FIGURE 4.2
Some other words with an internal structure consisting of a root and an affix

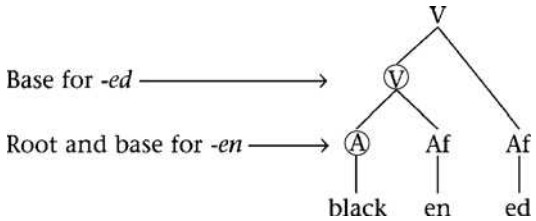


The structural diagrams in figures 4.1 and 4.2 are often called **trees**. The information they depict can also be represented by using labelled bracketing—[$_A$ [$_{Af}$ un] [$_A$ kind]] for *unkind* and [$_N$ [$_N$ book] [$_{Af}$ s]] for *books*. (This is somewhat harder to read, though, and we will generally use tree structures in this chapter.) Where the details of a word's structure are irrelevant to the point being considered, it is traditional to use a much simpler system of representation that indicates only the location of the morpheme boundaries: *un-kind, book-s*, and so on.

Bases

A **base** is the form to which an affix is added. In many cases, the base is also the root. In *books*, for example, the element to which the affix *-s* is added corresponds to the word's root. In other cases, however, the base can be larger than a root, which is always just a single morpheme. This happens in words such as *blackened*, in which the past tense affix *-ed* is added to the verbal base *blacken*—a unit consisting of the root morpheme *black* and the suffix *-en*.

FIGURE 4.3
A tree diagram illustrating the difference between a root and a base



In this case, *black* is not only the root for the entire word but also the base for *-en*. The unit *blacken*, however, is simply the base for *-ed*.

Types of affixes

An affix that is attached to the front of its base is called a **prefix**, whereas an affix that is attached to the end of its base is termed a **suffix**. Both types of affix occur in English, as shown in table 4.3.

TABLE 4.3 Some English prefixes and suffixes

Prefixes	Suffixes
de-activate	faith-*ful*
re-play	govern-*ment*
il-legal	hunt-*er*
in-accurate	kind-*ness*

We will consider the nature and properties of English affixes in more detail in sections 4.2.1 and 4.4.1.

Far less common than prefixes and suffixes are **infixes**, a type of affix that occurs within another morpheme. The data in table 4.4 from the Philippine language Tagalog contains examples of the infix *-in-*, which is inserted after the first consonant of the root to mark a completed event.

TABLE 4.4 Examples of the Tagalog infix *-in-*

Base		Infixed form	
bili	'buy'	b-*in*-ili	'bought'
basa	'read'	b-*in*-asa	'read'
sulat	'write'	s-*in*-ulat	'wrote'

Beginning students sometimes think that a morpheme such as *-en* in *black-en-ed* is an infix since it occurs between two other morphemes (*black* and *-ed*), but this is not right: *-en* is a suffix that combines with the adjective *black* to give the verb *blacken*, to which the suffix *-ed* is then added (see figure 4.3). To be an infix, an affix must occur *inside* another morpheme (as when Tagalog *-in-* appears inside *sulat* 'write'). Nothing of this sort happens in the case of *-en*.

A very special type of infixing system is found in Arabic and other Semitic languages, in which a typical root consists simply of three consonants. Various combinations of vowels are then inserted among the consonants to express a range of grammatical contrasts. (In the examples that follow, the segments of the root are written in boldface.)

(9)	**kataba**	**kutib**	**aktub**
	'wrote'	'has been written'	'am writing'

One way to represent the structure of such words is as follows, with the root and affixal vowels assigned to different **tiers**, or levels of structure, that combine with each other to give the word's pronunciation (see figure 4.4).

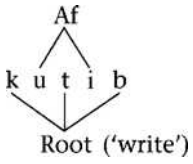


FIGURE 4.4
Two tiers used to represent the structure of the infixed word meaning 'has been written' in Arabic

Tagalog and Arabic offer examples of **non-concatenative morphology**, in that words are not always built in the linear, additive fashion illustrated by English words such as *travel-er-s* and *creat-iv-ity*.

Problematic cases

The majority of complex words in English are built from roots that are free morphemes. In the words *re-do* and *treat-ment*, for example, the root (*do* and *treat*, respectively) can itself be used as a word. Because most complex words work this way in English, English morphology is said to be **word-based**.

There is no such requirement in morpheme-based systems. In Japanese and Spanish, for instance, verbal roots are always bound and can therefore not stand alone: *camin* is not a word in Spanish, *arui* is not a word in Japanese, and so on.

(10) *a.* Spanish

camin-ó	**escuch**-ó	**limpi**-ó
walk-Pst	listen-Pst	wipe-Pst

b. Japanese

arui-ta	**kii**-ta	**hui**-ta
walk-Pst	listen-Pst	wipe-Pst

English too has a sizeable number of bound roots. For example, the word *unkempt* seems to consist of the prefix *un-* (with the meaning 'not') and the root *kempt* (meaning 'groomed' or 'combed'), even though *kempt* cannot be used by itself. *Kempt* was once a word in English (with the meaning 'combed'), and it was to this base that the affix *un-* was originally attached. However, *kempt* later disappeared from the language, leaving behind the word *unkempt*, in which an affix appears with a bound root.

Still other words with bound roots were borrowed into English as whole words. *Inept*, for instance, comes from Latin *ineptus* 'unsuited'. Its relationship to the word *apt* may have been evident at one time, but it now seems to consist of a prefix meaning 'not' and a bound root.

Language Matters **Word Play**

The following excerpt from the humorous essay "How I Met My Wife" by Jack Winter plays on the fact that certain English roots are bound and cannot be used as words:

> I was **furling** my **wieldy** umbrella for the coat check when I saw her standing alone in the corner. She was a **descript** person, a woman in a state of total **array**. Her hair was **kempt**, her clothing **shevelled**, and she moved in a **gainly** way. (From *The New Yorker*, July 25, 1994).

Another class of words that are problematic for morphological analysis includes items such as *receive, deceive, conceive*, and *perceive*, or *permit, submit*, and *commit*. These items were borrowed into English from Latin (usually via French) as whole words, and their component syllables have no identifiable meaning of their own. Unlike the *in-* of *inept*, which retains the meaning of negation, the *re-* of *receive* does not have the sense of 'again' that it does in *redo*, and no specific meaning can be assigned to *-ceive* or *-mit*. For this reason, we will not treat these word parts as morphemes.

4.2 Derivation

Derivation uses an affix to build a word with a meaning and/or category distinct from that of its base. One of the most common derivational affixes in English is the suffix *-er*, which combines with a verb to form a noun with the meaning 'one who *V*s' as shown in table 4.5. (Do not confuse this suffix with the *-er* that applies to a noun in cases such as *Quebecer* and *islander* or the *-er* that combines with an adjective in cases such as *taller* and *smarter*.)

TABLE 4.5 The derivational affix *-er*

Verb base	Derived noun
sell	sell-er (one who sells)
write	writ-er (one who writes)
teach	teach-er (one who teaches)
sing	sing-er (one who sings)
think	think-er (one who thinks)

Other examples of derivation include *treatment*, in which the suffix *-ment* combines with the verb *treat* to give the noun *treatment*; *unkind*, in which the prefix *un-* combines with the adjective *kind* to give a new adjective with a different meaning; and the other derived words illustrated in figure 4.5.

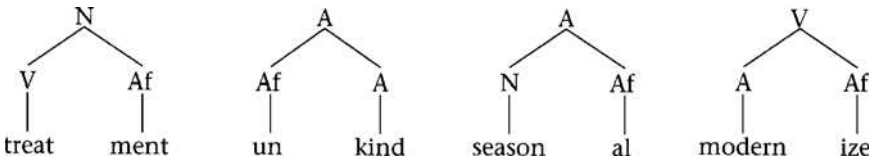


FIGURE 4.5 Some words formed by derivation

Once formed, derived words become independent lexical items that receive their own entry in a speaker's mental dictionary. As time goes by, they often take on special senses that are not predictable from the component morphemes. The word *writer*, for example, is often used not just for someone who can write but rather for someone who writes for a living (e.g., *She's a writer*); *comparable* (with stress on the first syllable) means 'similar' rather than 'able to be compared'; *profession* usually denotes a career rather than the act of professing; and so on.

4.2.1 Some English derivational affixes

Table 4.6 provides a partial list of English derivational affixes, along with information about the category of their usual base (ignoring bound roots) and of the resulting derived word. The entry for *-able* (line 7) states that it applies to a verb base and converts it into an adjective. Thus, if we add the affix *-able* to the verb *fix*, we get an adjective (with the meaning 'able to be fixed').

