

The complex linguistic sign

The next two sections of this reader will deal with morphology and syntax, both of which fall under the heading 'the complex linguistic sign'. The following examples show how this may be motivated:

- (1) unsuccessful
 (2) The boy kicked the girl.

The word in example (1) is a complex sign in that it comprises a number of simpler signs, which we can intuitively identify as

- (3) un-, success and -ful.

The sentence in example (2) is of course also complex; it is made up of the signs

- (4) the, boy, kicked, girl.

Within this list, the word(-form) *kicked* (representing the lexeme KICK) is complex, too:

- (5) kick-, -ed

What both morphology and syntax are interested in is how the combinatory potential of linguistic signs to form more complex signs can be described and explained and what kind of generalizations are best employed to do so.

These questions are far from trivial – or can you come up with a quick explanation as to why the only possible combination of the signs presented in (3) to form a complex sign is in fact (1)? In other words, how could we best account for the fact that *unsuccessful* is a linguistic sign – but none of the following:

- (6) *successunful
 (7) *fulunsuccess
 (8) *successfulun

And – more interestingly – in what way would you describe the analogy between examples (1), (6), (7) and (8) and the following sequences:

- (9) impersonal
 (10) *personimal
 (11) *alimperson
 (12) *personalim

Things are more complicated when dealing with signs such as in (4) because here, there are a number of different options of combining these into complex signs:

- (13) The girl, the boy kicked.
 (14) The girl kicked the boy.

How can we explain that

- sign (13) and sign (2) have the same content-side (i.e. meaning), while sign (14) means something quite different?
- all three sentences (2), (13) and (14) are complex signs, while something like **the the girl kicked boy*, **the kicked the girl boy*, **kicked the boy the girl* (and many more) are no linguistic signs at all?

The distinction between morphology and syntax is often described in terms of different objects of investigation: 'complex sign' means 'word' in the case of morphology, 'sentence' in the case of syntax.

As the previous examples have shown, though, there is more that distinguishes these two sub fields from one another: the combinatory potential of items (such as words) to form sentences exceeds by far that of items to form words. Accordingly, we need to deal with these two areas separately and introduce individual sets of constructs and methodology for each. This is not to say that there is no common terminology and as we shall see, there are analogies concerning methodology as well.

4 Morphology

A traditional definition of morphology reads as follows:

Morphology is that subfield of linguistics that deals with the words of (a) language, i.e. the parts they are made up of and the structure they exhibit.

To get a clearer notion about what this means, let us start with the following examples:

- (15) walks, walked, walker

All words in this set are made up of more than just one part, as each adds a 'word-part' to *walk* :

- (16) walk + $\left. \begin{array}{l} -s \\ -ed \\ -er \end{array} \right\}$

Each of these elements is basic in that it cannot be dissected any further; and each can be considered a linguistic sign in consisting of an expression and a content level.

A (not very thorough) description of their meanings could be something like this:

- (17) walk: [ACTION, DIRECTED MOTION, ON-TWO-LEGS]
 (18) -s: [3. PERSON, SINGULAR, PRESENT]
 (19) -ed: [PAST]
 (20) -er: [AGENT]

If we look a little more closely at these word-parts we note that there are certain features that would allow us to group them into different classes.

We could, for example, differentiate *walk* from *-s*, *-ed* and *-er* since *walk* can appear as a word in its own right (for example in *I hate to walk*), whereas *-s*, *-ed* and *-er* always attach to other words, they cannot stand by themselves. Note, though, that they constantly reappear in other words, cf.

- (21) **kicks**, **kicked**, **kicker**, **loves**, **loved**, **lover**, **provides**, **provided**, **provider** etc.

We could also distinguish *-s* and *-ed* from *-er*, because *walks* and *walked* are different word-forms of the same lexeme (the verb WALK) whereas *walker* is a different lexeme (a noun).¹

¹ The concept 'lexeme' has been introduced in the chapter on semantics.

