CHAPTER 4

MORPHOLOGY

IV MORPHOLOGY

Overview:

The phonemes and phonological features discussed in chapter 3 are the minimal units of linguistic analysis. But in isolation, most of them lack what is the essential aspect of language: meaning. Thus, the phoneme /k/ on its own does not mean anything. It is only once we combine it with other sounds in a syllable or in a sequence of syllables that we obtain meaningful units. The study of these meaningful units and of how they combine in words is the focus of this chapter. The domain of morphology examines word structure and word formation.

1. WORDS AND MORPHEMES

We might generally think that words are the basic units expressing meaning in language. This is indeed correct if we look at words like *flat*, *cap*, or *look*. However, sometimes units that are smaller than words can be meaningful as well. Two examples from our earlier chapters will show this. In the section on semantic features in chapter 2 (p. 32), we discussed the verbal feature [+/–causative] and we observed that in some words the feature [+causative] seems to correspond to a specific part of the verb. Thus, a number of causative words such as *flatten*, *weaken*, *darken* or *deepen* end in *–en*, suggesting that these words can be decomposed into two parts, each of which bears some meaning. *Weaken* can be analyzed as *weak-en* with *weak* having the meaning of the adjective *weak* and *–en* having the meaning of 'cause to be/become'. Similarly, reconsider our discussion of morphophonological processes at the end of chapter 3 (pp. 126/7 and phonology exercise 21). The words *caps* or *packed* can also be decomposed into two subparts from the point of view of meaning: *cap-s*, *pack-ed*. In *cap-s*, we have the basic meaning of the noun *cap* plus the meaning 'more than one (i.e. plural)' associated to *–s*. In *pack-ed*, *-ed* adds the meaning 'past' to the meaning of the verb *pack*.

Thus, when we try to identify sound sequences expressing meaning, we may sometimes have to go to a level below the word. Given that meaning is not uniquely a property of words, the basic unit in morphology is not the word but a unit we call **morpheme**. A morpheme is generally defined as **the smallest meaningful unit of language**. Thus, *flat*, *cap*, *look*, *-en*, *–s*, *–ed* are all morphemes of English. Words consisting of a single morpheme (e.g. *flat*, *cap*, *look*) are called **monomorphemic** words. Words containing more than one morpheme (e.g. *flatten, caps, looked*) are referred to as **polymorphemic** words.

Note that polymorphemic words can be much more complex than the cases we have seen so far. If you take the English noun *code*, you can form the verb *to decode* from it. This is

clearly made up of *code* and *de-*, and the meaning is fairly transparently derived from the meaning of its two parts. Moreover, the case is not isolated. You can attach *de–* to various nouns to make a verb. Very often the meaning will be easy to work out from the meaning of the original noun as for example with *deflea*. Sometimes, the meaning will be restricted to special contexts, such as *defrost* (which tends only to be used of refrigerators). Sometimes, you simply have to learn the meaning separately (as with *defrock, deflower*).

From the verb *decode* we can form an adjective *decodable* by adding *–able*. Again, this can be done with a lot of verbs: *readable, believable, movable*. Having created this word we can negate it by adding *un–* to get *undecodable.* This, too, is a very general process, and it allows us to create antonyms of a great many adjectives in English: *un-attractive, un-disturbed, un-comfortable*. Finally, we can come full circle by creating a noun from our adjective: *undecodability*. Almost any adjective ending in *–able* or *–ible* forms a noun of this sort by adding *–ity*. *Undecodability* is thus a polymorphemic noun consisting of five morphemes.

In order to identify morphemes, the following two criteria can be taken into account:
(i) A morpheme is identifiable from one word to another.
(ii) A morpheme contributes in some way to the meaning of the whole word.
For example, the plural ending *–s* is a morpheme according to (i) because we can find the same ending in different words (*caps*, *cats*, *bags* etc.) and according to (ii) because in each case *–s* contributes plural meaning to the meaning of the entire word. Similarly, we have seen that *de–*, *–able*, *un–* and *–ity* can be found in various words and they always contribute to the meaning of the whole word. That point (i) would not be sufficient to identify morphemes can be shown if we look at the words *attack*, *stack* and *tackle*. In these words, we can identify an identical sequence of sounds /tæk/. However, we would not want to say that there is a morpheme *tack* because *tack* does not seem to make any clearly indentifiable contribution to the semantics of the words *attack*, *stack* and *tackle*. Thus, *tack* is not a morpheme in terms of (ii) above.

Among morphemes, we can distinguish different types:

- *Stem vs. root*

  Any string of morphemes to which another morpheme is attached is called a **stem**. If the stem itself is monomorphemic, we call it a **root.** A root is the core of a word. Reconsider for example our discussion of the word *undecodability* above. We added *de-* to a stem *code*. *Code* is also a root because it is monomorphemic and thus the core of this complex word. Then we added *-able* to the stem *decode*. This stem would not be called a root because it is polymorphemic. We then attached *-able* to the stem *decode, un-* to the stem *decodable*, and finally *–ity* to the stem *undecodable.*

- *Free vs. bound morpheme*

  A **free morpheme** can stand alone as an independent word. A **bound morpheme** is a morpheme that is obligatorily attached to some other morpheme. Examples of free morphemes would be *flat, cap* or *code*. Examples of bound morphemes are *-s, -ed, de-, un-* or *-ity*. What is spelt as *able* can be both a free morpheme (as in *She will be able to do this*) or a bound morpheme (as in *decidable*). However, once we consider phonology (i.e. the representation that is essential for a linguistic analysis), we can observe that we are not

dealing with a morpheme that has a dual status here. Instead, we have one morpheme, /eɪbl/, which is a free morpheme, and another morpheme, /əbl/, which is a bound morpheme.

- *Affix vs. bound root*

  A further distinction can be made among bound morphemes. An **affix** is a bound morpheme that is attached to a stem or a root. Affixes can be attached in different positions. An affix that precedes the root or the stem is called a **prefix** (e.g. *de-*, *un-*) whereas an affix that follows the root or the stem is referred to as a **suffix** (e.g. *-s, -ed, -able, -ity*). In some languages, there are also affixes which occur within a word. These are called **infixes**. In English, infixation is not a productive process. It can only be found in what has been referred to as expletive infixation as for example in *fan-bloody-tastic* or *abso-bloomin'-lutely*. Finally, there are affixes that involve affixation both at the beginning and at the end of a root or stem. Such affixes are called **circumfixes**. For the analysis of modern English, the process of circumfixation is not relevant as it does not exist in this language. To illustrate circumfixation we can have a look at German. Past participles in German have a morphological marker that surrounds the stem (e.g. *ge-spiel-t* 'played').

  Not all bound morphemes are affixes however. Consider for example words like *circulate, approbate,* or *simulate*. Given the occurrence of *–ate* at the end of a number of verbs, we would have to assume that *–ate* is a verbal suffix and that the words just mentioned should be analyzed as bimorphemic (*circul-ate*, *approb-ate*, *simul-ate*). However, this leaves us with roots like *circul*, *approb,* and *simul*. In contrast to most other roots, these are of course not independent words in English. Thus, we have identified roots which obligatorily combine with some other morpheme. Such roots are called **bound roots**. Note that most of these bound roots are found in foreign (often Romance) borrowings. Another illustration of a bound root would be *fer*. It cannot occur on its own but it can be found in many different words with a prefix attached to it (e.g. *refer*, *defer*, *infer*, *prefer*, *transfer*, *confer*).