TABLE 4.6 Some English derivational affixes

Affix	Change	Examples
Suffixes		
-al	V → N	refus-al, dispos-al, recit-al
-ant	V → N	claim-ant, defend-ant
-(at)ion	V → N	realiz-ation, assert-ion, protect-ion
-er	V → N	teach-er, work-er
-ing$_1$	V → N	the shoot-ing, the danc-ing
-ment	V → N	adjourn-ment, treat-ment, amaze-ment
-able	V → A	fix-able, do-able, understand-able
-ing$_2$	V → A	the sleep-ing giant, a blaz-ing fire
-ive	V → A	assert-ive, impress-ive, restrict-ive
-dom	N → N	king-dom, fief-dom
-ful	N → A	faith-ful, hope-ful, dread-ful
-(i)al	N → A	president-ial, nation-al
-(i)an	N → A	Arab-ian, Einstein-ian, Albert-an
-ic	N → A	cub-ic, optimist-ic, moron-ic
-ize$_1$	N → V	hospital-ize, crystal-ize
-less	N → A	penni-less, brain-less
-ous	N → A	poison-ous, lecher-ous
-ish	A → A	green-ish, tall-ish
-ate	A → V	activ-ate, captiv-ate
-en	A → V	dead-en, black-en, hard-en
-ize$_2$	A → V	modern-ize, national-ize
-ity	A → N	stupid-ity, prior-ity
-ness	A → N	happi-ness, kind-ness
Prefixes		
anti-	N → N	anti-abortion, anti-pollution
ex-	N → N	ex-president, ex-wife, ex-friend
de-	V → V	de-activate, de-mystify
dis-	V → V	dis-continue, dis-obey
mis-	V → V	mis-identify, mis-place
re-	V → V	re-think, re-do, re-state
un$_1$-	V → V	un-tie, un-lock, un-do
in-	A → A	in-competent, in-complete
un$_2$-	A → A	un-happy, un-fair, un-intelligible

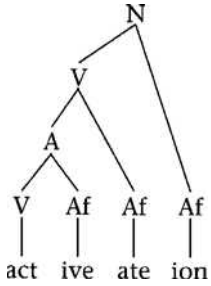
Note: Unlike suffixes, English prefixes typically do not change the category of the base.

The category of the base to which an affix attaches is sometimes not obvious. In the case of *worker*, for instance, the base (*work*) is sometimes used as a verb (as in *They work hard*) and sometimes as a noun (as in *The work is time-consuming*). How then can we know the category of the base for *-er*? The key is to find words such as *teacher* and *writer*, in which the category of the base can be unequivocally determined. Because *teach* and *write* can only be verbs, we can infer that the base with which *-er* combines in the word *worker* is also a verb.

Complex derivations

Since derivation can apply to a word more than once, it is possible to create words with multiple layers of internal structure, as in the following example.

FIGURE 4.6
A word with a multilayered internal structure



As can be seen here, each layer of structure reflects the attachment of an affix to a base of the appropriate type. In the deepest layer, the affix *-ive* attaches to the verbal base *act* to give an adjective. In the next layer, *-ate* attaches to the adjective and converts it into a verb (*activate*). Finally, the affix *-ion* is added, converting the verb into the noun *activation*.

In some cases, the internal structure of a complex word may not be so transparent. The word *unhappiness*, for instance, could apparently be analyzed in either of the ways indicated in figure 4.7. However, by considering the properties of the affixes *un-* and *-ness*, it is possible to determine that the structure in figure 4.7a is the right one. The key observation is that the prefix *un-* combines quite freely with adjectives but not with nouns, as shown in table 4.7.

FIGURE 4.7
Two possible structures for the word *unhappiness*

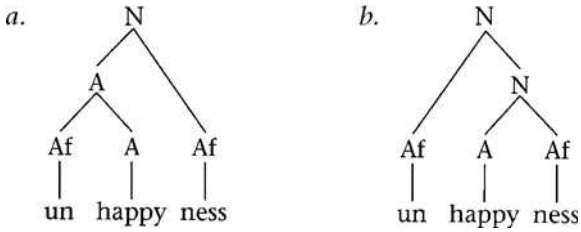


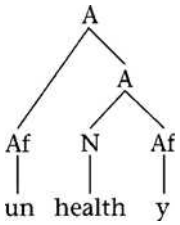
TABLE 4.7 The prefix *un-*

un **+ A**	***un*** **+ N**
unable	*unknowledge
unkind	*unhealth
unhurt	*uninjury

This suggests that *un-* must combine with the adjective *happy* before it is converted into a noun by the suffix *-ness*, exactly as depicted in figure 4.7a.

By contrast, in a word such as *unhealthy*, the prefix *un-* can be attached only AFTER the suffix has been added to the root. That is because *-y* turns nouns into adjectives (as in *wealthy* and *cloudy*), creating the category of word with which *un-* can combine (see figure 4.8).

FIGURE 4.8
The internal structure of the word *unhealthy*



Constraints on derivation

Derivation is often subject to special constraints and restrictions. For instance, the suffix *-ant* (see table 4.6) can combine with bases of Latin origin, such as *assist* and *combat*, but not with those of native English origin, such as *help* and *fight*. Thus, we find words such as *assistant* and *combatant* but not **helpant* and **fightant*.

In other cases, derivation may be blocked by the existence of an alternative word. For instance, the word *cooker* (to mean 'one who cooks') is blocked by the existence of the word *cook*, which already has that meaning; *famosity* (from *famous*) is blocked by *fame*; and so on.

Sometimes, a derivational affix is able to attach only to bases with particular phonological properties. A good example of this involves the suffix *-en*, which can combine with some adjectives to create verbs with a causative meaning as shown in table 4.8 (*whiten* means roughly 'cause to become white').

TABLE 4.8 Restrictions on the use of *-en*

Acceptable	Unacceptable
whiten	*abstracten
soften	*bluen
madden	*angryen
quicken	*slowen
liven	*greenen

The contrasts illustrated here reflect the fact that *-en* can be attached only to a monosyllabic base that ends in a consonant other than /l/, /r/, /m/, or /n/. Thus, it can be added to *white*, *quick*, *mad*, and *live*, which are monosyllabic and end in a consonant of the right type. But it cannot be added to *abstract*, which has more than one syllable; to *slow* or *blue*, which end in a vowel; or to *green*, which ends in the wrong type of consonant.

4.2.2 Two classes of derivational affixes

It is common to distinguish between two types of derivational affixes in English. **Class 1 affixes** often trigger changes in the pronunciation of the base's consonants and vowels, and may affect stress placement as well. In addition, they often combine with bound roots, as in the last of the examples in table 4.9.

TABLE 4.9 Typical effects of Class 1 affixes

Affix	Sample word	Change triggered by affix
-ity	san-ity; public-ity	vowel in the base changes from /e/ to /æ/ (cf. *sane*) final consonant of the base changes from /k/ to /s/, stress shifts to second syllable (cf. *public* vs. *publicity*)
-y	democrac-y	final consonant of the base changes from /t/ to /s/, stress shifts to second syllable (cf. *democrat* vs. *democracy*)
-ive	product-ive	stress shifts to second syllable (cf. *próduct* vs. *productive*)
-(i)al	part-ial	final consonant of the base changes from /t/ to /ʃ/ (cf. *part* vs. *partial*)
-ize	critic-ize	final consonant of the base changes from /k/ to /s/, (cf. *critic* vs. *criticize*)
-ion	nat-ion	final consonant of the base changes from /t/ to /ʃ/ (cf. *native* vs. *nation*)

In contrast, **Class 2 affixes** tend to be phonologically neutral, having no effect on the segmental makeup of the base or on stress placement (see table 4.10).

TABLE 4.10 Some typical Class 2 affixes

Affix	Sample word	Change triggered by affix
-ness	prompt-ness	None
-less	hair-less	None
-ful	hope-ful	None
-ly	quiet-ly	None
-er	defend-er	None
-ish	self-ish	None

As the following examples illustrate, a Class 2 affix cannot intervene between the root and a Class 1 affix.

(11)

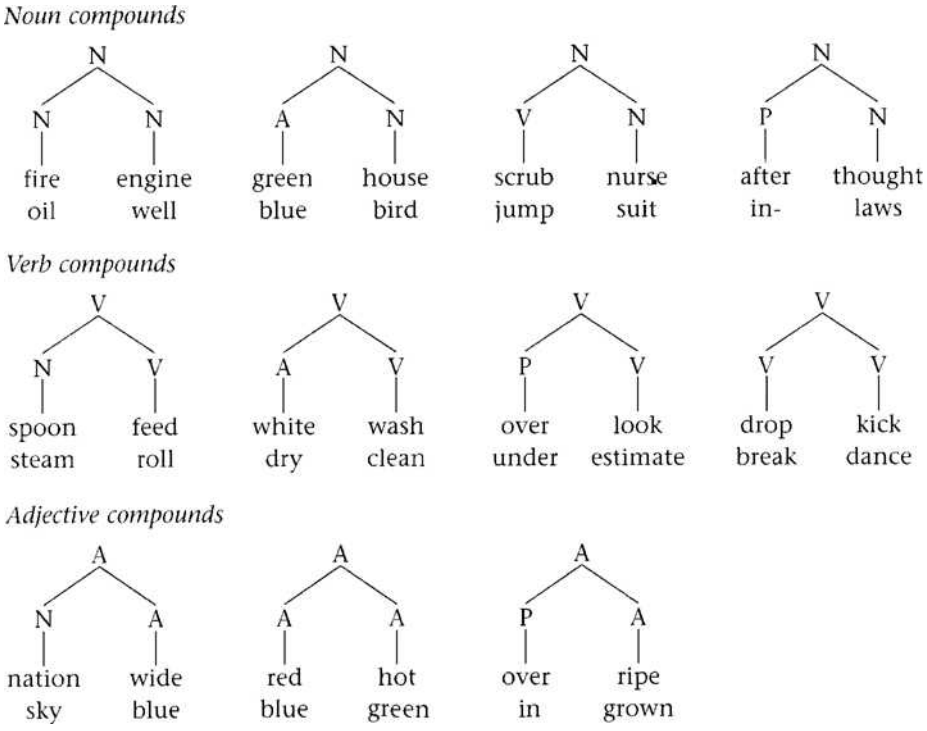
relat-ion-al	divis-ive-ness	*fear-less-ity	fear-less-ness
ROOT 1 1	ROOT 1 2	ROOT 2 1	ROOT 2 2

Notice that all combinations of Class 1 and Class 2 affixes are found in English words, except one—a Class 2 suffix followed by a Class 1 suffix.