Accordingly, we can say that as far as meaning is concerned, *-s* and *-ed* add grammatical meaning to a word's core meaning, whereas *-er* actually changes the core meaning. In our example, the informal description given in (17) is augmented with the meanings of (18) and (19) in *walks* and *walked*. In *walker*, though, the basic meaning is changed since we do not talk about a directed motion anymore, but instead a human being.

On the basis of these insights, we can now draw up a modest classification of the word-parts presented in (16) and (21):

Word-parts		
can appear on their own	cannot appear on their own	
<i>walk, kick, love, provide</i>	indicate different forms of the same lexeme	indicates a different lexeme
	<i>-s, -ed</i>	<i>-er</i>

Table 1: Word-Parts (informal)

This table serves a very useful purpose because we can take it as a basis to motivate the next sections.

Expressions like

(22) word-parts that can appear on their own

(23) word-parts that cannot appear on their own and indicate different forms of the same lexeme

are dreadfully long-winded and cumbersome. Thankfully, there is a whole array of constructs that morphology offers for the analysis of words, which we will introduce in the next section.

As soon as we have done that and therefore the appropriate terminology at our disposal, we will have a brief glance at the internal structure of words.

The difference between word-parts that 'indicate different forms of the same lexeme' and those that 'indicate different lexemes' correlates with the two main sub fields of morphology, which we will have a closer look at in the ensuing sections, namely

- lexical morphology
- inflectional morphology.

Lexical morphology is interested in the systematic relationships that hold between different lexemes (as in the example above: *kick* (Verb) – *kicker* (Noun)), while inflectional morphology deals with the systematic relationships of word-forms that represent the same lexeme (such as *kicks* and *kicked* representing the lexeme KICK).

4.1 Basic terminology

4.1.1 Morphemes and allomorphs

In the section above, we dissected *walks* into two word-parts, each a linguistic sign that could not be further analysed. We could do the same with a word like

(24) *cats*

which would give us the following word-parts:

(25) *cat*: /kæt/—[ANIMATE] [ANIMAL] [FELINE]

(26) *-s*: /s/—[PLURAL]

Let us gloss **RECURRENT** word-parts that are basic in this sense **MORPHS** (from Greek *morphe*, i.e. "form" or "shape"). If we now compare *cats* with

(27) *dogs*

(28) *horses*

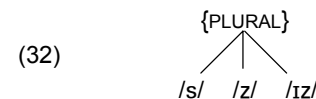
we note that again, each can be analysed as consisting of two morphs and that in each case, a **VARIANT** of the morph presented in (26) is part of the overall word. What distinguishes these morphs is solely their expression side, which is

(29) /s/ in *cats*,

(30) /z/ in *dogs* and

(31) /ɪz/ in *horses*.

As concerns the function or 'job' of /s/, /z/ and /ɪz/, it is always the same, namely to add the meaning 'more than one' to the meaning of the morph they attach to. We will therefore argue that these morphs stand for one and the same morpheme in different environments: they are **ALLOMORPHS** representing the same **MORPHEME**:



A morpheme is thus a class of equivalent morphs that take its place in different contexts - note, though, that this class does not necessarily have to comprise more than one element. As concerns the plural-morpheme the choice of allomorph is dependent on the final sound of the noun. In other words, it is phonologically determined. This has not always to be the case, as the next example shows.

Another word we looked at was the word *walker* (someone who walks), which consists of *walk* and *-er*. We characterized *-er* as follows:

(33) *-er*: /ə/—[AGENT]

If we now analyse the following words:

(34) *typist* (someone who types something)

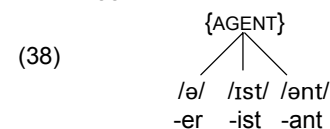
(35) *informant* (someone who informs someone else)

we find variants of (33), namely

(36) *-ist*: /ɪst/—[AGENT]

(37) *-ant*: /ənt/—[AGENT]

This suggests an **AGENT MORPHEME** that has (at least) three allomorphs:



What we have here is of course another 'eme'-situation, comparable to what we encountered in connection with phonemes and lexemes, namely a situation where we can have more than one possible realization of an abstract concept. Within morphology, 'abstract concept' means morpheme, this being the basic unit of analysis and description.