To conclude our introductory remarks about the notion of morpheme, we should briefly consider the way in which morphemes are phonetically realized. Remember that at the end of chapter 3 we observed that the regular plural ending can be realized as [s], [z] or [ɪz]. Thus, what would best be analyzed as a single unit in morphology (the plural morpheme) can be realized in three different ways. By analogy with the terminology used in phonology, we therefore distinguish the following notions:

- **Morph**: The particular form of linguistic unit you get when you analyze a word into its smallest meaningful components.
- **Morpheme**: The more abstract, general entity represented by a morph or a set of morphs.
- **Allomorph**: One of possibly several forms (morphs) assumed by a morpheme.

Applying this terminology to our example of plural formation, we obtain the following picture: There is a regular plural morpheme, which we can represent abstractly as –ES. For instance [s] is then a specific morph of this morpheme. And given that –ES can be realized in more than one way, we can say that [s], [z] and [ɪz] are all allomorphs of the plural morpheme

–ES. Similarly, as we saw in the phonology exercise 21 in chapter 3, regular past tense is expressed by a past tense morpheme –ED which also has three allomorphs ([d], [t], [ɪd]).

The question that arises then is: What determines the use of these different allomorphs? The answer to this question was given in chapter 3: phonology. Whether we use [s], [z] or [ɪz] as the realization of the plural morpheme depends on the phonological context and more specifically on the nature of the sound preceding the plural morpheme. The same holds for past tense allomorphy. Given that phonology plays a crucial role in determining which allomorph has to be used, we say that plural allomorphy and past tense allomorphy are **phonologically conditioned allomorphies**.

However, allomorphy is not always phonologically predictable. Consider the following pairs:

(1)	a.	*house*	/haʊs/	*houses*	/haʊzɪz/
	b..	*knife*	/naɪf/	*knives*	/naɪvz/
	c.	*wreath*	/reθ/	*wreathes*	/riːðz/

In these words it is the root (*house, knife, wreath*) which exhibits allomorphy. The final sound of the roots in (1) is a voiceless fricative in the singular but this voiceless fricative becomes voiced in the plural. However, such variation is limited to a few words. Most other words ending in a voiceless fricative such as *spouse, fife* or *death* don't show it. The plural of /spaʊs/ is /spaʊsɪz/ rather than */spaʊzɪz/. The type of allomorphy shown in (1) is therefore not systematic but it is restricted to a certain number of words. It is said to be **lexically conditioned**.

When allomorphy isn't conditioned by regular phonological rules but is instead the result of lexical idiosyncrasy, we still often find that the allomorphs are fairly similar to each other phonologically. This is the case with the *knife/knives* allomorphy given earlier. Sometimes, however, the allomorphy might be more drastic and the variants might be quite dissimilar from each other. Some examples are given in (2):

(2)	a.	**deceipt** - **decep**tion	/dɪsiːt/ - /dɪsep/
	b.	satis**fy** - satis**fac**tion	/faɪ/ - /fæk /
	c.	**flute** - **flaut**ist	/fluːt/ - /flaʊt/
	d.	**Fran**ce - **Fren**ch	/frɑːn/ - /frɛn/
	e.	**Shaw** - **shav**ian	/ʃɔː/ - /ʃeɪv/

When the phonological distance between two allomorphs gets sufficiently great we speak of **partial suppletion**. In some cases the allomorphic variants might have absolutely nothing in common phonologically. Examples often cited are the English past tense of *go*, which is *went* rather than **go-ed*, and the comparative and superlative of *good*, which is not **gooder*/**goodest* but *better*/*best*. This is called **total suppletion** (or sometimes just **suppletion**).

Finally, there is another type of process which modifies a root. However, in this case we do not have the structure 'allmorph + affix', but the phonological alternation seems to be functioning as a kind of morpheme. Consider the following examples.

(3) a. man men
b. tooth teeth
c. foot feet

(4) a. write wrote
b. take took
c. break broke
d. sing sang (sung)

This type of morpheme-internal vowel change is called **'ablaut'**. In (3) it realizes the category of plural, and in (4) the category of past tense. This is only found as a marginal and unproductive process in English, but in some languages similar processes are fully productive.

You can now do exercises 1 to 6.

2. INFLECTIONAL VS. DERIVATIONAL MORPHOLOGY

As discussed in the previous section, we can classify affixes according to the position they occupy within a word (e.g. prefix vs. suffix). However, there is another important dimension along which affixes can vary, and that has to do with the function an affix has. Affixes may be either **inflectional** or **derivational**. An inflectional morpheme is a "grammatical" morpheme in the sense that it simply creates a new form of the same word, depending on the word's grammatical function or its position in the sentence. A derivational morpheme, however, creates new words. The distinction between inflectional and derivational morphology is illustrated in the following examples involving the stem *perform* in (5).

(5) a. This pianist perform**s** in the local hall every week.
b. This pianist perform**ed** in the local hall every week.
c. The perform**ance** last week was particularly impressive.
d. The perform**er** last week was particularly impressive.

The affix *–s* in (5a) is attached to the verb when its subject is in the third person singular. Thus, we do not have a different word but simply a different form of the verb which is determined by the subject of the sentence ('subject-verb **agreement**'). *–s* is therefore an inflectional morpheme. (5b) is another instance of inflectional morphology. We again do not have a different word, but the verb *perform* is now in a different tense form (past) due to the presence of the suffix *–ed*. In (5c) and (5d), however, the suffixes create different words. One clear indication of this is that the word class (or syntactic category) changes. Whereas *perform* is a verb, *performance* and *performer* are nouns. Attachment of the suffixes *–ance*

and *–er* thus leads to the creation of new words derived from *perform*. These two morphemes are derivational morphemes.

The following two subsections take a closer look at inflectional and derivational morphology.

2.1. *Inflectional morphology*

Compared to earlier stages in the history of English (notably Old English), modern English has a rather impoverished inflectional system. The complete inventory of inflectional morphemes is therefore fairly small. Below is an overview of the inflectional morphemes found with different word classes:

- *Forms of nouns*.

  Inflectional morphology on nouns mainly concerns **number**, i.e. the distinction between singular and plural. As already discussed above, English has a regular plural morpheme that can be realized in different ways ([s], [z] and [ɪz] allomorphy). This plural morpheme is an inflectional morpheme as it only creates a different form of a given noun.

  There are some additional (marginal) morphological processes that can be observed in the formation of plurals in English:

  (i) Zero suffix. The plural morpheme does not seem to be phonologically realized, and the plural form therefore corresponds to the singular (hence the term "zero suffix"). Examples: *sheep, deer, fish*.

  (ii) Vowel alternation. There is no clearly identifiable affix attached to the noun. Instead, the vowel contained in the root changes. This is a case of the phenomenon of 'ablaut' discussed earlier. Examples: *f**ee**t, m**e**n, m**i**ce*.

  (iii) *–(r)en*. This ending is a residue of a plural ending that was productive in earlier stages of English. Examples: *ox**en**, child**ren***.