4.3 Compounding

Another common technique for word building in English involves **compounding**, the combination of two already existing words (see figure 4.9). With very few exceptions, the resulting compound word is a noun, a verb, or an adjective. (Possible examples of compound prepositions include the words *into* and *onto*.)

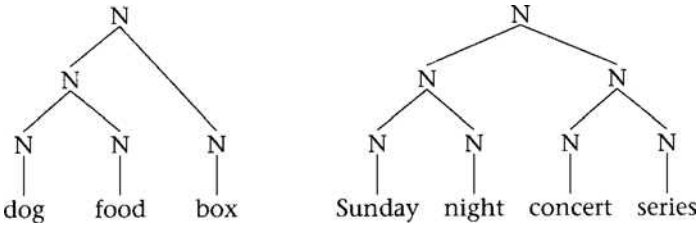
FIGURE 4.9
Some English compounds



In the most common type of English compound, the rightmost morpheme determines the category of the entire word. Thus, *bluebird* is a noun because its rightmost component is a noun, *spoonfeed* is a verb because *feed* also belongs to this category, and *nationwide* is an adjective just as *wide* is. The morpheme that determines the category of the entire word is called the **head**.

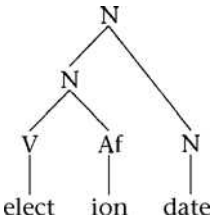
Once formed, compounds can be combined with other words to create still larger compounds, as the examples in figure 4.10 show.

FIGURE 4.10
Compounds formed from smaller compounds



In addition, compounding can interact with derivation, yielding forms such as *election date*, in which the first word in the compound is the result of derivation, as shown in figure 4.11.

FIGURE 4.11
The interaction of derivation with compounding



Compounding is an inexhaustible source of new words in English, as can easily be seen by perusing the new-word updates offered by Oxford Dictionaries Online. Additions for 2013 included the following items, among many others.

TABLE 4.11 Some new compounds recognized by Oxford Dictionaries Online in 2013

New compound	Meaning
bitcoin	a digital currency
buzzworthy	likely to arouse public interest and attention
cake pop	a piece of cake on a stick
digital detox	refraining from using electronic devices
hackerspace	a community-operated workspace where people with common interests can socialize and collaborate
space tourism	travel to space for recreational purposes

4.3.1 Properties of compounds

English orthography is not consistent in representing compounds, which are sometimes written as single words, sometimes with a hyphen, and sometimes as separate words. In terms of pronunciation, however, an important generalization can be made (see table 4.12): adjective–noun compounds are characterized by more prominent stress on their first component. In non-compounds consisting of an adjective and a noun, in contrast, the second element is generally stressed.

TABLE 4.12 Compounds versus non-compounds

Compound word		Non-compound expressions	
gréenhouse	'a glass-enclosed garden'	green hóuse	'a house painted green'
blácкboard	'a chalkboard'	black boárd	'a board that is black'
wét suit	'a diver's costume'	wet suít	'a suit that is wet'

A second distinguishing feature of compounds in English is that tense and plural markers can typically not be attached to the first element, although they can be added to the compound as a whole. (There are some exceptions, however, such as *craftsman* and *parks supervisor*.)

(12) *a.* Compound verb with internal tense:
*The player [dropped kick] the ball through the goal post.

b. Compound verb with external tense:
The player [drop kick]ed the ball through the goal post.

(13) *a.* Compound noun with internal plural:
*The [ducks hunter] didn't have a licence.

b. Compound noun with external plural (different meaning):
The [duck hunter]s didn't have a licence.

Language Matters **Do You Say Brothers-in-Law or Brother-in-Laws?**

Is it *governors-general* or *governor-generals*? *Maids-of-honour* or *maid-of-honours*? *Runners up* or *runner ups*? There is now variation on this point. For some people, at least some expressions of this type have become compounds, which is why the plural marker cannot occur inside, as it once had to.

4.3.2 Endocentric and exocentric compounds

In most cases, a compound denotes a subtype of the concept denoted by its head (the rightmost component). Thus, *dog food* is a type of food, a *caveman* is a type of man, *sky blue* is a type of blue, and so on. Such compounds are said to be (semantically) **endocentric**. In a smaller number of cases, however, the meaning of the compound does not follow from the meaning of its parts in this way. Thus, although *redneck* is a noun (like *neck*), it denotes a type of person, not a type of neck. Similarly, a *sabre-tooth* is a type of tiger rather than a type of tooth. Such compounds are **exocentric**.

A very striking difference between English endocentric and exocentric compounds sometimes shows up in cases where the head is a word like *tooth* or *foot*, which has an irregular plural form. Consider in this regard the examples in table 4.13.

TABLE 4.13 Pluralization in English compounds

In endocentric compounds	In exocentric compounds
wisdom teeth	sabre-tooths (an extinct species of carnivore)
club feet	bigfoots (a mythical creature, or sasquatch)
policemen	Watchmans (a type of portable TV)
oak leaves	Maple Leafs (Toronto's NHL hockey team)

Notice that whereas the endocentric compounds employ the usual irregular plural (*teeth*, *feet*, etc.), the exocentric compounds permit the regular plural suffix *-s*.

4.3.3 Compounds in other languages

The practice of combining words (especially nouns) to build a more complex word is very widespread in the languages of the world. With the exception of Tagalog, in which compounds are left-headed, the languages exemplified in table 4.14 all have compounds in which the rightmost element is the head. In right-headed Korean, for example, the head of *kot elum* 'icicle' is *elum* 'ice' since icicles are a type of ice, and the head of the *nwun mwul* 'tears' is *mwul* 'water' since tears are a type of water. In left-headed Tagalog, in contrast, the head of *tubig-alat* 'sea water' is *tubig* 'water' since sea water is a type of water, and in *bayad-utang* 'debt payment', the head is *bayad* 'payment' since a debt payment is a type of payment.

TABLE 4.14 Noun compounds in various languages

Korean		
kot elum	isul pi	nwun mwul
straight ice	dew rain	eye water
'icicle'	'drizzle'	'tears'
Tagalog		
tubig-alat	isip-lamok	bayad-utang
water salt	mind mosquito	payment debt
'sea water'	'weak mind'	'debt payment'
German		
Gast-haus	Wort-bedeutungs-lehre	Fern-seher
guest-house	word-meaning-theory	far-seer
'inn'	'semantics'	'television'
Finnish		
lammas-nahka-turkki	elin-keino-tulo-vero-laki	
sheep-skin-coat	life's-means-income-tax-law	
'sheepskin coat'	'income tax law'	
Cree		
mishtikw naapeu	piyesuu upiiwiih	ishkuteu utaapan
wood man	duck feather	fire vehicle
'carpenter'	'duck feather'	'train'

Source: East Cree Compound Nouns, http://www.eastcree.org/cree/en/grammar/southern-dialect/word-formation/noun-structure/compound-nouns-a1/.

4.4 Inflection

Virtually all languages have contrasts such as singular versus plural and present versus past. Such contrasts are often marked with the help of **inflection**, the modification of a word's form to indicate grammatical information of various sorts. (The base to which an inflectional affix is added is sometimes called a **stem**.)

4.4.1 Inflection in English

Inflection is most often expressed via affixation, and many languages (e.g., Japanese, Swahili, Inuktitut, and Finnish) have dozens of inflectional affixes. With only eight inflectional affixes (all suffixes), English is not a highly inflected language. Table 4.15 lists the inflectional affixes of English.[1]

TABLE 4.15 The English inflectional affixes

Nouns	
Plural *-s*	the book<u>s</u>
Possessive (genitive) *-'s*	John<u>'s</u> book
Verbs	
3rd person singular non-past *-s*	He read<u>s</u> well.
Progressive *-ing*	He is work<u>ing</u>.
Past tense *-ed*	He work<u>ed</u>.
Past participle *-en/-ed*	He has eat<u>en</u> /studi<u>ed</u>.
Adjectives	
Comparative *-er*	the small<u>er</u> one
Superlative *-est*	the small<u>est</u> one

Although most inflection in English involves affixation, some words mark inflectional contrasts in other ways. This is most obvious in the case of verbs, a number of which indicate past tense by substituting one form with another (as in *am-was* or *go-went*) or by internal changes of various sorts (*come-came*, *see-saw*, *fall-fell*, *eat-ate*). We will consider these processes in more detail in section 4.5.

4.4.2 Inflection versus derivation

Because inflection and derivation are both commonly marked by affixation, the distinction between the two can be subtle. Four criteria are commonly used to help distinguish between inflectional and derivational affixes.