4.1.2 Free vs. bound morpheme

In **table 1**, we differentiated between 'word-parts that can appear on their own' and 'word-parts that cannot appear on their own'. If 'word-part' means morpheme, we use the terms **FREE MORPHEME** and **BOUND MORPHEME**.

An analysis of the following sentence

(39) The boys were not very successful

gives us the following list of morphemes:

(40) the, boy, -s, were, not, very, success, -ful

Of these, -s and -ful are bound (as indicated by the hyphen), all others are free.

What would you make of the following word?

(41) friendship

This consists of *friend* and *-ship*. *friend* is obviously free, but what about *-ship*? Could we not argue that *-ship* is free, too, since there are sentences like

(42) John bought a new ship

Well, the answer is no, because *ship* in (42) is something quite different from *-ship* in (41). If we compare the respective meanings of these two signs, we see that – apart from an identical expression side – they have not much in common at all.

4.1.3 Affix vs. base

Another major distinction has to do with the question whether a word-part attaches to another – or whether it is being attached to. Sounds a bit odd, but the following example clarifies matters:

(43) printer

In (43), *print* is that part to which something is attached; *-er* is that part that is being attached. A word-part that something can be attached to is called a **BASE**, a morpheme that attaches to a base is called an **AFFIX**. In (43), *print* is a base and *-er* is an affix. The process of attaching an affix to a base is accordingly called **AFFIXATION**.

Affixes can be classified with respect to two different parameters, namely

- the function they serve,
- the position they appear in.

As concerns function, we differentiate between **INFLECTIONAL AFFIXES** and **LEXICAL AFFIXES**. This distinction corresponds to 'indicate different forms of the same lexeme' and 'indicate different lexemes' in **table 1**.

Inflectional affixes are those bound morphemes that distinguish different word-forms of the same lexeme. Examples:

(44) KICK: {kick, kicks, kicked, kicking}

(45) FAST: {fast, faster, fastest}

(46) DOG: {dog, dogs}

These examples yield a modest list of inflectional affixes (such as *-ed*, *-s*, *-est* etc.) that serve to indicate different kinds of grammatical meaning (such as [PAST], [PLURAL], [SUPERLATIVE] and so on). As you can see, this list is anything but long, which is a first indication of the fact that English has developed away from being an inflectional language. More about this in the section on inflectional morphology.

Lexical affixes, as the name suggests, play a part when it comes to distinguishing different lexemes. The words in (47) give us the list of lexical affixes in (48):

(47) involvement, walker, touchable, untidy, friendship, misuse.

(48) -ment, -er, -able, un-, -ship and mis-

All of these affixes either change the word class of the element they attach to, or the core meaning, or both, thus creating a new lexeme:

(49) involve (Verb) + -ment = involvement (Noun)

(50) touch (Verb) + -able = touchable (Adjective),

(51) tidy (Adjective) + un- = untidy (Adjective, meaning is reversed) etc.

As concerns position, the list in (48) already shows two of the main classes of affix, namely **PREFIX** and **SUFFIX**. This distinction is easy to understand: a prefix precedes the base, a suffix follows it:

(52) SUFFIX: -ment, -er, able, -ship (and all the inflectional affixes discussed above)

(53) PREFIX: un-, mis-

In languages other than English, we can establish a number of additional classes that are based on the position of the affix, for example infixes (which are inserted into a base) or circumfixes (which span a base); seeing that these have no systematic status in English, we will not discuss them here.