  (iv) Various foreign plurals. Plurals of nouns borrowed from other languages often reflect plural formation in the source language. Examples: *phenomenon – phenomen**a**, datum – dat**a**, stimulus – stimul**i**, index – ind**ices**, basis – bas**es**, kibbutz – kibbutz**im***. Over time, the plural forms of loan words may sometimes be regularized. Such a process can be observed for example with the noun *formula*. The traditional plural form of this noun is *formul**ae***, but the regular *formula**s*** can be found as well nowadays and is listed as a possible plural for example in the *Oxford English Dictionary*.

  Note that both (iii) and (iv) can be considered as lexically conditioned allomorphies (e.g. the plural morpheme becoming *–en* if the stem is *ox* or *child*).

  To be precise, we should point out that number is not a property that is restricted to nouns. It can also be expressed on articles, or more precisely on demonstrative articles in English. Thus, the demonstrative articles *this* and *that* have the plural forms *these* and *those*.

One additional bound morpheme that can be classified as inflectional is the **"Saxon Genitive"** *'s* (or possessive *'s*) as in *Pete's book* or *my mother's book*.[1] Although, as in the two examples just given, *'s* is generally attached to nouns, it would be incorrect to say that it is a morpheme exclusively attached to nouns. Instead, it is a morpheme that is attached to what, in chapter 5, we will call a noun phrase, i.e. an entire group of words whose main element is a noun. If the noun phrase ends in a word that is not a noun, *'s* can nevertheless be attached. For example *that man you met* is an entire noun phrase modified by the relative clause *you met*. If we wanted to talk about the bicycle owned by *that man you met*, we would have to say *that man you met's bicycle*, thereby combining *'s* with a verb.

The discussion of the Saxon Genitive leads us to a final point that we should mention here briefly. As the term Saxon Genitive suggests, the *'s* form is sometimes considered as a different **case** form of a noun phrase. Case is a type of inflectional morphology that can be found in many languages. But whereas Old English still had a relatively rich case morphology, only very little is left of this in modern English. Apart from the Saxon Genitive, the only inflectional distinctions that can be included under the heading of case concern pronouns. With pronouns, we can find nominative forms (e.g. *I*) and accusative (or objective) forms (e.g. *me*). Note however that this variation is very irregular and does not allow us to clearly identify case morphemes in English (cf. e.g. the suppletions in *I-me*, *she-her*, *we-us*).

- *Forms of verbs*.

  Regular verbs like *perform* can occur in four different forms:
  - *perform-s*: third person singular present tense (e.g. 5a).
  - *perform-ed*: past tense (e.g. 5b), past participle (e.g. *They have performed …* or *This song was performed by …*).
  - *perform-ing*: present (or progressive) participle (e.g. *He was performing*), gerund (e.g. *Performing there was a mistake*).
  - *perform*: in all other contexts (i.e. non-third person singular present tense, imperative, infinitive).

  Thus, there are three regular verbal inflectional morphemes in English: *–s*, *–ed*, and *–ing*.

  Around 250 verbs have some irregular inflected forms, in particular in the past tense and in the past participle. For example, we can sometimes find zero morphs in these forms (e.g. *cut-cut-cut*) or we can have 'ablaut' phenomena (e.g. *strike-struck-struck*; *begin-began-begun*). As the last example shows, some irregular verbs like *begin* distinguish between the past tense and the past participle. Some verbs therefore have five different forms rather than just four.

[1] Note that we can observe the same allomorphy here as with the regular plural ending. Thus, we get an [s] in *Pete's book* because of the preceding voiceless sound but [z] in *my mother's book* because of the preceding voiced sound.

- *Forms of adjectives*.

  Many adjectives can occur in three different forms:

  - *short*
  - *short-er* (comparative)
  - *short-est* (superlative)

  –er and *–est* are adjectival inflectional morphemes. However, the use of these inflectional morphemes is restricted. Generally, they are only attached to adjectives whose basic form has one syllable (e.g. *short*) or two syllables with the second syllable ending in a vowel (e.g. *tidy, yellow*). With longer adjectives, the free morphemes *more* and *most* are generally used.

In summary, English has the following productive inflectional morphemes: *-s* (plural), *'s* (possessive), *-s* (3rd person singular), *-ed* (past tense and participle), *-ing* (present participle/gerund), *-er* (comparative), *-est* (superlative).

2.2. *Derivational morphology*

In contrast to inflectional morphemes, derivational morphemes create new words using pre-existing morphemes or words. As shown in examples (5c) and (5d), one of the characteristic properties of derivational morphology is that it often changes the word class of the root/stem. It must be stressed however that, as will be illustrated below, the ability to cause a change in the word class of the root/stem is not a necessary requirement for a morpheme to classify as a derivational morpheme.

English has an extensive derivational morphology. Below is a list of some derivational morphemes which is by far not exhaustive. The examples are grouped according to the word class of the derived word and within each group distinctions are made on the basis of the word class of the stem/root to which the derivational morpheme is attached (abbreviations: N = noun; V = verb; A = adjective; Adv = adverb; e.g. V > N = a noun derived from a verb).

- Derived nouns.

  - N > N:

    drop-let, book-let (small X)
    waitr-ess, princ-ess (female X)
    London-er, New York-er (inhabitant of X)
    mother-hood, priest-hood (the property of being X)
    ex-president, ex-husband (former X)
    non-smoker, non-believer (not X)

  Note that in the above cases the derivational morpheme does not change the category of the word. Thus, *drop* is a noun and *droplet* remains a noun.

  Before we consider nouns that are derived from other word classes, some general observations concerning derivation can be made at this point. In the examples just given, the meaning of the derived words is indicated in parentheses. In each pair, the derivational morpheme contributes a specific meaning to the meaning of the entire word. Although such semantic generalizations are often possible, the meaning of derived words is not always

entirely predictable. For example, the suffix *–hood* generally means something like 'the property of being X'. But some words ending in *–hood* have a different meaning. This is the case with *brother-hood* for instance, which does not mean 'the property of being a brother' but refers to a secret or semi-secret society. Such exceptions are quite common with derivational morphology but not with inflectional morphology. Thus, for example the inflectional morpheme *-s* attached to a noun always means plural.

Another aspect of many derivational processes is that the existence or non-existence of derived words may often seem arbitrary. Thus, while we have words like *waitr-ess* (a female waiter) or *drop-let* (a small drop), there are no such words like **writr-ess* (intended meaning: a female writer) or **grain-let* (intended meaning: a small grain). Again, inflectional morphology is different in the sense that the inflectional morphemes identified in section 2.1 are much more productive than many derivational morphemes. We will briefly come back to the issue of productivity of derivational morphological processes in section 5.2.

Let us now consider some other derivational morphemes creating new nouns:

- V > N:
  writ-er, sing-er
  perform-ance, ignor-ance
  announce-ment, commit-ment
  refus-al, arrive-al
- A > N:
  pur-ity, sensitiv-ity
  good-ness, fierce-ness
  radical-ism, real-ism

- Derived verbs.
  - V > V:
    de-regulate, de-mystify
    re-submit, re-decorate
    sub-let, sub-divide
  - N > V:
    de-bug, de-forest (N.B. *de-* can be attached to both verbs and nouns; cf. V > V)
    patron-ize, terror-ize
    en-slave, em-power
  - A > V
    bright-en, wid-en

- Derived adjectives.
  - A > A:
    green-ish, small-ish
    un-happy, un-kind

in-discreet, in-adequate[2]

- N > A:
  glob-al, nation-al
  world-ly, beast-ly
  joy-ful, pain-ful
  meaning-less, hope-less
  rain-y, mudd-y
  organ-ic, demon-ic.
- V > A:
  afford-able, reli-able
  explos-ive, speculat-ive
  thank-ful, hope-ful

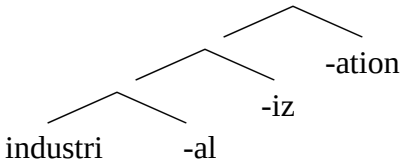
- Derived adverbs.
  - A > Adv
    quick-ly, calm-ly
  - N > Adv:
    home-ward, west-ward
    length-wise, time-wise.