Category change

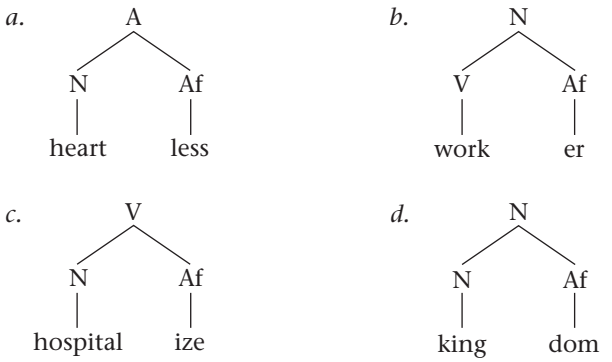
Inflection does not change either the syntactic category or the type of meaning found in the word to which it applies, as shown in figure 4.12.

FIGURE 4.12 The output of inflection: there is no change in either the category of the base or the type of meaning it denotes.

The form produced by adding the plural suffix *-s* in figure 4.12a is still a noun and has the same type of meaning as the base. Even though *hearts* differs from *heart* in referring to several things rather than just one, the type of thing(s) to which it refers remains the same. Similarly, a past tense suffix such as the one in figure 4.12b indicates that the action took place in the past, but the word remains a verb and it continues to denote the same type of action.

In contrast, derivational suffixes usually change the category and/or the type of meaning of the form to which they apply. Consider the examples of derivation given in figure 4.13.

FIGURE 4.13
The output of derivation: there is a change in the category of the base and/ or the type of meaning it denotes.

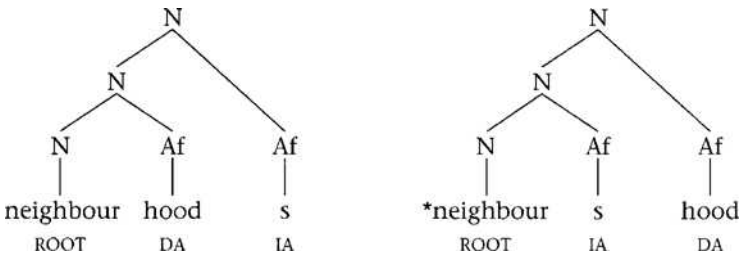


As figure 4.13a shows, *-less* makes an adjective out of a noun, changing the type of meaning it expresses from a thing (*heart*) to a property (*heartless*). Parallel changes in category and type of meaning are brought about by *-er* (V to N) and *-ize* (N to V). Matters are a little different in the case of *-dom*, which does not bring about a category change in the word *kingdom* since both the base and the resulting word are nouns. However, *-dom* does modify the type of meaning from a person (*king*) to a place (*kingdom*).

Order

A second property of inflectional affixes has to do with the order in which they are combined with a base relative to derivational affixes. As figure 4.14 illustrates, a derivational affix must combine with the base before an inflectional affix does (IA = inflectional affix; DA = derivational affix).

FIGURE 4.14
The relative positioning of derivational and inflectional affixes: the derivational affix must be closer to the root.



The positioning of inflectional affixes outside derivational affixes in these examples reflects the fact that inflection applies to the output of derivation.

Productivity

A third criterion for distinguishing between inflectional and derivational affixes has to do with **productivity**, the relative freedom with which they can combine with bases of the

appropriate category. Inflectional affixes are typically more productive than derivational affixes. The suffix *-s*, for example, can combine with virtually any noun that allows a plural form (aside from a few exceptions such as *oxen* and *feet*). In contrast, derivational affixes characteristically apply to restricted classes of bases. Thus, *-ize* can combine with only certain adjectives to form a verb.

(14) modern-ize *new-ize
legal-ize *lawful-ize
final-ize *last-ize

In the case of verbs, matters are somewhat more complicated, since many English verbs have irregular past tense forms (*saw*, *left*, *went*, and so on). Nonetheless, the inflectional affix *-ed* is much more generally applicable than a derivational affix such as *-ment*. All the verbs in table 4.16 can take the regular past tense ending, but only those in the top three rows are able to take the *-ment* suffix.

TABLE 4.16 Compatibility of verb bases with inflectional *-ed* and derivational *-ment*

Verb	With *-ed*	With *-ment*
confine	confined	confinement
align	aligned	alignment
treat	treated	treatment
arrest	arrested	*arrestment
straighten	straightened	*straightenment
cure	cured	*curement

Semantic transparency

Finally, the contribution of an inflectional affix to the word's meaning is usually completely transparent and consistent. Adding a plural suffix gives the meaning 'more than one' (*cat-cats*, *tree-trees*), adding a past tense suffix gives the meaning 'prior to the present' (*walk-walked*, *play-played*), and so forth.

Things are not always so straightforward in the case of derivation, where it is often not possible to predict the word's meaning from its parts. An *actor* is someone who acts, but a *professor* is not someone who professes. The word *teacher* often refers to someone who holds a teaching job, but no such implication is associated with *walker*. *Government* can be used to refer either to an institution (as in 'the government's agenda') or the act of governing (as in 'government by the people'), but *abandonment* lacks the first type of meaning.

4.4.3 Other inflectional phenomena

Inflection is a very widely used morphological process, and its effects can be seen in far more cases than can be discussed here. Nonetheless, two additional phenomena are worth mentioning, however briefly, because of their importance and frequency in languages of the world.

Case inflection indicates a word's grammatical role in the sentence (subject, direct object, and so on). A very simple example of this can be seen in English, where the pronoun form *he* is used for subjects and the form *him* is employed for direct objects. There is a comparable contrast between *I* and *me*, *she* and *her*, *we* and *us*, and *they* and *them*.

(15) He met the new professor. The new professor met him.
↑ ↑
subject direct object

Agreement takes place when one word is inflected to match certain grammatical properties of another word. Especially common is agreement for number (singular vs. plural) and for person (first person—speaker; second person—addressee; third person—anyone else). Here again, English offers a simple example: the suffix *-s* appears on a present tense verb when the subject is third person singular.

(16) That woman speaks French.

(Compare: *I speak French* or *They speak French*, with no *-s* suffix.)

4.5 Other morphological phenomena

No introductory textbook can hope to offer a full survey of the processes that contribute to word formation in human language. The preceding sections have touched upon many of the most common and central processes, but a number of others merit consideration as well. We will divide these into two groups—those that pertain primarily to inflection and those that involve other sorts of phenomena.

4.5.1 Processes primarily related to inflection

Internal change

Internal change is a process that substitutes one non-morphemic segment for another to mark a grammatical contrast, as illustrated in the following pairs of words in table 4.17.

TABLE 4.17 Internal change in English

sing (present)	sang (past)
sink (present)	sank (past)
drive (present)	drove (past)
foot (singular)	feet (plural)
goose (singular)	geese (plural)

Verbs such as *sing, sink*, and *drive* form their past tense by changing the vowel (e.g., from *i* to *a* in the first two examples). The term **ablaut** is often used for vowel alternations that mark grammatical contrasts in this way.

Some internal changes reflect phonologically conditioned alternations from an earlier stage in the language's history. The irregular plurals *geese* and *feet* came about in this way: the original back vowel /o/ in the words *goose* and *foot* was fronted under the influence of the front vowel in the old plural suffix /i/, which was subsequently dropped. This type of change in English and other Germanic languages is known as **umlaut**.

(17)

Old singular form of *goose*:	/gos/
Old plural form:	/gos-i/
Umlaut:	/gœs-i/(/œ/ is a front version of the vowel /o/)
Loss of the plural suffix:	/gœs/
Other changes:	/ges/ and then /gis/ 'geese'

Internal change differs from infixing in important ways. As shown by the Tagalog examples in table 4.4, the base into which an infix is inserted typically exists as a separate form elsewhere in the language (compare *sulat* 'write' with *s-in-ulat* 'wrote'). Matters are quite different in the case of alternations such as *foot/feet* or *sing/sang* in English, since we have no form **ft* meaning 'lower extremity of the leg' or **sng* meaning 'produce words in a musical tone'. Moreover, in contrast to the situation in Tagalog, the segments that alternate when there is internal change are not systematically associated with a particular meaning and therefore do not count as morphemes: the *a* of *ran* and the *o* of *drove* do not in general carry the meaning 'past' in English any more than the *ee* of *geese* normally carries the meaning 'plural'.

Suppletion

Suppletion replaces a morpheme with an entirely different morpheme in order to indicate a grammatical contrast. Examples of this phenomenon in English include the use of *went* as the past tense form of the verb *go*, and *was* and *were* as the past tense forms of *be*. (See table 4.18 for examples of suppletion in some other European languages.)

TABLE 4.18 Suppletion in some European languages

Language	Basic form	Suppletive form
French	*avoir* 'to have'	*eu* 'had'
Spanish	*ir* 'to go'	*fue* '(s/he) went'
German	*ist* 'is'	*sind* 'are'
Russian	*xorošij* 'good'	*lučše* 'better' ('more good')

In some cases, it is hard to distinguish between suppletion and internal change. For example, are the past tense forms of *think* (*thought*) and *seek* (*sought*) instances of suppletion or internal change? This type of alternation is sometimes treated as an extreme form of internal change, but the term **partial suppletion** is also used by some linguists.

Reduplication

A common morphological process in some languages involves **reduplication**, which marks a grammatical or semantic contrast by repeating all or part of the base to which it applies.

Repetition of the entire base yields **full reduplication**, as in the data from Turkish and Indonesian given in table 4.19.

