7 Morphology

BAMBIFICATION: The mental conversion of flesh and blood living creatures into cartoon characters possessing bourgeois Judeo-Christian attitudes and morals.
Coupland (1991)

Throughout the preceding chapter, we approached the description of processes involved in word formation as if the unit called the 'word' was always a regular and easily identifiable form, even when it is a form such as *bambification* that we may never have seen before. This doesn't seem unreasonable when we look at a text of written English, since the 'words' in the text are, quite obviously, those sets of things marked in black with the bigger spaces separating them. Unfortunately, there are a number of problems with using this observation as the basis of an attempt to describe language in general, and individual linguistic forms in particular.

Morphology

In many languages, what appear to be single forms actually turn out to contain a large number of 'word-like' elements. For example, in Swahili (spoken throughout East Africa), the form *nitakupenda* conveys what, in English, would have to be represented as something like *I will love you*. Now, is the Swahili form a single word? If it is a 'word', then it seems to consist of a number of elements which, in English, turn up as separate 'words'. A rough correspondence can be presented in the following way:

ni   -ta   -ku   -penda
I   will   you   love

It would seem that this Swahili 'word' is rather different from what we think of as an English 'word'. Yet, there clearly is some similarity between the languages, in that similar elements of the whole message can be found in both. Perhaps a better way of looking at linguistic forms in different languages would be to use this notion of 'elements' in the message, rather than depend on identifying only 'words'.

The type of exercise we have just performed is an example of investigating basic forms in language, generally known as **morphology**. This term, which literally means 'the study of forms', was originally used in biology, but, since

the middle of the nineteenth century, has also been used to describe the type of investigation that analyzes all those basic 'elements' used in a language. What we have been describing as 'elements' in the form of a linguistic message are technically known as 'morphemes'.

Morphemes

We do not actually have to go to other languages such as Swahili to discover that 'word forms' may consist of a number of elements. We can recognize that English word forms such as *talks*, *talker*, *talked* and *talking* must consist of one element *talk*, and a number of other elements such as *-s*, *-er*, *-ed* and *-ing*. All these elements are described as **morphemes**. The definition of a morpheme is "a minimal unit of meaning or grammatical function". Units of grammatical function include forms used to indicate past tense or plural, for example.

In the sentence *The police reopened the investigation*, the word *reopened* consists of three morphemes. One minimal unit of meaning is *open*, another minimal unit of meaning is *re-* (meaning 'again') and a minimal unit of grammatical function is *-ed* (indicating past tense). The word *tourists* also contains three morphemes. There is one minimal unit of meaning *tour*, another minimal unit of meaning *-ist* (marking 'person who does something'), and a minimal unit of grammatical function *-s* (indicating plural).

Free and bound morphemes

From these examples, we can make a broad distinction between two types of morphemes. There are **free morphemes**, that is, morphemes that can stand by themselves as single words, for example, *open* and *tour*. There are also **bound morphemes**, which are those forms that cannot normally stand alone and are typically attached to another form, exemplified as *re-*, *-ist*, *-ed*, *-s*. This last set is familiar from chapter 6, where they were identified as affixes. So, we can say that all affixes (prefixes and suffixes) in English are bound morphemes. The free morphemes can generally be identified as the set of separate English word forms such as basic nouns, adjectives, verbs, etc. When they are used with bound morphemes attached, the basic word forms are technically known as **stems**. For example:

	undressed			*carelessness*	
un-	*dress*	*-ed*	*care*	*-less*	*-ness*
prefix	stem	suffix	stem	suffix	suffix
(bound)	(free)	(bound)	(free)	(bound)	(bound)

We should note that this type of description is a partial simplification of the morphological facts of English. There are a number of English words in which

the element treated as the stem is not, in fact, a free morpheme. In words such as *receive*, *reduce* and *repeat*, we can identify the bound morpheme *re-* at the beginning, but the elements *-ceive*, *-duce* and *-peat* are not separate word forms and hence cannot be free morphemes. These types of forms are sometimes described as 'bound stems' to keep them distinct from 'free stems' such as *dress* and *care*.

Lexical and functional morphemes

What we have described as free morphemes fall into two categories. The first category is that set of ordinary nouns, adjectives and verbs that we think of as the words that carry the 'content' of the messages we convey. These free morphemes are called **lexical morphemes** and some examples are: *girl*, *man*, *house*, *tiger*, *sad*, *long*, *yellow*, *sincere*, *open*, *look*, *follow*, *break*. We can add new lexical morphemes to the language rather easily, so they are treated as an 'open' class of words.