The following table presents a short classification of affixes:

		Position	
		Preceding base	Following base
Function	Inflectional	<i>inflectional prefix</i>	<i>inflectional suffix</i>
	Lexical	<i>lexical prefix</i>	<i>lexical suffix</i>

Table 2: Affixes

While affixes are always single morphemes (bound morphemes, to be precise), a base need not necessarily be a single morpheme but can be a complex structure in itself. To understand this, have a look at the following word

(54) developmental

Developmental consists of three parts, a free morpheme and two lexical suffixes:

(55) develop

(56) -ment

(57) -al

An analysis of this word shows that affixation has taken place twice:

(58) develop + -ment: *development*

(59) development + -al: *developmental*

In (58), the base is *develop*. In (59), though, it is *development*, i.e. a complex sign consisting of two morphemes.

A base that is simple in consisting of only one morpheme is called a **ROOT**. With this terminology at hand, we can now describe *developmental* as follows:

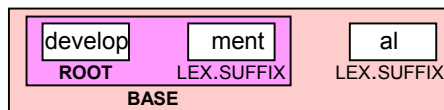


Fig. 1: *developmental*

Incidentally, there is another subtype of base, the so-called **STEM**, which is a base that enters an inflectional process. Compare the following word to the analysis in (59):

(60) developments

Again, this word ranges around the root *develop*, and again we can identify the base *development*. This base, though, other than in example (59), is 'affixed' not with a lexical suffix but instead an inflectional suffix, namely the plural-marker *-s*. In (60), then, the base *development* enters an inflectional process and is therefore a stem:

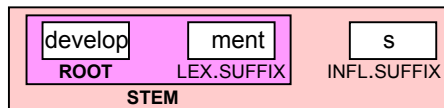


Fig. 2: *developments*

What these examples show is that all roots and all stems are bases – but not the other way round, as there are bases that are neither roots nor stems (as was *development* in *developmental*). In some cases, the base is a root and a stem at the same time – for example in

(61) kicks: *kick*: root and stem and base, *-s*: inflectional suffix

These insights are captured in the following diagram:

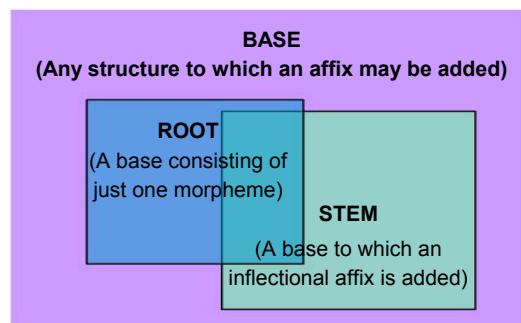


Fig. 3: Base, root and stem

We now have a basic terminology at our disposal that describes more precisely the parts that complex words are made up of.

Do keep in mind, though, that other authors may use the same terms in slightly different ways, which means that you will always have to be on the lookout for the exact, individual definitions given for such terms. In his introduction to morphology, Peter Matthews remarks upon this problem as follows:

This is an area in which the terminology is very fluid. Once the concepts are grasped it is easy to be consistent in one's own usage, but whatever precisely one takes to be 'stems' or 'roots' it will be possible to find other writers who are consistent in a different way. (MATTHEWS 1974).

4.2 Word structure

Complex words exhibit an **INTERNAL STRUCTURE**: the morphemes they consist of are not just strung together like beads in a string. Instead, we can often identify **UNITS OF MORPHEMES** within a larger sequence. The technical terms for a unit that is part of a larger unit is **CONSTITUENT**.

We have already seen an instance of this in *developmental* and *developments* where we had a complex base, i.e. a constituent *development*.

Constituent structures are often represented in tree diagrams; the following tree (which is identical to Fig. 1) shows the structure of *developmental*:

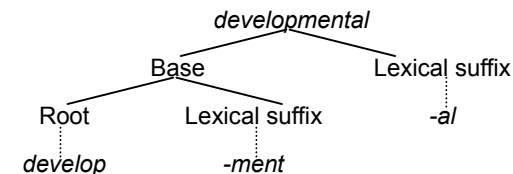


Fig. 4: *developmental*

The basic structure of *developmental* is thus

(62) [[develop - ment] -al].