TABLE 4.19 Examples of full reduplication

Base		Reduplicated form	
Turkish			
çabuk	'quickly'	çabuk çabuk	'very quickly'
yavaş	'slowly'	yavaş yavaş	'very slowly'
iyi	'well'	iyi iyi	'very well'
güzel	'beautifully'	güzel güzel	'very beautifully'
Indonesian			
orang	'man'	orang orang	'men'
anak	'child'	anak anak	'children'
mangga	'mango'	mangga mangga	'mangoes'

In contrast, **partial reduplication** copies only part of the base. In the data from Tagalog in table 4.20, for instance, reduplication affects the first consonant-vowel sequence rather than the entire word.

TABLE 4.20 Examples of partial reduplication in Tagalog

Base		Reduplicated form	
takbo	'run'	tatakbo	'will run'
lakad	'walk'	lalakad	'will walk'
pili	'choose'	pipili	'will choose'

English makes limited use of partial reduplication in various semi-idiomatic expressions such as *hocus pocus, razzle dazzle*, and *nitty gritty*, but this process does not mark grammatical information and is not productive.

Tone placement

In Mono-Bili (spoken in the Congo), tone is used to make the distinction between past and future tense. (A high tone is marked by ´ and a low tone by ` in table 4.21.)

TABLE 4.21 Past and future tense in Mono-Bili

Past		Future	
dá	'spanked'	dà	'will spank'
zɨ́	'ate'	zɨ̀	'will eat'
wó	'killed'	wò	'will kill'

4.5.2 Other processes

Cliticization

Some morphemes behave like words in terms of their meaning and function but are unable to stand alone as independent forms for phonological reasons. Called **clitics**, these elements must always be pronounced with another word (known as a **host**). A good example of this can be found in English, where certain verb forms have reduced variants (*'m* for *am*, *'s* for *is*, and *'re* for *are*) that cannot stand alone. Cliticization occurs, attaching these elements to the preceding word.

(18) *a.* I*'m* leaving now.
b. Mary*'s* going to succeed.
c. They*'re* here now.

Cliticization is also common in French, which has a set of unstressed clitic object pronouns that must be attached to the verb. The two are then pronounced as if they formed a single word.

(19) Jean *t'*aime. Suzanne *les* voit.
John you-likes Suzanne them-sees
'John likes you.' 'Suzanne sees them.'

Clitics that attach to the end of their host (as in the English examples) are called **enclitics**; those that attach to the beginning of their host (as in the French examples) are known as **proclitics**.

The effects of cliticization can bear a superficial resemblance to affixation: in both cases, a morpheme that cannot stand alone is attached to a word belonging to a syntactic category, such as a noun or a verb.

Conversion

Conversion is a process that assigns an already existing word to a new syntactic category. Even though it does not add an affix, conversion is often considered to be a type of derivation because of the change in category and meaning that it brings about. For this reason, it is sometimes called **zero derivation**. Table 4.22 contains examples of the three most common types of conversion in English.

Less common types of conversion can yield a noun from an adjective (*the poor, gays*) and even a verb from a preposition (*down a beer, up the price*).

TABLE 4.22 Examples of conversion

V derived from N	N derived from V	V derived from A
ink (a contract)	(a long) run	dirty (a shirt)
butter (the bread)	(a hot) drink	empty (the box)
ship (the package)	(a pleasant) drive	better (the old score)
nail (the door shut)	(a brief) report	right (a wrong)
button (the shirt)	(an important) call	total (a car)

A notorious recent example of conversion involves the use of the noun *friend* as a verb to mean 'add someone as a friend on a social networking website', making it distinct from the already existent word *befriend*, which refers to a more conventional social relationship. The transition to verbhood in this case is confirmed by the appearance of derived words such as *unfriend* and *defriend*, created with the help of prefixes used for other verbs in the language (*untie, deactivate*).

Conversion is usually restricted to words containing a single morpheme, although there are some exceptions, such as *refer-ee* (noun to verb) and *dirt-y* (adjective to verb). In addition, it is common in English to form nouns from verb + preposition combinations—a *toss-up*, a *slowdown*, a *dropout*, and so on. The result is a headless compound—the category of the entire word (noun) cannot be traced to either of its component parts.

Conversion in two-syllable words is often accompanied by stress shift in English. As the examples in table 4.23 show, the verb has stress on the final syllable while the corresponding noun is stressed on the first syllable. (Stress is represented here by ´.)

TABLE 4.23 Stress shift and conversion of two-syllable words

Verb	Noun
implánt	ímplant
impórt	ímport
presént	présent
subjéct	súbject
contést	cóntest
slow dówn	slówdown

Clipping

Clipping is a process that shortens a polysyllabic word by deleting one or more syllables. Some of the most common products of clipping are names—*Liz, Ron, Rob, Sue*, and so on. Clipping is especially popular in casual speech, where it has yielded forms like *prof* for *professor, psych* for *psychology, doc* for *doctor*, and *burger* for *hamburger*. However, many clipped forms have also been accepted in general usage: *app, ad, auto, lab, sub, deli, demo*, and *condo*.

Language Matters **Some Cases of Clipping That Might Surprise You**

zoo < zoological garden
fax < facsimile
fan (as in sports) < fanatic
flu < influenza
van < caravan
mob < mobile vulgus (Latin, for 'fickle crowd')

An interesting recent clip is *blog*, from *Web log*—a personal website-based log of events, comments, and links. Once formed, *blog* quickly appeared in compounds (*blog archive, blogosphere*) and has undergone conversion to a verb (as in 'things to blog about'). The verb, in turn, has undergone derivation, resulting in the noun *blogger*. No wonder *blog* was voted the new word most likely to succeed at the 2003 meeting of the American Dialect Society!

Blending

Blending creates words from non-morphemic parts of two already existing items, usually the first part of one and the final part of the other. Recent innovations of this type include *froyo* (from *frozen yogurt), wi-fi* (from *wireless* and *hi-fi*), and *bromance* (from *brother* and *romance*). Older and perhaps more familiar examples include *brunch* from *breakfast* and *lunch, smog* from *smoke* and *fog, motel* from *motor* and *hotel, telethon* from *telephone* and *marathon, aerobicise* from *aerobics* and *exercise, chunnel* (for the underwater link between Britain and mainland Europe) from *channel* and *tunnel*, and *infomercial* from *information* and *commercial*. And where would we be without the word *toonie*, the affectionate name for Canada's two-dollar coin—a blend of *two* and *loonie*?

Another type of blend, common in languages of Asia, is strongly syllable-oriented: two or more words each contribute a syllable to the blend.

(20) *a.* Tagalog
tap-si-log < tapa sinangag itlog
breakfast combination (from 'dried meat – fried rice – egg')

b. Malay
pulada < pusat latihan darat
army training camp (from 'centre – training – army')

In Japanese, Korean, and Mandarin, nicknames for universities (among other words) are often created in this way.

(21) *a.* Korea Tayhakkyo > Kotay
Korea University

b. Tokyo Daigakku > Todai
Tokyo University

c. Beijing Da Xue > Bei Da
Beijing University

Sometimes, a word is formed by a process that is on the borderline between compounding and blending in that it combines all of one word with part of another. Examples of this in English include *email, perma-press, workaholic, medicare, guesstimate*, and *Amerindian*. Even *blog* has managed to participate in this process—*blogma* is a blend of *blog* and *dogma* and *blook* refers to a book based on content from a blog.

Backformation

Backformation is a process that creates a new word by removing a real or supposed affix from another word in the language. *Resurrect* was originally formed in this way from *resurrection*. Other backformations in English include *enthuse* from *enthusiasm, donate* from *donation, orientate* from *orientation*, and *self-destruct* from *self-destruction*.

Language Matters **Some Words That Originated as Blends**

Some words become part of the language without its users having any idea of their origin. For example, all of the following words began as blends.

bit (unit of information in computer science) < binary + digit
modem < modulator + demodulator
pixel < picture + element
quasar < quasi + stellar
chortle < chuckle + snort
spam (the sandwich meat) < spiced + ham

Sometimes, backformation involves an incorrect assumption about a word's form: for example, the word *pea* was derived from the singular noun *pease*, whose final /z/ was incorrectly interpreted as the plural suffix.

Words that end in *-or* or *-er* have proven very susceptible to backformation in English. Because hundreds of such words are the result of affixation (*runner, walker, collector,* etc.), any word with this shape is likely to be perceived as a verb + *-er* combination. The words *editor, peddler*, and *swindler* were (mis)analyzed in just this way, resulting in the creation of the verbs *edit, peddle*, and *swindle*, as shown in table 4.24.

TABLE 4.24 Some examples of backformation

Original word	Misanalysis	Verb formed by backformation
editor	edit + or	edit
peddler	peddle + er	peddle
swindler	swindle + er	swindle

Two relatively recent backformations are *lase* and *tase*, from *laser* and *taser*, respectively, each of which have their own unusual origin (see "Acronyms and initialisms" on page 126).

Backformation continues to produce new words in modern English—*aggress* (from *aggression*), *allegate* (from *allegation*), *liaise* (from *liaison*), *administrate* (from *administration*), *claustrophobe* (from *claustrophobia*) and *liposuct* (from *liposuction*) have all been derived in this way.