As some of the examples given above already suggest, derivational processes can be combined. Thus, after attaching the derivational morpheme *–able* to the root *rely* to obtain the derived adjective *reli-able*, we can add another prefix such as *un-* to create another adjective, i.e. *un-reli-able*. Or in the following sequence three different derivational morphemes are added to the root, the first one creating an adjective from a noun, the second one a verb from an adjective, and the third one forming another noun: *industry* > *industri-al* > *industri-al-ize* > *industri-al-iz-ation*. Finally, the word *undecodability* discussed at the very beginning of this chapter is the result of the affixation of four different derivational morphemes.

The structure of derived words like *industrialization* can be represented graphically in two ways, either by putting constituents in brackets as in (6) or by drawing a tree diagram as in (7). The two notations are equivalent to each other.

(6) [[[[industri-]-al]-iz]-ation]

(7)



[2] Both *un-* and *in-* express negation. However, the two prefixes are not freely interchangeable. Thus, we could not say **in-happy* or **un-legal*. The reason for this is that *un-* is generally attached to stems of Germanic origin whereas *in-* generally occurs with stems of Romance origin (i.e. stems borrowed mainly from Latin and French).

What both notations try to express is that *industry* and *–al* form a first derived word to which we then add *–iz*. Finally, we take this stem consisting of three morphemes and add *–ation* to it.

To complete our discussion of derivational morphology, an important point has to be added. Contrary to what our discussion so far might have suggested, derivational morphology does not always involve affixation. Instead we can also find several non-affixal ways to create new words:

- **Conversion**. Conversion is an extremely common process in English. It occurs when a word in one syntactic class is simply used as a word in another class without any other morphological process applying to it. In English almost any monomorphemic noun (and many polymorphemic ones as well) can be used as a verb given the right context. Many of these have become lexicalized with specialized meanings:

(8) a. to table a paper
b. to chair a meeting
c. to shelve a plan
d. to pocket the proceeds

Likewise, many verbs can be used as nouns:

(9) a. to go - it's your go
b. to walk - to go for a walk
c. to faint - to fall in a faint

Conversion can have various other effects. However, these are not all equally common as conversion from N to V and from V to N. Some illustrations are given in (10).

(10) a. Adj > V: to quiet, to empty
b. V > Adj (with certain inflected forms of the verb):
the *damaged* car, an *inspiring* story
c. A > N: the poor, the rich
d. P > N: the ins and outs
e. Adv > N: the whys and wherefores, the hereafter
f. Prefix > N: the pros and cons

- **Stress shift**. We have discussed this phenomenon already in the chapter on phonology (p. 117). It is similar to conversion in that it involves a change in word class despite the absence of an affix. However, in contrast to conversion, the two words are not identical

from a phonological point of view because the placement of stress changes (and sometimes also the quality of the vowels). Some examples are given in (11).

(11)

	Verb	*Noun*
a.	tor'ment	'torment
b.	con'trast	'contrast
c.	in'crease	'increase
d.	trans'port	'transport

- **Change in consonant or vowel**. Here, the difference between two words belonging to different word classes can again not be related to the addition of an affix. Instead it is a single sound that changes. This is a fairly rare phenomenon but some examples are given in (12). (12a) to (12d) show changes in the final consonant, (12a) to (12c) simply involving a change in voicing. In (12e) and (12f), it is the vowel that changes. Finally, in (12g), both a vowel and a consonant change.

(12)

	Verb	*Noun*
a.	believe [v]	belief [f]
b.	prove [v]	proof [f]
c.	house [z]	house [s]
d.	defend [d]	defence [s]
e.	sing [ɪ]	song [ɒ]
f.	sit [ɪ]	seat [i:]
g.	breathe [i:ð]	breath [eθ]

2.3. *Inflectional vs. derivational morphology*

Having seen various illustrations of inflectional and derivational morphology, let us conclude this subsection by giving an overview of the main properties that distinguish inflectional morphemes from derivational morphemes:

- Derivational morphology creates new words, inflectional morphology creates different forms of the same word.
- Category change: Inflectional morphology *never* changes the word class of the stem. Derivational morphology often changes the word class (e.g. *writ-er*) but it does not always do so (e.g. *book-let*). However, the ability to change the word class is to a large extent restricted to derivational suffixes. Derivational prefixes generally do not change the word class (e.g. *un-happy*; but some unproductive exceptions: *a-sleep*, *be-friend*, *en-large*).
- Order 1: When a derivational morpheme and an inflectional morpheme are attached to a stem, the derivational morpheme has to combine with the stem before the inflectional morpheme (e.g. *neighbour-hood-s* vs. **neighbour-s-hood*).
- Order 2: Inflectional morphemes are always suffixes in English. Derivational morphemes can be either prefixes or suffixes.

- Productivity: Inflectional morphology tends to be more productive than derivational morphology (but some derivational processes are productive, too: e.g. *–er*; cf. section 5.2).
- Meaning: Inflectional morphology is generally semantically transparent, whereas derivational morphology may often be semantically opaque (e.g. *brotherhood*).

You can now do exercises 7 to 9.

3. COMPOUNDING

In the previous section, we saw that many words are created through affixation of a derivational morpheme. But there are several other processes that allow us to create words. A very productive word formation process throughout the history of English has been compounding. Compounding involves the combination of **two or more words** as for example in *football* or *high jump*.

Compounding is particularly productive as a process creating **nouns**. Some examples grouped according to the word classes of the components of the compound are given in (13).

(13) a. N+N: *airplane, lipstick, homework*.
b. V+N: *spoil-sport, leapfrog, swearword*; V sometimes in the *–ing* form: *closing time, freezing point*.
c. A+N: *madman, software, mainland*.
d. Particle+N: *background, bystander, overcoat*.
a. Particle+V: *outcast, downpour, offspring*.
b. V+Particle: *drop-out, sit-in, runaway*.
c. N+V: *handshake, nosebleed, sunrise*; V sometimes in the *–ing* form: *handwriting, housekeeping*; or with derivational *–er*: *hairdresser, landowner, peacemaker*.
d. V+V: *hearsay, make believe*.

But compounds can also create new **verbs** (14) and **adjectives** (15):

(14) a. N+V: *spoonfeed, colour-code, gate-crash*.
b. A+V: *whitewash, fine-tune*.
c. Particle-V: *overcook, underrate, outlast*.
d. A+N: *blacklist, bad-mouth*.

(15) a. N+A: *duty-free, lifelong, ice-cold, class-conscious*.
b. A+A: *bittersweet, red-hot*.
c. V+Particle: *see-through, tow-away*.
d. N+(inflected form of)V: *breathtaking, heart-braking, man-made, airborne*.
e. A+(inflected form of)V: *easy-going, good-looking, cold-blooded, thick-skinned*.