Other types of free morphemes are called **functional morphemes**. Examples are *and*, *but*, *when*, *because*, *on*, *near*, *above*, *in*, *the*, *that*, *it*, *them*. This set consists largely of the functional words in the language such as conjunctions, prepositions, articles and pronouns. Because we almost never add new functional morphemes to the language, they are described as a 'closed' class of words.

Derivational and inflectional morphemes

The set of affixes that make up the category of bound morphemes can also be divided into two types. One type we have already considered in chapter 6 when we looked at the derivation of words. These are the **derivational morphemes**. We use these bound morphemes to make new words or to make words of a different grammatical category from the stem. For example, the addition of the derivational morpheme *-ness* changes the adjective *good* to the noun *goodness*. The noun *care* can become the adjectives *careful* or *careless* by the addition of the derivational morphemes *-ful* or *-less*. A list of derivational morphemes will include suffixes such as the *-ish* in *foolish*, *-ly* in *quickly*, and the *-ment* in *payment*. The list will also include prefixes such as *re-*, *pre-*, *ex-*, *mis-*, *co-*, *un-*, and many more.

The second set of bound morphemes contains what are called **inflectional morphemes**. These are not used to produce new words in the language, but rather to indicate aspects of the grammatical function of a word. Inflectional morphemes are used to show if a word is plural or singular, if it is past tense or not, and if it is a comparative or possessive form. English has only eight inflectional morphemes (or 'inflections'), illustrated in the following sentences.

Jim's two sisters are really different.
One likes to have fun and is always laughing.
The other liked to read as a child and has always taken things seriously.
One is the loudest person in the house and the other is quieter than a mouse.

From these examples, we can see that two of the inflections, -*'s* (possessive) and -*s* (plural), are attached to nouns. There are four inflections attached to verbs, -*s* (3rd person singular), -*ing* (present participle), -*ed* (past tense) and -*en* (past participle). There are two inflections attached to adjectives: -*est* (superlative) and -*er* (comparative). In English, all the inflectional morphemes are suffixes.

Noun +   *-'s, -s*
Verb +   *-s, -ing, -ed, -en*
Adjective +   *-est, -er*

There is some variation in the form of these inflectional morphemes. For example, the possessive sometimes appears as -*s'* (*those boys' bags*) and the past participle as -*ed* (*they have finished*).
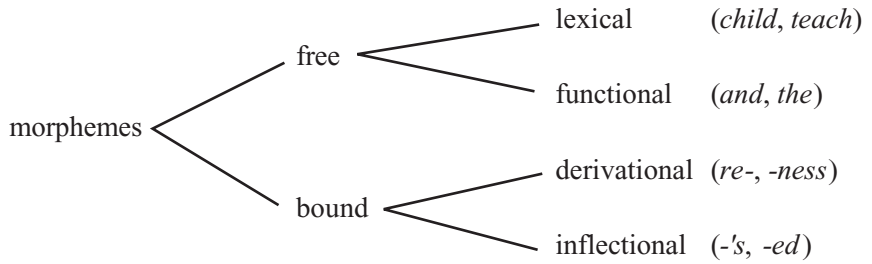
Morphological description

The difference between derivational and inflectional morphemes is worth emphasizing. An inflectional morpheme never changes the grammatical category of a word. For example, both *old* and *older* are adjectives. The -*er* inflection here (from Old English -*ra*) simply creates a different version of the adjective. However, a derivational morpheme can change the grammatical category of a word. The verb *teach* becomes the noun *teacher* if we add the derivational morpheme -*er* (from Old English -*ere*). So, the suffix -*er* in modern English can be an inflectional morpheme as part of an adjective and also a distinct derivational morpheme as part of a noun. Just because they look the same (-*er*) doesn't mean they do the same kind of work.

Whenever there is a derivational suffix and an inflectional suffix attached to the same word, they always appear in that order. First the derivational (-*er*) is attached to *teach*, then the inflectional (-*s*) is added to produce *teachers*.

Armed with all these terms for different types of morphemes, we can now take most sentences of English apart and list all the 'elements'. For example, in the sentence *The child's wildness shocked the teachers*, we can identify eleven morphemes.