Affixation also takes place twice in the following word:

(63) untouchable

namely with the lexical suffix *-able* and the lexical prefix *un-*. The crucial question is: in what order does this happen? Things were straightforward in the case of *developmental* (there is no alternative analysis).

Untouchable, on the other hand, could have either of two potential structures, namely

(64) [[un- touch] -able]

(65) [un- [touch -able]]

In other words, we have to decide whether *untouchable* has a base *touchable* or a base *untouch*. This decision is obvious, though: based on the fact that **untouch* is no English word, we can rule out analysis (64). Now compare this with

(66) unlockable

Again we can posit two possible structures for this word, namely

(67) [[un- lock] -able],

(68) [un- [lock -able]].

Each of these structures is ok: as opposed to *untouchable*, where only *touchable* is possible, here both *lockable* and *unlock* work as potential bases:

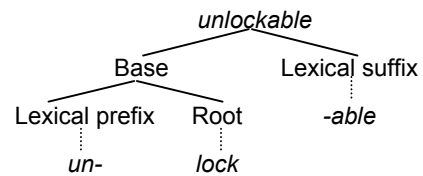


Fig. 5: *unlockable I*

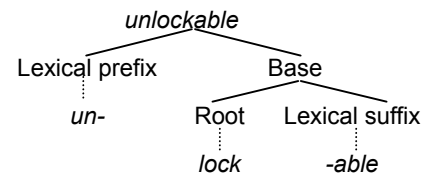


Fig. 6: *unlockable II*

Both these analyses represent the structure of *unlockable*, and this interesting situation corresponds to the fact that we can actually identify two different linguistic signs whose expressions side may be the same, but whose content side is different. In other words: *unlockable* is ambiguous.

If you say that something is *unlockable*, it could mean that no one is able to lock it. Here, *unlockable* could be paraphrased as 'not lockable'. But it could also mean 'able to reverse the action of locking'. The following examples illustrate this difference in appropriate contexts:

(69) Do not put anything of value in that safe - it is *unlockable*
(="not lockable")

(70) Thank God John found the key - the old crate is *unlockable* at last
(="able to reverse the action of locking")

If you translate *unlockable* into German, you actually have to use two different words, namely *unverschießbar* for 'not lockable' and *aufschließbar* for 'able to reverse the action of locking'.

The ambiguity in *unlockable* is thus based on two factors:

- the prefix *un-* is ambiguous: it can either mean [NOT] (*unlockable* = not lockable) or [REVERSE ACTION] (*unlock* = reverse the action of locking)
- it has two different constituent structures.

The latter of these two points is an instance of **STRUCTURAL AMBIGUITY**. This term refers to linguistic expressions having more than one reading due to different constituent structures they exhibit, not necessarily due to a single element being ambiguous.

Within morphology, structural ambiguity is relatively rare, but we will hear a lot more about this in the section on syntax.

For more examples of word-structure please turn to the appendix at the end of this chapter, where you will find a number of sample words that have been analysed with the terminology introduced in section 4.1.

4.3 Interlude: word-classes

The remaining part of this chapter will deal with the two core areas of morphology, namely lexical morphology and inflectional morphology.

In order to fully understand what these areas are about, we need to do something that we previously only hinted at in the chapter on semantics, namely to clarify and render more precise our notion of 'word-class' or 'lexical category'.

The classification of words into word classes is actually one of the most fascinating and heatedly discussed topics within modern linguistics and authors vary with respect to which inventory of word-classes they recognize. We will not go into too much detail in our reader, nevertheless. some elementary comments are necessary.

We have already used terms like *noun* and *verb* and *adjective* without any further discussion; most of you will have come into contact with such expressions in your days at school. Therefore, the allocation of words to word-classes in the following sentence should not pose too big a problem:

(71) The little boy opened the red box carefully.

Here we have the following allocations:

the: article (definite)

boy, box: noun

little, red: adjective

opened: verb

carefully: adverb.

The interesting question is of course: what is this allocation based on? What makes us say that something like *boy* or *box* is a noun, or *opened* is a verb? In other words, how can we define what word-classes such as 'noun' or 'verb' or 'adjective' actually are (and we are not talking about an extensional definition here)?