Finally, while the examples in (13) to (15) combine independent words, there are also compounds consisting of sequences of words that rather resemble entire phrases. Illustrations of such compounds are given in (16).

(16) a. *mother-in-law*
b. *jack-in-the-box*
c. *forget-me-not*
d. *must-have* (e.g. *This is a must-have item*.)
e. *has-been* (e.g. *He is a has-been*.)
f. *couldn't-care-less* (e.g. *He had a couldn't-care-less attitude*.)

Having seen illustrations of compounding, let us now consider some of the main properties of this phenomenon.

- *Spelling*. Spelling has not been our main concern in this course (cf. chapter 1, p. 6). Here, we mention it briefly in order to draw your attention to the fact that spelling does not always provide any clear information as to whether a sequence of two words is a compound or not. This is because the spelling of compounds is rather inconsistent in English. Sometimes compounds are written as a single word, sometimes as two words, sometimes they are hyphenated. Whereas two words joined by a hyphen or written without a space separating them are compounds, sequences of two words with a space in-between may or may not be compounds. As for the choice between no space, hyphen or space, there is a certain tendency for new compounds to be spelt with a hyphen or a space, and when a compound has become fairly common it is spelt as one word. For example the word *blackboard* was spelt mainly with a hyphen at the beginning of the 20th century, but now it is generally spelt as one word.

- *Phonology: stress*. Most compounds in English have their primary stress on the leftmost member (e.g. '*income tax*). This particular stress pattern sometimes allows us to distinguish compounds from non-compounds. Thus, the word '*greenhouse* with stress on the first morpheme is a compound referring to an indoor garden. However, *green* '*house*, like any combination of a noun and a modifying adjective, has the main stress on the noun and it has the compositional meaning of 'a house which is painted green'. Another illustration of this type of contrast is '*blackboard* (compound, not necessarily black) vs. *black* '*board* (not a compound, necessarily black).

- *Semantics*.
  (i) The rightmost component of the compound often identifies the general class to which the meaning of the entire word belongs. It is referred to as the **head**. For example, a *boat house* is a kind of house, whereas a *house-boat* is a kind of boat. Similarly, the compound verb *overeat* refers to a kind of eating. Note that the head generally also determines the word class of a compound (i.e. whether it is a verb, a noun etc.).

  In some cases, however, the meaning of the compound does not follow from the meanings of its part in this way. For example, a *faintheart* is not a kind of heart, but a

kind of person who, in a metaphoric sense, has a faint heart. Similarly, a *highbrow* is not a kind of brow but an intellectual. Such compounds are called **headless** compounds.

(ii) Some compounds, as for example *crime prevention*, *peace maker* or *book case* are semantically entirely transparent. Others are also fairly transparent, but the exact meaning may not be completely predictable from the meaning of the words alone. Consider for example the different semantic contributions of *net* in the compounds *hairnet* ('keeping one's hair in place'), *butterfly net* ('catching butterflies'), or *mosquito net* ('keeping mosquitoes away'). The different functions of the net in these compounds does not follow from the basic semantics of *net* or the semantics of the first noun. Instead, contextual factors determine the exact meaning of the compound, as for example the knowledge that people generally do not need protection from butterflies, but may collect them, whereas mosquitoes are a nuisance against which people want to be protected. Given the role of contextual factors, the meaning of compounds is not necessarily fixed. Thus, for example a compound like *chainsaw* generally refers to a saw with a chain, but we could very well imagine contexts in which the word is used to refer to a saw that cuts chains (rather than wood).

Finally, we can also find compounds whose meaning cannot be derived from the meanings of their parts. This is the case in particular with combinations of words that were introduced as compounds a long time ago. Words, including compounds, can undergo semantic changes in the history of a language (see e.g. chapter 2, exercise 7), and such changes can lead to the loss of the semantic transparency of compounds. An illustration of this phenomenon is the word *cupboard*. As would be expected on the basis of the meanings of the two nouns that form this compound, a *cupboard* was originally indeed an object specifically for cups. However, over time, the compound has obtained the much more general meaning it has nowadays.

Lack of semantic transparency may also occur because one of the members of an old compound does not exist any more in modern English. For example, the word *werewolf* is a compound combining *wer* and *wolf*. For a speaker of modern English, this morphological analysis does not help in determining the meaning of the compound. This is because the Old English word *wer*, meaning 'man', has been lost in the history of English. Thus, the compound survived into modern English, but one of the nouns that originally formed the compound did not.

- *Inflectional morphology*.

(i) Compounding interacts with inflectional morphology in two important ways. First of all, inflectional affixes like tense or plural markers can typically not be attached to the first element in a compound, but they can be added to the entire compound (cf. also exercise 9).

(17) a. *The player [dropped kick] the ball through the goalposts.
b. The player [drop kick]ed the ball through the goalposts.
c. *foxes hunter *vs.* fox hunters

Note that a *fox hunter* may obviously hunt more than one fox, so the use of the plural would not be unexpected from a semantic point of view. Nevertheless, a plural suffix can only be attached to the second noun of the compound and then it expresses plurality of the entire compound.

However, there are some rare counterexamples to this restriction on the affixation of inflectional morphemes within a compound. An example would be the compound *parks supervisor*. Furthermore, certain phrasal compounds also allow affixation with a non-final member of the compound. Thus, the plural of *passer-by* is generally *passers-by*, and the plural of *mother-in-law* is usually *mothers-in-law* although some speakers also accept *mother-in-laws*.

Note finally that there is a difference between regular and irregular plurals. Whereas affixation of the regular plural *–s* is very restricted within a compound, irregular plurals can be found much more frequently. Thus, it is possible to say *mice-infested* or *teeth-marks*, but similar compounds with a regular plural like **rats-infested* or **claws-marks* are impossible. Hence, the restriction on combining compounding and inflection concerns in particular regular inflectional morphology.

(ii) In headed compound nouns, the plural form is determined by the head of the compound. Thus, if the head of the compound takes regular plural morphology, the plural is formed regularly as well (e.g. *steamboat – steamboats*). However, if the head has an irregular plural from, the compound forms its plural also irregularly (e.g. *cave-man – cave-men* vs. **cave-mans*).

With headless compounds, the situation is different. Plural formation is generally regular. For example *low-life*, referring to a coarse, vulgar person rather than to some kind of life (hence a head-less compound) takes the plural *low-lifes* rather than **low-lives*. Similarly, the plural of *still life*, a kind of painting rather than a kind of life, is *still lifes*. Finally, *Walkmans* is the plural of *Walkman*, although there seems to be some uncertainty among speakers as *Walkmen* can occasionally be found as well.

- *Structure*.

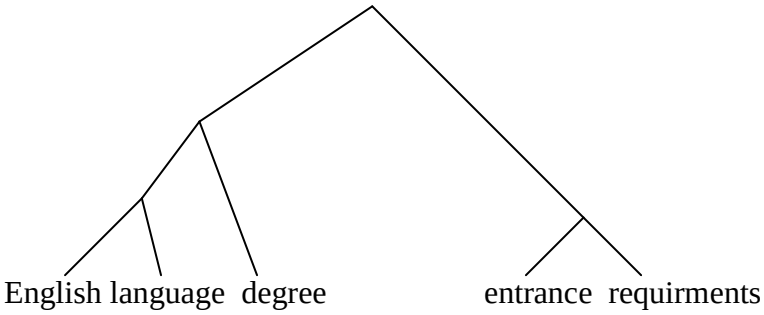
Compounding has many of the characteristics that we will observe in syntax in the next chapter. If we consider N+N compounds, we can identify two important syntactic properties that they exhibit: recursion and constituent structure.