Language Matters **Word of the Year for 2013**

Every year, Oxford Dictionaries picks a 'word of the year' (http://blog.oxforddictionaries.com/press-releases/oxford-dictionaries-word-of-the-year-2013/). The winner for 2013 was *selfie*—a root-plus-suffix combination that refers to a photo that one has taken of oneself, usually with a smart phone. Runner-ups included *showrooming* (a suffixed compound that describes the practice of examining a product in a store before buying it at a lower price online) and *twerk* (dance to popular music in a sexually provocative manner)—a word that Oxford lexicographers think may be a blend of *twist* or *twitch* and *work*.

Acronyms and initialisms

Acronyms are formed by taking the initial letters of (some or all) the words in a phrase or title and pronouncing them as a word. This type of word formation is especially common in names of organizations and in military and scientific terminology. Common examples include *UNICEF* for *United Nations International Children's Emergency Fund, CIDA* for *Canadian International Development Agency, NATO* for *North Atlantic Treaty Organization*, and *AIDS* for *acquired immune deficiency syndrome*. More recent innovations include MOOC 'massive open online course', YOLO 'you only live once', FOMO 'fear of missing out', and BOGO 'buy one, get one (free)'.

Acronyms are to be distinguished from **initialisms** such as *PEI* for *Prince Edward Island* or *USA* for *United States of America*, not to mention *BYOB* for *bring your own booze*, all of which are pronounced as a series of letters rather than as a word. An intermediate case is *CD-ROM*, a compound consisting of the initialism *CD* (*compact disc*) and the acronym *ROM* (*read-only memory*).

Some words enter the language as acronyms without speakers' knowledge of their origins, perhaps because they sound similar to other words in the language or because they have been in the language for more than one generation. Four commonly used words of this type are *radar* (from *radio detecting and ranging*), *scuba* (*self-contained underwater breathing apparatus*), *laser* (*light amplification by stimulated emission of radiation*), and *taser* (named by its inventor after his hero, Tom Swift: *Thomas A. Swift's electrical rifle*)!

Onomatopoeia

All languages have some words that have been created to sound like the thing that they name. Examples of such **onomatopoeic** words in English include *buzz, hiss, sizzle*, and *cuckoo*. Since onomatopoeic words are not exact phonetic copies of noises, their form can differ from language to language, as shown in table 4.25.

TABLE 4.25 Onomatopoeia across languages

English	Japanese	Tagalog
cock-a-doodle-doo	kokekokko	kuk-kukaok
meow	nyaa	ngiyaw
chirp	pii-pii	tiririt
bow-wow	wan-wan	aw-aw

English does not always have an equivalent for the onomatopoeic words found in other languages. The Athabaskan language Slavey, for instance, has the onomatopoeic word [sah sah sah] for 'the sound of a bear walking unseen not far from camp', [ðik] for 'the sound of a knife hitting a tree', and [tɬóòtʃ] for 'the sound of an egg splattering'.

Other sources of new words

Sometimes, a word may be created from scratch. Called **word manufacture** or **coinage**, this phenomenon is especially common in the case of product names, including *Kodak, Dacron, Orlon*, and *Teflon*. (Notice how the *on* of the final three words makes them sound more

scientific, perhaps because an affix with this form occurs in science-related words of Greek origin such as *phenomenon* and *automaton*.)

New words can also sometimes be created from names, including those listed in table 4.26. Words created in this way are called **eponyms**.

TABLE 4.26 Some English words created from names

Word	Name of the person
watt	James Watt (late 18th-century scientist)
curie	Marie and Pierre Curie (early 20th-century scientists)
Fahrenheit	Gabriel Fahrenheit (18th-century scientist)
boycott	Charles Boycott (19th-century land agent in Ireland who was ostracized for refusing to lower rents)

In still other cases, brand names can become so widely known that they are accepted as generic terms for the product with which they are associated. The words *kleenex* for 'facial tissue' and *xerox* for 'photocopy' are two obvious examples of this, as is the verb *google* in the sense of 'conduct an Internet search'.

Finally, languages frequently look to other languages for new words. English has always been open to borrowing of this sort, and the language continues to absorb new words from many different sources—*latte* from Italian, *feng shui* from Chinese, *al Qaeda* from Arabic, and so forth.

Language Matters **What's the Longest Word in English?**

Is it

ANTIDISESTABLISHMENTARIANISM (28 letters)
(the belief that opposes removing the tie between church and state)?

Or is it

SUPERCALIFRAGILISTICEXPIALIDOCIOUS (34 letters)
('extremely wonderful' from the Disney movie *Mary Poppins*)?

Neither! The longest English word in any dictionary is

PNEUMONOULTRAMICROSCOPICSILICOVOLCANOCONIOSIS
(45 letters; also spelled '.. . koniosis')
(a lung disease caused by breathing in particles of siliceous volcanic dust).

4.6 Morphophonemics

A word's pronunciation can be affected by morphological factors, including its internal structure. The study of these effects is known as **morphophonemics** (or **morphophonology**).

A well-known example of a morphophonemic phenomenon in English involves the plural suffix *-s*, which can be /s/, /z/, or /əz/, depending on the context, as mentioned in section 4.1.1.

(22) lip/s/
pill/z/
judg/əz/

This alternation is, in part, the result of phonetic factors: voiceless /-s/ occurs after voiceless sounds (such as /p/), voiced /-z/ occurs after voiced sounds (such as /l/), and the /-əz/ form shows up only when a vowel is needed to break up a non-English consonant cluster (no English syllable ends with the coda /dʒz/). What makes the alternation morphophonemic is its interaction with two additional factors.

First, the alternation involves separate phonemes—/s/ and /z/. In this, it differs from a purely phonetic alternation, such as aspiration of the /t/ in *top* but not *stop*, a variation that involves allophones of the same phoneme.

Second, morphological structure matters. It is perfectly possible to have /s/ after /l/ in English when they are both in the same morpheme, as in the word *pulse*. But when the 's' represents the plural as it does in *pills*, and is therefore a separate morpheme, only /z/ is permitted. Alternations like this that occur specifically at morpheme boundaries are sometimes referred to as sandhi, a Sanskrit word used to describe similar phenomena in the languages of India, where morphophonological analysis was being done in the 4th century BC.

Another example of morphophonemic alternation, also mentioned in section 4.1.1, involves the variant forms of the prefix *in-*, whose final consonant is /n/ in *inactive*, /m/ in *impossible*, /l/ in *illegal*, and /r/ in *irregular*. Here again, the alternation involves distinct phonemes and is associated with a particular morpheme in a particular context. (The final consonant of the semantically similar prefix *un-* does not change to /l/ in *unlawful* or to /r/ in *unreadable*.)

Summing up

This chapter has focused on the structure and formation of **words** in human language. **Morphemes** are the basic building blocks for words. These elements can be classified in a variety of ways (**free** versus **bound**, **root** versus **affix**, **prefix** versus **suffix**) and can be combined and modified under various conditions to build words.

The two basic types of word formation in English are **derivation** and **compounding**. **Inflection**, a change in the form of a word to convey grammatical information such as plurality or tense, can be expressed via **affixation**, **internal change**, **reduplication**, and **tone placement**. Other important morphological phenomena include **cliticization**, **conversion**, **clipping**, **blending**, and **backformation**.

Notes

[1] There are three *-ing* affixes in English, one inflectional and two derivational. Inflectional *-ing* combines with a verb to give another verb, as in *He is breathing*. One derivational *-ing* combines with a verb to give a noun (*The breathing of the runners*) and the other converts a verb into an adjective (*the sleeping giant*)—see table 4.6. There are also two types of *-en/-ed* suffix, one inflectional, as noted in table 4.15, and the other derivational. The latter converts verbs into adjectives so that they can appear in structures such as the following:

the *stolen* money

the *escaped* convict

Recommended reading

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Gleason, Henry Allan. 1955/1961. *An Introduction to Descriptive Linguistics*. New York: Holt, Rinehart and Winston.

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Appendix: how to identify morphemes in unfamiliar languages

An important part of morphological analysis involves identifying morphemes in unfamiliar languages and determining the nature of the information that they carry. (A number of the problems in the set of exercises at the end of this chapter will give you an opportunity to practise this type of analysis.) The key procedure for working on this sort of problem can be stated simply as follows:

- Identify recurring strings of sounds and match them with recurring meanings.

Consider in this regard the following small sample of data in table 4.27 from Turkish, consisting of four words along with their English translations. (A more realistic data sample would not only be much larger but would also include sentences in which it might well be unclear where the word boundaries should be placed.)

TABLE 4.27 Some Turkish words

mumlar	'candles'
yollar	'roads'
adamlar	'men'
kitaplar	'books'

As you can probably see, the syllable *lar* occurs in all four items in our sample. From the translations of these items, you can see that a particular feature of meaning—namely, plurality—is present in all four cases as well. Using the procedure just stated, we therefore hypothesize that *-lar* is the morpheme marking plurality in Turkish. Once this has been determined, we can then infer that *mum* in *mumlar* is also a morpheme (with the meaning 'candle'), that *yol* in *yollar* is a morpheme (with the meaning 'road'), and so on. A larger sampling of Turkish data would confirm the correctness of these inferences.

In doing morphological analysis in unfamiliar languages, a number of pitfalls must be avoided. For the type of data normally investigated at the introductory level, the following guidelines are especially important.