The	*child*	*-'s*	*wild*	*-ness*	
functional	lexical	inflectional	lexical	derivational	

shock	*-ed*	*the*	*teach*	*-er*	*-s*
lexical	inflectional	functional	lexical	derivational	inflectional

A useful way to remember all these different types of morphemes is in the following chart.

```
                                    ┌── lexical      (child, teach)
                          free ─────┤
                         /          └── functional   (and, the)
         morphemes ─────┤
                         \          ┌── derivational  (re-, -ness)
                          bound ────┤
                                    └── inflectional  (-'s, -ed)
```

Problems in morphological description

The rather neat chart presented here conceals a number of outstanding problems in the analysis of English morphology. So far, we have only considered examples of English words in which the different morphemes are easily identifiable as separate elements. The inflectional morpheme -s is added to car and we get the plural cars. What is the inflectional morpheme that makes sheep the plural of sheep, or men the plural of man? And if -al is the derivational suffix added to the stem institution to give us institutional, then can we take -al off the word legal to get the stem leg? Unfortunately, the answer is "No".

There are other problematic cases, especially in the analysis of different languages, but the solutions to some of these problems are clearer in some instances than in others. For example, the relationship between law and legal is a reflection of the historical influence of different languages on English word forms. The modern form law is a result of a borrowing into Old English (lagu) from a Scandinavian source over 1,000 years ago. The modern word legal was borrowed about 500 years later from the Latin form legalis ('of the law'). Consequently, there is no derivational relationship between the noun law and the adjective legal in English, nor between the noun mouth (from Old English) and the adjective oral (a Latin borrowing). It has been pointed out that an extremely large number of English words owe their morphological patterning to languages like Latin and Greek. Consequently, a full description of English morphology will have to take account of both historical influences and the effect of borrowed elements.

Morphs and allomorphs

One way to treat differences in inflectional morphemes is by proposing variation in morphological realization rules. In order to do this, we draw an analogy with some processes already noted in phonology (chapter 5). Just as we treated

'phones' as the actual phonetic realization of 'phonemes', so we can propose **morphs** as the actual forms used to realize morphemes. For example, the form *cars* consists of two morphs, *car* + *-s*, realizing a lexical morpheme and an inflectional morpheme ('plural'). The form *buses* also consists of two morphs (*bus* + *-es*), realizing a lexical morpheme and an inflectional morpheme ('plural'). So there are at least two morphs (*-s* and *-es*) used to realize the inflectional morpheme 'plural'. Just as we noted that there were 'allophones' of a particular phoneme, so we can recognize the existence of **allomorphs** of a particular morpheme. That is, when we find a group of different morphs, all versions of one morpheme, we can use the prefix 'allo-' (= one of a closely related set) and describe them as allomorphs of that morpheme.

Take the morpheme 'plural'. Note that it can be attached to a number of lexical morphemes to produce structures like 'cat + plural', 'bus + plural' 'sheep + plural' and 'man + plural'. In each of these examples, the actual forms of the morphs that result from the morpheme 'plural' are different. Yet they are all allomorphs of the one morpheme. So, in addition to *-s* and *-es*, another allomorph of 'plural' in English seems to be a zero-morph because the plural form of *sheep* is actually 'sheep + Ø'. When we look at 'man + plural', we have a vowel change in the word ($æ \rightarrow ɛ$) as the morph that produces the so-called 'irregular' plural form *men*.

There are a number of other morphological processes at work in a language like English, such as those involved in the range of allomorphs for the morpheme 'past tense'. These include the common pattern in 'walk + past tense' that produces *walked* and also the special pattern that takes 'go + past tense' and produces the 'irregular' past form *went*.

Other languages

When we look at the morphology of other languages, we can find other forms and patterns realizing the basic types of morphemes we have identified. The first example below is from English and the second from a language called Aztec (from Central America). In both cases, we attach a derivational morpheme to a stem, then add an inflectional morpheme.

Stem	Derivational	Inflectional	
dark	+ *en* ('make')	+ *ed* ('past')	= *darkened*
mic ('die')	+ *tia* ('cause to')	+ *s* ('future')	= *mictias* ('will kill')

Different patterns occur in other languages. In the following examples, from a range of languages originally described in Gleason (1955), we can try to work out how different forms in the languages are used to realize morphological processes and features.

Kanuri

This first set of examples is from Kanuri, a language spoken in Nigeria.

	Adjective	Noun	
('excellent')	*karite*	*nəmkarite*	('excellence')
('big')	*kura*	*nəmkura*	('bigness')
('small')	*gana*	*nəmgana*	('smallness')
('bad')	*dibi*	*nəmdibi*	('badness')

From this set, we can propose that the prefix *nəm-* is a derivational morpheme that can be used to derive nouns from adjectives. Discovering a regular morphological feature of this type will enable us to make certain predictions when we encounter other forms in the language. For example, if the Kanuri word for 'length' is *nəmkurugu*, then we can be reasonably sure that 'long' is *kurugu*.