Recursion is a property of rules or processes by which the result of a process is allowed to undergo the process again. For instance, I can apply the process of compounding to the words *English* and *language* to obtain a compound word. Since this is still a word, I can use it to form another compound as in *English language degree*. Likewise, I can form a compound from *entrance* and *requirements*. Then I can put both of these compounds together to get *English language degree entrance requirements*. The important thing about recursion is that there is no principled way of stopping it. Nothing in the grammar of English prevents us from forming compounds which are indefinitely long.

English language degree entrance requirements means ‘entrance requirements for the English language degree’. An *English language degree* is a degree in English language. This means that we can split up our compounds into chunks which are nonetheless larger than individual words, and these chunks correspond to the way the meaning of the whole compound is organized. The chunks are called **constituents**, and when we analyze the way they are grouped we are analyzing the **constituent structure** of the compound. We can represent the morphological structure of compounds graphically in the way already shown for derivational processes (cf. examples 6/7), either by putting constituents in brackets or by drawing a tree diagram.

(18) [[[English language] degree] [entrance requirements]]

(19)

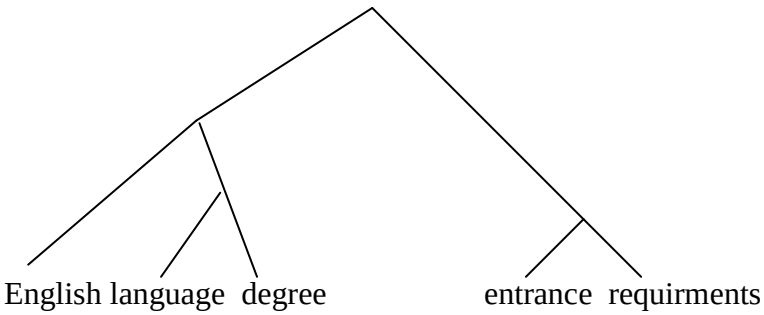


In point of fact, a compound such as *English language degree* is ambiguous, because it can have a different constituent structure. A degree in language (e.g. in French) taught in England could also be called an *English language degree* (as in the expression *People studying English language degrees often go to Europe for language practice, but people studying American language degrees usually can't afford to*). In this case the constituent structure would be (20).

(20) [English [language degree]]

The complete tree structure of this alternative interpretation of *English language degree entrance requirements* is given in (21).

(21)



You can now do exercises 10 to 12.

4. OTHER WORD FORMATION PROCESSES

Derivation and compounding are the most productive word formation processes in English. In addition, there are some other processes that are regularly used to form new words.

- *Blending*.
  Blends are words that are created from (often non-morphemic) parts of two already existing items:

(22) a. *breakfast* + *lunch* → *brunch*
  b. *smoke* + *fog* → *smog*
  c. *Channel* + *tunnel* → *Chunnel*

- *Acronyms*.
  Acronyms are words formed by taking the initial letters of some or all of the words in a phrase or title:

(23) a. *scuba* = self-contained underwater breathing apparatus
  b. *radar* = radio detecting and ranging
  c. *Wasp* = White Anglo-Saxon Protestant

- *Clipping*.
  Clipping is a process that shortens a polysyllabic word by deleting one or more syllables:

(24) a. *phone* (from *telephone*)
  b. *ad* (from *advertisement*)
  c. *flu* (from *influenza*)

- *Backformation*.
  This process occurs when a word is treated as though it is derived from another word even though it is not. Then the ghost source is assumed to exist and enters the lexicon. For instance, originally the word *pedlar* was monomorphemic. However, speakers analyzed the *-ar* ending as cognate with the *-er* of *singer* or the *-or* of *actor*. But this meant there had to be a verb *peddle*. Since there was no such verb, one was invented by backformation. A similar process derived the verb *baby-sit* from the already existing noun *babysitter* A further example is obtained from *aggression*. On analogy with *progress* > *progression* we would expect there to be a verb to *aggress*. Originally there was none, but people have started using such a verb.

- *Eponym*.
  Eponyms are words based on names. For example, the word *boycott* is based on the name of Charles Boycott, an English land agent in Ireland "who was the original victim of the treatment described" (OED). Or more recently, a brand name was at the origin of the word

xerox, which is used as a noun or a verb referring more generally to any photocopy or the process of photocopying.

You can now do exercises 13 and 14.

5. SOME ISSUES IN MORPHOLOGICAL ANALYSIS

Having considered the main aspects of word formation in English, we will conclude this chapter by looking at some additional issues that morphological analysis raises.

5.1. *The definition of morpheme*

As observed earlier, the term morpheme is generally defined as "the smallest meaningful unit of language". However, as you may already have noticed, this definition is sometimes slightly problematic, and the problems concern both the 'unit' part and the 'meaning' part of this definition.

Concerning the notion 'unit', the following points can be mentioned:

(i) *sheep* (sg.) – *sheep* (pl.): In the plural of *sheep*, there is no unit expressing plural. One possibility to deal with this issue would be to say that there is an abstract, phonetically silent plural morpheme attached to *sheep*.

(ii) *goose* (sg.) – *geese* (pl.), *man – men*, *foot – feet*: In cases of 'ablaut' plurals, there is also no separate unit corresponding to the meaning 'plural'. Instead, we have the replacement of one vowel by another one. Again, a potential way to address this issue would be to postulate a null plural morpheme which, in this case, triggers stem allomorphy (i.e. a change in the vowel).

(iii) *go* (present) – *went* (past tense): Suppletion is the most extreme case of the absence of clear units. Here, we have no common root morpheme, nor a clearly identifiable tense morpheme. Thus, we seem to have a word *went* combining the meanings of *go* and past, but this compositionality in meaning is not identifiable in the overt morphology at all.

The 'meaning' aspect of the definition of morpheme can be problematic in certain cases where the unit is easily identifiable but there is no obvious meaning. An illustration of this point is the word *cranberry*. A cranberry is a type of berry, so it seems clear that we should treat *berry* as a morpheme here. *Cran* would therefore have to be a morpheme as well. However, it does not seem to mean anything and it cannot be found as a part of another word. Such morphemes with no meaning and often occurring in only one word are called **cranberry morphemes**. The existence of such morphemes can generally be explained etymologically. For example, the *Oxford English Dictionary* (OED) suggests that the word *cranberry* may have been introduced in English as a borrowing from some Low German source where the morpheme corresponding to *cran* had some meaning. Another example of this type is the cranberry morpheme *hinter* in *hinterland*, a borrowing from German where *hinter* means 'behind'. The cranberry morpheme *logan* contained in *loganberry* has a different source. Logan was the name of the man who first cultivated this type of berry. Finally, the word *werewolf* discussed in section 3 shows that sometimes the occurrence of a cranberry

morpheme can be explained in terms of the loss of a word in the history of a language. The word *werewolf* used to be a semantically transparent compound in earlier stages in the history of English. But while the compound survived into modern English, one of the two words forming the compound did not (*wer*). Due to this loss, *were-* does not have any meaning any more in modern English and has therefore the status of a cranberry morpheme.