- Do not assume that the morpheme order in the language you are analyzing is the same as in English. In Korean, for example, morphemes indicating location (the rough equivalent of 'at', 'in', and so forth) follow rather than precede the noun (*hakkyo-eyse* 'at school' is literally 'school at').
- Do not assume that every semantic contrast expressed in English will also be manifested in the language you are analyzing. Turkish, for instance, has no equivalent for English *the* and *a*. Mandarin has no *he-she* distinction: the same pronoun form can be used to refer to a male or a female.
- Conversely, do not assume that every contrast expressed in the language you are analyzing is manifested in English. For example, some languages distinguish more than two number categories (Inuktitut distinguishes singular, dual, and plural), and some languages make multiple tense contrasts (ChiBemba has an eight-way distinction).
- Remember that a morpheme can have more than one form, or allomorph. For example, further study of Turkish would reveal that the plural suffix in this language can also be realized as *-ler*, depending on the vowel in the base to which the suffix is attached.

Exercises

Note: Data from languages other than English is sometimes presented in transcribed form (in which case it appears between slashes) and sometimes in the native orthography or romanization.

1. Consider the following words and answer the questions below.

a)	fly	f)	reuse	k)	spiteful	p)	preplan
b)	desks	g)	triumphed	l)	suite	q)	optionality
c)	untie	h)	delight	m)	fastest	r)	prettier
d)	tree	i)	justly	n)	deform	s)	mistreat
e)	dislike	j)	payment	o)	disobey	t)	premature

i) For each word, determine whether it is simple or complex.
ii) Circle all the bound morphemes. Underline all the roots.

2. The following problem, from the Lukunosh dialect of Mortlockese (a language of Micronesia), was prepared by Emerson Lopez Odango.

a)	ngiij	'my tooth'	e)	ngiimam	'our (excl) tooth'
b)	ngiimw	'your (sg) tooth'	f)	ngiimi	'your (pl) tooth'
c)	ngiin	'his/her/its tooth'	g)	ngiir	'their tooth'
d)	ngiish	'our (incl) tooth'			

i) Identify the morpheme corresponding to each of the following:

tooth _____ our (incl) _____
my _____ our (excl) _____
your (sg) _____ your (pl) _____
his/her/its _____ their _____

ii) Given that the word for 'leg/foot' in Mortlockese is *peshe*, how would you say each of the following?

your (sg) leg/foot _____
his/her/its leg/foot _____
our (excl) leg/foot _____

Note: incl = inclusive (the speaker and the addressee)
excl = exclusive (the speaker and someone other than the addressee)
pl = plural
sg = singular

3. The following problem, from Irarutu (an Austronesian language spoken in West Papua, Indonesia) was provided by Jason Jackson.

a)	adena	'my mother'	d)	ambamba	'my elder brother'
b)	odena	'your mother'	e)	ombamba	'your elder brother'
c)	idena	'his/her mother'	f)	imbamba	'his/her elder brother'

g)	afrag	'my hand'	j)	atgrag	'my ear'	m)	aftag	'my stomach'
h)	ofram	'your hand'	k)	otgram	'your ear'	n)	oftam	'your stomach'
i)	ifra	'his/her hand'	l)	itgra	'his/her ear'	o)	ifta	'his/her stomach'

i) Irarutu has different strategies for expressing possession in the case of kinship and possession in the case of body parts. Based on the data above, identify the morphemes used to express each type of possession.

ii) Given that *mce* means 'eye' and that *nfut* means 'younger sibling', how would you say each of the following in Irarutu?

his/her younger sibling _____
my eye _____
his/her eye _____

4. Consider the following data from Kwakum, a Bantu language spoken in Cameroon.

a)	/sɛbɔmmɛ/	'We bought (a long time ago).'
b)	/sɛbɔmko/	'We bought (recently).'
c)	/sɛbɔmkowɛɛ/	'We did not buy (recently).'
d)	/nyebɔmmɛ/	'I bought (a long time ago).'

e) /ɔbɔmmɛ/ 'You (sg) bought (a long time ago).'
f) /yebɔmko/ 'They bought (recently).'
g) /nɛbɔmko/ 'You (pl) bought (recently).'
h) /abɔmmɛwɛɛ/ 'S/he did not buy (a long time ago).'

i) What are the Kwakum morphemes for each of the following concepts?

I ____ we ____
you (sg) ____ you (pl) ____
s/he ____ they ____
buy ____
negation (not) ____
recent past (recently) ____
remote past (a long time ago) ____

ii) How would you say the following in Kwakum?

I bought (recently). _____
I didn't buy (recently). _____
They bought (a long time ago). _____

5. All the following Persian words (presented in roman orthography) consist of two or more morphemes. (Note: *xar* means 'buy' and *-id* designates the past tense.)

a) xaridam 'I bought'
b) xaridi 'you (sg) bought'
c) xarid '(he) bought'
d) naxaridam 'I did not buy'
e) namixaridand 'they were not buying'
f) naxaridim 'we did not buy'
g) mixarid '(he) was buying'
h) mixaridid 'you (pl) were buying'

i) Match each of the following notions with a morpheme in the Persian data.

I ____ they ____
you (sg) ____ not ____
we ____ was/were + -ing (continuous) ____
you (pl) ____

ii) How would you say the following in Persian?

They were buying. _____
You (sg) did not buy. _____
You (sg) were buying. _____

6. Consider the following data from Zapotec.

a)	racañeea	'I help'	racañeetonoo	'we help'
b)	racañeelo	'you (sg) help'	racañeetoo	'you (pl) help'
c)	racañeeni	's/he helps'	racañeeni	'they help'
d)	cocañeea	'I helped'	cocañeetonoo	'we helped'
e)	cocañeelo	'you (sg) helped'	cocañeetoo	'you (pl) helped'
f)	cocañeeni	's/he helped'	cocañeeni	'they helped'
g)	cacañeea	'I will help'	cacañeetonoo	'we will help'

h) cacañeelo	'you (sg) will help'	cacañeetoo	'you (pl) will help'
i) cacañeeni	's/he will help'	cacañeeni	'they will help'

Match each of the following notions with a Zapotec morpheme.

help ____	I ____	we ____
present ____	you (sg) ____	you (pl) ____
past ____	he/she/they ____	
future ____		

(Data from *Gramática de la lengua zapoteca*, by an anonymous author. Mexico: Oficina Tip. de la Secretaría de Formento, 1897, p. 8.)

7. Consider the following data from Turkish, presented in phonemic transcription.

a) /lokanta/	'a restaurant'	/lokantada/	'in/at a restaurant'
b) /kapɨ/	'a door'	/kapɨda/	'in/at a door'
c) /randevu/	'an appointment'	/randevuda/	'in/at an appointment'
d) /başım/	'a head'	/başta/	'in/at a head'
e) /kitap/	'a book'	/kitapta/	'in/at a book'
f) /koltuk/	'an armchair'	/koltukta/	'in/at an armchair'
g) /taraf/	'a side'	/tarafta/	'in/at a side'

i) What are the allomorphs for the Turkish morpheme meaning 'in/at'?
ii) Describe the distribution of the allomorphs as generally as possible.

8. The following problem, from Serbian (a Slavic language), was prepared by Diana Stojanovic.

a) /hrabra/	'brave (fem sg)'	/hrabrija/	'braver (fem sg)'
b) /hrabro/	'brave (neut sg)'	/hrabrije/	'braver (neut sg)'
c) /pametna/	'smart (fem sg)'	/pametnija/	'smarter (fem sg)'
d) /pametno/	'smart (neut sg)'	/pametnije/	'smarter (neut sg)'
e) /sretçna/	'happy (fem sg)'	/sretçnija/	'happier (fem sg)'
f) /sretçno/	'happy (neut sg)'	/sretçnije/	'happier (neut sg)'
g) /lepo/	'beautiful (neut sg)'	/lepʃe/	'more beautiful (neut sg)'
h) /lako/	'light (neut sg)'	/lakʃe/	'lighter (neut sg)'

i) Make a list of the morphemes in the above data and indicate the meaning of each.
ii) If your analysis of the above data is correct, you will have noticed instances of allomorphic variation. Under what conditions does each allomorph occur?

9. Consider the following words.

a) desks	e) triumphed	i) prearrange	m) optionality
b) untie	f) ageless	j) smartest	n) prettier
c) insincere	g) loser	k) redistribute	o) mistreat
d) disprove	h) payment	l) disobey	p) resell

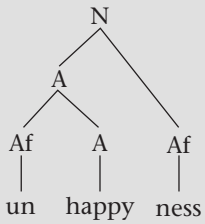
i) Draw a tree structure for each word.
ii) For the word *optionality*, what is the base for the affix *-ion*? What is the base for the -suffix *-ity*? Are either of these bases also the root for the entire word? If so, which one?

10. The following problem, from Puyuma (a Formosan language, spoken in Taiwan), was prepared by Yen-hsin Chen.

a)	sanay	'a song'	semanay	'to sing'
b)	treli	'a decrease in weight'	tremeli	'to lighten'
c)	traetra	'a lock'	tremaetra	'to lock'
d)	sapuk	'a seedling'	semapuk	'to sow'
e)	seber	'a bud'	semeber	'to bud'
f)	garutr	'a comb'	gemarutr	'to comb'
g)	sungal	'a bow'	semungal	'to bow (to someone)'

i) What is the affix that converts nouns into verbs in Puyuma?
ii) What type of affix is it?