Ganda

Different languages also employ different means to produce inflectional marking on forms. Here are some examples from Ganda, a language spoken in Uganda.

	Singular	Plural	
('doctor')	*omusawo*	*abasawo*	('doctors')
('woman')	*omukazi*	*abakazi*	('women')
('girl')	*omuwala*	*abawala*	('girls')
('heir')	*omusika*	*abasika*	('heirs')

From this small sample, we can observe that there is an inflectional prefix *omu-* used with singular nouns, and a different inflectional prefix *aba-* used with the plural of those nouns. If you are told that *abalenzi* is a Ganda plural, meaning 'boys', you should be able to work out the singular form meaning 'boy'. It is, of course, *omulenzi*.

Ilocano

When we look at Ilocano, a language of the Philippines, we find a quite different way of marking plurals.

	Singular	Plural	
('head')	*úlo*	*ulúlo*	('heads')
('road')	*dálan*	*daldálan*	('roads')
('life')	*bíag*	*bibíag*	('lives')
('plant')	*múla*	*mulmúla*	('plants')

In these examples, there seems to be repetition of the first part of the singular form. When the first part is *bi-* in the singular, the plural begins with this form repeated *bibi-*. The process involved here is technically known as **reduplication** (= 'repeating all or part of a form'). There are many languages that use this repetition device as a means of inflectional marking. Having seen how plurals differ from singular forms in Ilocano, you should be able to take this plural form *taltálon* ('fields') and work out what the singular ('field') would be. If you follow the observed pattern, you should get *tálon*.

Tagalog

Here are some other intriguing examples, provided by Lisa Miguel, who speaks Tagalog, another language spoken in the Philippines.

basa ('read')	*tawag* ('call')	*sulat* ('write')
bumasa ('Read!)	*tumawag* ('Call!')	*sumulat* ('Write!')
babasa ('will read')	*tatawag* ('will call')	*susulat* ('will write')

If we assume that the first form in each column is some type of stem, then it appears that, in the second item in each column, an element *-um-* has been inserted after the first consonant, or more precisely, after the syllable onset. It is an example of an **infix** (described in chapter 6). In the third example in each column, note that the change in form involves, in each case, a repetition of the first syllable. So, the marking of future reference in Tagalog appears to be accomplished via reduplication. If you know that *lapit* is the verb meaning 'come here' in Tagalog, how would you expect the expressions 'Come here!' and 'will come here' to be realized? How about *lumapit* and *lalapit*? And if you hear *lalakad* ('will walk'), you can guess the translation of 'walk'. It's *lakad*.

As we have been exploring all these different morphological processes, we have moved from the basic structure of words to a consideration of some topics traditionally associated with grammar. We will focus more fully on issues relating to grammar in the next chapter.

■ Study questions

1 What are the functional morphemes in the following sentence? *When he arrived, the old man had an umbrella and a large plastic bag full of books.*
2 (a) List the bound morphemes in these words: *fearlessly, misleads, previewer, shortened, unhappier*
   (b) In which of the following examples should the 'a' be treated as a bound morpheme? *a boy, apple, atypical, AWOL*
3 What are the inflectional morphemes in these expressions? *It's raining*; *the cow jumped over the moon*; *the newest style*; *the singer's new songs*

4   What are the allomorphs of the morpheme 'plural' in this set of English
    words? *criteria, dogs, oxen, deer, judges, stimuli*
5   Provide equivalent forms, in the languages listed, for the English
    translations shown on the right below.

Ganda	*omuloŋgo*	('twin')	–	('twins')	_____
Ilocano	*tawtáwa*	('windows')	–	('window')	_____
Kanuri	*nəmkəji*	('sweetness')	–	('sweet')	_____
Tagalog	*bili*	('buy')	–	('will buy')	_____
Tagalog	*kain*	('eat')	–	('Eat!')	_____

6   What is reduplication?

■   **Research tasks**

A   What is 'suppletion'? Was there an example of an English suppletive form
    described in this chapter?
B   What happens in the morphological process known as 'vowel mutation' or
    'vowel alternation'? Were there any examples in this chapter?
C   Using what you learned about Swahili and information provided in the set
    of examples below, create appropriate forms as translations of the English
    expressions (1–6) that follow.

nitakupenda ('I will love you')   *alipita* ('She passed by')
watanilipa ('They will pay me')   *uliwapika* ('You cooked them')
tutaondoka ('We will leave')   *walimpiga* ('They beat him')