Morphemes without a clear meaning can also regularly be found in loan words. Consider for example the word *defer*, which is of French origin. Given the various meanings of words like *defer, confer, infer, prefer,* or *refer,* it seems difficult to identify a common meaning for the bound root *–fer* in these words. Similarly, looking at a range of words starting with the prefix *de-* such as *defer, detain, devour, deceive,* or *desist,* we cannot easily determine clear semantic properties for *de-*. Many other examples could be added here as illustrations of the observation that loan words often contain morphemes that do not have a clearly definable meaning. As with certain cranberry morphemes, the meaning problem arises because morphemes like *–fer* did originally have some meaning in their source language or in an ancestor of the source language but they do not have any clear meaning in English any more. Some morphologists therefore propose that in a morphological analysis of modern English words like *defer* or *produce* should be treated as monomorphemic. But that would go against our intuition that such words do seem to consist of two parts. We will therefore continue assuming that words like *defer* or *produce* are morphologically complex, noting however that such an analysis raises a problem for a strict definition of morpheme as a meaningful unit.

Morphological theories try to address potentially problematic issues such as those raised in this subsection. However, it would go beyond the scope of this chapter to pursue this theoretical discussion any further here.

5.2. *Productivity*

Another issue arising in morphological theory is the problem of productivity. We can isolate many morphological processes in a language, but in general only some of them are actively used to form new words or new word forms. Some morphologists claim that only productive processes should be studied by linguists and regarded as "real" morphology; the unproductive processes would then be regarded as historical accidents (rather like spelling conventions are historical accidents). Other morphologists claim that the unproductive processes are just as much part of our grammar as the productive ones. We will not enter this debate here, but simply provide some illustrations of differences in productivity.

If we start by looking at inflectional morphology, we can observe that regular forms (e.g. regular plural, 3rd person singular *–s*, regular past tense) are very productive. Considering the large number of nouns and verbs, exceptions are rather rare. We can therefore think of regular inflections as the result of morphological rules which are part of a speaker's linguistic knowledge. Exceptions, however, are not rule-governed and have to be memorized.[3] Yet, they nevertheless sometimes follow certain patterns (e.g. *drink-drank, sink-sank, shrink-shrank, sing-sang, ring-rang, swim-swam*).

With derivational morphology, we can find various degrees of productivity:

[3] For an easily accessible discussion of these points, see Pinker (1999).

- Some processes are very productive. These can be expressed in terms of morphological rules which are systematically used to create new words. (25) provides some data involving the suffix *-able*.

(25) a. washable, breakable, thinkable, movable, excusable etc.
b. *greenable, *doorable, *windowable
c. *sleepable, *goable, *sitable, *dieable

(25a) shows some examples in which *-able* affixation is possible. In (25b/c) this derivational process is not possible. But what distinguishes the grammatical derivations from the ungrammatical ones? If we compare (25a) and (25b), we can observe that the word class of the stem seems to play a role. In (25a), we have verbs to which *–able* is attached whereas in (25b) *–able* is attached to an adjective and to two nouns. Thus, *-able* affixation is restricted to verbs. However, as (25c) shows, not all verbs are suitable stems for *–able* affixation. What distinguishes the verb stems in (25a) from those in (25c) is whether they can be followed by an object or not. For example *wash* or *break* take objects (*to wash something*, *to break something*) whereas the verbs *sleep* or *go* do not (**to sleep something/someone*, **to go something/someone*). Verbs like *wash* and *break* are called transitive verbs, whereas verbs like *sleep* and *go* are called intransitive. We will come back to this distinction in the chapter on syntax. For our purposes, the important conclusion is that *–able* affixation is generally possible with transitive verbs only.

This conclusion is not too surprising once we think of the meaning of words ending in *–able*. Something that is *washable* is something that 'can be washed'. 'To be washed' is a passive form, and passive forms and meanings are only possible with transitive verbs (cf. *This dish can be washed.* vs. **This person can be slept*.). Thus, the transitivity restriction is related to the meaning of the affix *–able*.

We can now formulate the following rule for *–able* affixation (X = any verb):

(26) $[_V X]$ + *able* → $[_A Xable]$
- X must be transitive (i.e. taking an object)
- Meaning: 'can be X-ed'

The first line of (26) expresses the fact that attachment of the suffix *–able* to a verb produces an adjective. (26) can be productively used to create new words.

However, there are a few already existing words that do not seem to be in line with the rule in (26). Examples are given in (27).

(27) a. reasonable, fashionable, marriageable, knowledgeable
b. This is a readable book.
The bill is payable by 1 February.

In (27a), the stem of the word does not seem to be a verb but a noun. What is important though is that this process is non-productive. No new words of the type N-*able* are

created, and the class of such words forms a closed set. The examples in (27a) therefore do not have to be captured by the rule in (26). They are simply exceptional additional uses of the affix *–able*.

Another type of irregularity is shown in (27b). The derived adjectives have a meaning that cannot simply be reduced to 'can be X-ed'. Thus, *readable* may also mean something like 'well written, pleasant to read'. Similarly, *payable* in the context in (27b) does not simply mean that the bill can be paid but rather that it must be paid. These semantic irregularities can be explained historically. Through regular use, a derived word may change its meaning slightly over time in the same way that other words can change their meaning (cf. e.g. chapter 2, exercise 7).

- Whereas *–able* affixation is a productive process whose use can described in terms of a precise general rule (cf. 26), there are other cases of affixes whose use is not systematic at all. Consider for example the suffix *–th*. This suffix changes a very small number of adjectives into nouns (e.g. *warmth, depth, width, length, breadth, strength*). But this is not a productive process to create nouns anymore. Furthermore, there is no formal regularity to describe the context in which *–th* suffixation occurs (in contrast to e.g. *–able* affixation which can be found with transitive verbs). The adjectives are all monosyllabic, but this is a property they share with hundreds of other adjectives which do not combine with *–th*. Affixation of *–th* is thus an unproductive phenomenon in modern English.

- Finally, there are some derivational phenomena that are somewhere in-between in the scale of productivity, being neither entirely unproductive nor entirely productive. An illustration would be *–ity* suffixation. The suffix *–ity* forms nouns on the basis of adjectives. We can identify a certain formal regularity with this process in the sense that there are some typical stems for *–ity* suffixation: adjectives ending in *–ive (selective, passive), –able (washable, capable), –al (local, partial), –ar (insular, polar), –ic (electric, eccentric), –id (liquid, timid), –ous (viscous, various*). However, there are also numerous exceptions and irregularities:
  (a) Suffixation is sometimes ruled out in cases where we would expect it to be possible according to the list of stems given above. Examples: **offensivity* (vs. *offensiveness*), **strategicity* (vs. *strategy*). Note that for the *–able* suffixation rule in (26), there were no exceptions of this type, i.e. there were no cases where the stem would meet the conditions imposed by (26) (transitive V) but the application of the rule is not possible.
  (b) With stems ending in *–ous*, there is variation between a change to *–os* in the noun (*viscosity, curiosity*) and omission of the suffix (*ferocious-ferocity, various-variety*);
  (c) Occasionally, the endings of the stem to which *–ity* is attached do not fall into any of the classes listed above. Examples: *density, immensity, purity, rarity*.