11. In this chapter, an argument was presented in favour of the following structure for the word *unhappiness*.



Using the same type of argument, draw and justify tree structures for the words *unresourceful, redisposal*, and *disinvestment*. (*Hint*: This will involve determining the type of syntactic category with which the affixes in these words can combine; see table 4.6.)

12. In English, the suffix *-er* can be added to a place name. Examine the words in the two columns below.

Column 1	*Column 2*
Long Islander	*Denverer
Vermonter	*Philadelphiaer
New Yorker	*Vancouverer
Newfoundlander	*Torontoer
Londoner	*Miamiaer

i) In general terms, what does the suffix *-er* mean in these words?
ii) How is this *-er* different in meaning from the *-er* found in the words *skater* and *walker*?
iii) State the constraint on the distribution of *-er* illustrated in this data set.
iv) Does this constraint also apply to the type of *-er* used in the word *skater*? (*Hint*: What would you call 'one who discovers' or 'one who plows'?)

13. The following words have all been formed by compounding. Draw a tree structure for each word. If you are in doubt as to the lexical category of the compound, remember that the category of the head determines the category of the word.

a)	football	d)	in-crowd	g)	freeze-dry
b)	billboard	e)	fast food	h)	oversee
c)	sunspot	f)	softball	i)	tree trunk

j) lead-free
k) home plate
l) girlfriend
m) city centre
n) failsafe
o) potato peel
p) bittersweet
q) hockey match
r) coffee table
s) flower pot
t) blueprint
u) red alert
v) space ship

14. Examine the following compounds and answer the questions below.

a) loudmouth
b) skinhead
c) killjoy
d) bath towel
e) death blow
f) airhead
g) Walkman
h) cutthroat
i) pickpocket
j) spoilsport
k) crybaby
l) brain-dead
m) blow-dry
n) armchair

i) For each of the compounds determine whether it is endocentric or exocentric.
ii) How do you form the plural of *Walkman* (a portable radio) and *loudmouth*? (*Hint*: See table 4.13. Also, pay special attention to the pronunciation of *mouth*. Is it any different here than when it is an independent word?)

15. English contains many verbal expressions that consist of a verb plus a preposition:
hold up (a bank)
carry on (a conversation)
drop out (of school)
back down (from a challenge)
take over (a company)

Should these sorts of expressions be considered compounds? In answering this question, be sure to refer to the properties of compounds discussed in section 4.3.

Now consider the nouns that are derived from these verbal expressions via conversion: *a hold up, a drop out, a take over*. According to the criteria you used to answer the preceding question, should they be considered compounds?

16. Indicate whether the words in each of the following groups are related to one another by process of inflection or derivation.

a) go, goes, going, gone
b) discover, discovery, discoverer, discoverable, discoverability
c) lovely, lovelier, loveliest
d) inventor, inventor's, inventors, inventors'
e) democracy, democrat, democratic, democratize

17. The following sentences contain both derivational and inflectional affixes. Underline all of the derivational affixes and circle the inflectional affixes.

a) The farmer's cows escaped.
b) It was raining.
c) Those socks are inexpensive.
d) Jim needs the newer copy.
e) The strongest rower continued.
f) The pitbull has bitten the cyclist.
g) She quickly closed the book.
h) The alphabetization went well.

18. Each of the following columns illustrates a different way of marking inflection.

Column 1	*Column 2*	*Column 3*
a) mouse/mice	f) go/went	k) record/recorded
b) dive/dove	g) is/was	l) arrive/arrived
c) take/took	h) good/better	m) start/started
d) man/men	i) she/her	n) discuss/discussed
e) eat/ate	j) am/are	o) try/tried

i) How is inflection expressed in column 1? column 2? column 3?
ii) Think of at least one more English example to add to each column.

19. Consider the following data from Samoan, presented in the native orthography. (The inverted comma represents a glottal stop.)

a)	mate	'he dies'	mamate	'they die'
b)	nofo	'he stays'	nonofo	'they stay'
c)	galue	'he works'	galulue	'they work'
d)	tanu	'he buries'	tatanu	'they bury'
e)	alofa	'he loves'	alolofa	'they love'
f)	ta'oto	'he lies'	ta'o'oto	'they lie'
g)	atama'i	'he is intelligent'	atamama'i	'they are intelligent'

i) What morphological process is used to express the inflectional contrast between singular and plural here?
ii) Describe how it works in your own words.
iii) If 'he is strong' is *malosi* in Samoan, how would you say 'they are strong'?

20. The following words from Chamorro, spoken in Guam and the Mariana Islands, all involve derivation. (Data are presented in Chamorro orthography.)

I.	*Root*		*Derived word*	
a)	adda	'mimic'	aadda	'mimicker'
b)	kanno	'eat'	kakanno	'eater'
c)	tuge	'write'	tutuge	'writer'
II.	*Root*		*Derived word*	
d)	atan	'look at'	atanon	'nice to look at'
e)	sangan	'tell'	sanganon	'tellable'
f)	guaiya	'love'	guaiyayon	'lovable'
g)	tulaika	'exchange'	tulaikayon	'exchangeable'
h)	chalek	'laugh'	chalekon	'laughable'
i)	ngangas	'chew'	ngangason	'chewable'
III.	*Root*		*Derived word*	
j)	nalang	'hungry'	nalalang	'very hungry'
k)	dankolo	'big'	dankololo	'very big'
l)	metgot	'strong'	metgogot	'very strong'
m)	bunita	'pretty'	bunitata	'very pretty'

Like inflection, derivation can be expressed in a variety of ways—including by affixation of various types (prefixation, suffixation, infixation) and by reduplication.

i) What morphological process is manifested in I? in II? in III?
ii) Formulate a general statement that describes how the derived words in I are formed. Do the same for II and III.
iii) One of these derivational processes consists of affixation involving allomorphs. What is the distribution of the allomorphs?

21. The following words can be either nouns or verbs.

a) record	f) outline	k) report
b) journey	g) convict	l) assault
c) exchange	h) imprint	m) answer
d) remark	i) reply	n) import
e) surprise	j) retreat	o) cripple

i) For each word, determine whether stress placement can be used to make the distinction between noun and verb.
ii) Think of two more English examples illustrating the process of stress shift to mark a category distinction.

22. Indicate the morphological phenomenon illustrated by the items in column 2.

Column 1	*Column 2*
a) automation	→ automate
b) humid	→ humidifier
c) information, entertainment	→ infotainment
d) love, seat	→ loveseat
e) prógress	→ progréss
f) typographical error	→ typo
g) aerobics, marathon	→ aerobathon
h) act	→ deactivate
i) curve, ball	→ curve ball
j) perambulator	→ pram
k) (the) comb	→ comb (your hair)
l) beef, buffalo	→ beefalo
m) random access memory	→ RAM
n) megabyte	→ meg
o) Europe, Asia	→ Eurasia
p) applications (for a computer)	→ apps
q) They have finished	→ They've finished
r) Goods and Services Tax	→ GST

23. Here are ten instances where a new word is needed. Create a word for each of these definitions in the manner indicated.
a) Use an acronym . . . for your uncle's second oldest brother.
"We visited my _____ at Christmas."
b) Use onomatopoeia . . . for the sound of a coffee percolator at work.
"I can't concentrate because my perc is _____ ing."
c) Use conversion . . . for wrapping something breakable in bubbles.
"You'd better _____ that ornament or else it might break."

d) Use a compound . . . for the annoying string of cheese stretching from a slice of hot pizza to one's mouth.
"As the _____ hung precariously from my lips, our eyes met!"
e) Use backformation . . . for the action of backformation.
"We had to _____ words in linguistics class today."
f) Use a product name . . . for the act of cleaning a mirror with Windex.
"I _____ ed the the mirror to get rid of the fingerprints."
g) Use a proper name . . . for the act of breaking dishes, which Jonathan does regularly.
"He's going to _____ all of my best dishes."
h) Use clipping . . . for a course in ovinology (the study of sheep).
"Have you done your _____ assignment yet?"
i) Use derivation . . . for being able to be contacted.
"The counsellor is not very _____."
j) Use a blend . . . for a hot drink made with chocolate and ginseng.
"I'll have a _____ and two peanut butter cookies, please."

24. In Korean, /p/ and /m/ are distinct phonemes, as shown by contrasts such as the following:

/pap/ 'food' /pam/ 'night'

However, under the circumstances illustrated below, /p/ is converted to /m/.

/pap/ 'food' + /məkə/ 'eat' becomes /pammək ə/ 'eat food'
/sip/ 'ten' + /njən/ 'year' becomes /simnjən/ 'ten years'
/ip/ 'mouth' + /man/ 'only' becomes /imman/ 'mouth only'

i) What type of phenomenon is this?
ii) Describe the process that is involved in terms of the change that takes place and the context in which it occurs.
iii) Now consider the following additional data.

/hak/ 'school' + /njən/ 'year' becomes /haŋnjən/ 'school year'
/ot/ 'clothes' + /mana/ 'be many' becomes /onmana/ 'there are many clothes'

Based on this data, how would you modify the statement that you made in response to question (ii)?

To learn more about the topics discussed in this chapter, visit the Companion Website for *Contemporary Linguistic Analysis*.