1 'She loved you'   4 'We paid him'
2 'I will cook them'   5 'She will beat me'
3 'You will pass by'   6 'They left'

D   Using what you learned about Tagalog, plus information from the set of
    examples here, create appropriate forms of these verbs for (1–10) below.

basag ('break'); *bili* ('buy'); *hanap* ('look for'); *kain* ('eat')

('Write!')	*sumulat*	('Call!')	*tumawag*
('was written')	*sinulat*	('was called')	*tinawag*
('is writing')	*sumusulat*	('is calling')	*tumatawag*
('is being written')	*sinusulat*	(is being called')	*tinatawag*

1 'Buy!'   6 'is eating'
2 'was bought'   7 'is breaking'
3 'was broken'   8 'is being broken'
4 'was looked for'   9 'is being looked for'
5 'is looking for'   10 'is being eaten'

■ Discussion topics/projects

I In English, plural forms such as *mice* appear to be treated in a different way from plurals such as *rats*. If you tell people that a place is infested with mice or rats, they will accept the compounds *mice-infested* and *rat-infested*, but not **rats-infested*. This would suggest that the forms which have the regular plural affix (-*s*) follow a different rule in compounding than irregular plural forms such as *mice*. Can you think of a way to state a rule (or sequence of rules) that would accommodate all the examples given here? (The asterisk * designates an unacceptable form.)

teethmarks	*the feet-cruncher*	*lice-infested*	*a people-mover*
clawmarks	*the finger-cruncher*	*roach-infested*	*a dog-mover*
*clawsmarks	**the fingers-cruncher*	**roaches-infested*	**a dogs-mover*

(For background reading, see chapter 6 of Pinker, 1999.)

II In the following examples from Turkish (provided by Feride Erkü), there is some variation in the form of the inflectional morpheme for 'plural'.

	Singular	Plural	
('man')	*adam*	*adamlar*	('men')
('gun')	_____	*toplar*	('guns')
('lesson')	*ders*	_____	('lessons')
('place')	*yer*	*yerler*	('places')
('road')	_____	*yollar*	('roads')
('lock')	_____	*kilitler*	('locks')
('arrow')	*ok*	_____	('arrows')
('hand')	*el*	_____	('hands')
('arm')	*kol*	_____	('arms')
('bell')	_____	*ziller*	('bells')
('friend')	_____	*dostlar*	('friends')
('apple')	*elma*	_____	('apples')

(i) Can you provide the missing forms?

(ii) What are the two plural morphs exemplified here?

(iii) Treat the written forms of *a* and *o* as representing back vowels and *e* and *i* as representing front vowels. Using this information, can you state the conditions under which each of the plural morphs is used?

(iv) On the basis of the following phrases, how would you describe the Turkish translation equivalents of *your* and the conditions for their use?

dishin ('your tooth')   *topun* ('your gun')
okun ('your arrow')   *dersin* ('your lesson')
kushun ('your bird')   *kibritlerin* ('your matches')

(v) While English usually marks location with prepositions (***in** a house* or ***at** a place*), Turkish has postpositions (*house-**in*** or *place-**at***). After looking at the following examples, try to identify the three versions of the 'location' suffix and the conditions for their use.

	Noun	Noun+Suffix	
('book')	*kitap*	*kitapta*	('in a book')
('chair')	*koltuk*	*koltukta*	('in a chair')
('room')	*oda*	*odada*	('in a room')
('restaurant')	*lokanta*	*lokantada*	('in a restaurant')
('house')	*ev*	*evde*	('in a house')
('place')	*yer*	*yerlerde*	('in places')
('hand')	*el*	*ellerimde*	('in my hands')
('road')	*yol*	*yollarda*	('in roads)

(vi) When Turkish borrowed (from French) the word *randevu*, meaning 'an appointment', how do you think they expressed 'in an appointment'?

(For more examples, see Gleason, 1955.)

■ Further reading

For another introduction to morphology, see chapter 3 of Fromkin *et al*. (2003) or chapter 4 of O'Grady *et al*. (2005). Additional exercises in morphology from a wide range of languages can be found in chapter 5 of the *Language Files* (2004). For more on the relationship between morphemes and morphs, see Brown & Miller (1991). Specialized textbooks are Bauer (2003), Carstairs-McCarthy (2002), Haspelmath (2002), Katamba (1994), Matthews (1991) and Payne (1997). For more on Turkish, see Lewis (2000). A comprehensive review of research is presented in Spencer & Zwicky (2001).