  The phenomenon in (a) can be found fairly frequently with derivational processes. It has been related to a principle of **"semantic blocking"** according to which the existence of a word (morphologically simple or derived) with a particular meaning blocks the morphological derivation of another word with precisely the same meaning.

CHAPTER 4 – TP EXERCISES

1. WORDS AND MORPHEMES

1. Morphemes and types of morphemes

Divide the following words into morphemes and determine whether they are (a) free or bound morphemes and (b) suffixes, prefixes or roots.

a.	covered	g.	bathroom
b.	unthinkable	h.	research
c.	actors	i.	phoneme
d.	computerize	j.	phonemic
e.	intersperse	k.	numerous
f.	inequality	l.	reinforcement

2. Morphological analysis

One type of morphological analysis of a word W proceeds along the following steps:

a. Compare the word W with other words containing the relevant morphemes.
b. State the morphemes in W.
c. State how each morpheme is realized and whether it is free or bound.

Example: infix (verb)

a. *in*dent, af*fix*
b. The morphemes are IN and FIX.
c. IN is realized as [ɪn], it is a bound morpheme (prefix).
   FIX is realized as [fɪks], it is a (potentially) free morpheme.

Following this example, give a morphological analysis of the words in (i) to (iii) below.

(i) a. replace
    b. marginal
(ii) a. toys
    b. cooked
(iii) replayed

3. Morphological analysis

Identify the morphemes of the words listed below by using two tests: either systematically replace each morpheme with another morpheme to make a new word; or remove the morpheme to leave a word.

Example: description
pre-scription (*pre-* replacing *de-*); de-cep-tion (*-cep-* replacing *-scrip-*); descript-ive (*-ive* replacing *-ion*)

a. relearnable
b. carefully
c. sullenness
d. prepayment

4. Morphological processes in past tense formation

For each of the verbs below, give the past tense forms. Say whether the morphological process involved is affixation, partial suppletion, suppletion, or ablaut.
Caution: You must consider the phonological string and NOT the spelling!

a. bring
b. drive
c. care
d. go
e. lose
f. read
g. skip
h. think
i. take

5. Allomorphy

The pairs given below all show cases of allomorphy. For each pair, underline the morpheme in which the allomorphy occurs, and give a phonetic transcription of the allomorphs.

a. dogs – cats
b. perceive – perception
c. long – length
d. worked – played
e. baths – bathes
f. sign – signature

6. Allomorphs of *in-*

The words below can all be analyzed as having a prefix of the general form *in-*, with the meaning *not*. What are its variant pronunciations (allomorphs), and what rules govern how the negative prefix is pronounced in each case?

a. impossible
b. immaculate
c. imbalance
d. inadmissible
e. incapable
f. incorrect
g. indecent
h. inevitable
i. informal
j. inglorious
k. innumerable
l. inordinate
m. insubordinate
n. inviolable
o. irregular
p. irrelevant
q. illegal
r. illegible
s. illogical

2. INFLECTIONAL VS. DERIVATIONAL MORPHOLOGY

7. Inflectional vs. derivational

For each of the following bound morphemes, determine whether it is derivational or inflectional and give two words in which it appears:

Example: -able.
Derivational morpheme; eat-*able*; cod(e)-*able*.

a. -ity
b. -s
c. un-
d. -ing
e. -al
f. -er
g. -ed

8. Bound vs. free, inflectional vs. derivational

The component morphemes of the five morphologically complex words in (a) to (e) below have been separated by a hyphen. Indicate which of these morphemes are bound morphemes and which ones are free, and which of the bound morphemes are inflectional and which derivational.

Example: hit-s
hit: free; -s: bound, inflectional

a. stud-ent-hood
b. bi-annu-al-ly
c. anti-fasc-ism
d. mis-place-d
e. kind-ness-es

9. The order of morphological processes

The examples below show possible word forms and impossible (*) ones. Give an analysis of the morphemes they are formed of (you can use the steps given in exercise 2) and of the morphological processes involved.

(i) a. right – rightist – rightists
b. right – rights - *rightsist
(ii) a. sleepwalk – sleepwalked
b. sleepwalk – *sleptwalk
(iii) a. bird watcher – bird watchers
b. bird watcher – *birds watcher

What can you conclude about the order of application of morphological rules?

3. COMPOUNDING

10. The meaning of compounds

The following words are compounds. For each one, give the meaning of each member of the compound and that of the compound form. Say whether the compound is semantically transparent or not.

a. battlefield
b. scarecrow
c. saleroom
d. churchyard
e. dogwood
f. hoodwink
g. handkerchief
h. inmate
i. postman
j. ladysmock

11. The structure of compounds

Give the constituent structure of the following compounds.

a. phonetics test
b. fine arts teacher
c. flight maintenance control system
d. dog food box
e. university teaching award committee member

12. Compounding and derivation

The following words are compounds which also include derivational affixes. Analyze the words, identifying the roots and the derivational affixes, and try to determine, if possible, in which order compounding and the derivational process(es) take place.

a. handicraft
b. flightworthiness
c. antiaircraft
d. machine-readable
e. housekeeper

4. OTHER WORD FORMATION PROCESSES

13. Word formation processes

The words in column A have been created from the corresponding words in column B. Indicate the word formation process responsible for the creation of each word under A.

	Column A	Column B
(a)	bookie	bookmaker
(b)	Amerindian	American Indian
(c)	RAM	random access memory
(d)	televise	television
(e)	telathon	television + marathon
(f)	sci-fi	science fiction
(g)	scavenge	scavenger
(h)	infotainmaint	information + entertainment
(i)	typo	typographical error
(j)	Interpol	international police
(k)	pram	perambulator
(l)	flu	influenza
(m)	Nimby	not in my back yard
(n)	globcal	global + local

Discuss also the following sequence of word formation processes in French:
courrier électronique > courriel > pourriel

14. Coining new words

Creating new words is easy – try yourself!

a. Use conversion… for wrapping something breakable in bubbles.
   'You'd better _____ that ornament or else it might break.'
b. Use backformation… for the action of backformation.
   'We had to _____ words in Linguistics today.'

c. Use a product name… for the act of scrubbing with Ajax.
'I _____ed the tub after giving Fido a bath.'
d. Use a proper name… for the act of breaking dishes, which Jonathan does regularly.
'He's going to _____ all of my best dishes.'
e. 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.'
f. Use clipping… for a course in ovinology (the study of sheep).
'Have you done your _____ assignment yet?'
g. Use derivation… for being able to be contacted.
'The counsellor is not very _____.'

Analysis of your own data – Task 4

On the basis of examples taken from your speech sample, explain and illustrate THREE concepts in morphology. Your answers should consist of explicit and coherently written paragraphs (one paragraph of approximately 75-100 words per concept).

Recommended further reading:

Fromkin, Rodman and Hyams (2003), chapter 3.

Some further references:

Carstairs-McCarthy, A. 2002. *An Introduction to English Morphology*. Edinburgh: Edinburgh University Press.
Katamba, F. 1994. *English Words*. London: Routledge.
Pinker, S. 1999. *Words and Rules. The Ingredients of Language*. London: Phoenix.
Plag, I. 2003. *Word-Formation in English.* Cambridge: Cambridge University Press.
Spencer, A. 1987. *Morphology*. Ms., University of Geneva. (parts of this chapter are based on this manuscript)