In many school-grammars, word-classes are defined with reference to aspects of meaning. You might have learned 'definitions' such as

- nouns refer to things (cf. *Dingwort*)
- verbs refer to actions (cf. *Tuwort*)
- adjectives refer to properties (cf. *Eigenschaftswort*)

Unfortunately, though, these definitions are at best a first basis for defining classes of words. Why? Because

1. there are nouns that refer not to things at all, but for example to activities (e.g. the noun *destruction*) or verbs that do not refer to actions at all, but for example states (e.g. in *John is dead*) and so on,
2. there are classes of words where it would be difficult to come up with a semantic definition – or how would you describe the semantics of the class that comprises the words *whether, if, but* and *or*?
3. most convincingly, we can usually decide whether something is a noun, or a verb, or an adjective etc. without any knowledge whatsoever of its meaning.

The last item on this list can best be motivated by using a concrete example.

Let us take a phantasy word such as *drobe*. This is not a word of the English language, we therefore do not know what it means. Curiously, though, we have no trouble when it comes to specifying whether *drobe* is a noun, a verb or an adjective in the following sentences:

- (72) We always *drobe* on Sundays. (*drobe*: verb)
 (73) This is a really cool *drobe*. (*drobe*: noun)
 (74) What a *drobe* day! (*drobe*: adjective)
 (75) He just *drobed* on and on. (*drobed*: verb)
 (76) Well, my car is certainly *drober* than yours. (*drober*: adjective)
 (77) She keeps her *drobes* in the cupboard. (*drobes*: noun).

How do we do this? Obviously, the environment of a word plays a crucial part when it comes to establishing its category, and so does its morphological shape. We could argue, for example, that we recognise *drobe* as a verb in sentence (72) because it appears in exactly the same environment that other verbs appear in:

- (78) We always $\left. \begin{array}{l} \text{drobe} \\ \text{play} \\ \text{bathe} \\ \text{smoke} \\ \text{sleep} \\ \text{swim} \\ \text{dance} \end{array} \right\}$ on Sundays.

In sentence (73), on the other hand, *drobe* appears in a noun environment:

- (79) This is a really cool $\left. \begin{array}{l} \text{drobe} \\ \text{book} \\ \text{movie} \\ \text{pizza} \\ \text{idea} \\ \text{car} \end{array} \right\}$

Obviously, then, one important feature when establishing word-classes is distribution and the question as to which words are in paradigmatic relation.

In sentences (75), (76) and (77), there are additional features that allow us to recognise *drobe* as noun, verb or adjective, namely the kind of inflectional suffix it takes. In (75), we have *drobe* + *-ed*, i.e. the past-tense form of the verb, in (76), it is *drobe* + *er*, i.e. the comparative of the adjective, and in finally, in (77), *drobe* + *-s*, i.e. the plural of the noun.

What these examples show are two formal, that is non-semantic, criteria that play an important part when it comes to defining word-classes, namely

1. distribution and
2. morphological shape.

It is these criteria that let us decide that a word like *light* is a noun, or a verb, or an adjective (in that order) in

- (80) The lamps emitted strong light

- (81) He wanted me to light the candle

- (82) We had a light dinner.

As was mentioned before, we will not deal with the finer aspects of word classification in this reader, but instead work with a rather traditional assortment of classes, namely

Word class		Examples
Verb	V	<i>be, drive, grow, sing, think, give</i>
Noun	N	<i>brother, car, house, idea, selection</i>
Proper Noun	Pn	<i>Mary, John, London, Thames</i>
Pronoun	Pro	<i>he, she, they, us</i>
Determiner	Det	<i>a, an, my, some, the, his, that</i>
Adjective	A	<i>big, foolish, happy, talented, tidy</i>
Adverb	Adv	<i>happily, recently, soon, very, rather</i>
Preposition	P	<i>at, in, of, over, with, from, to</i>
Conjunction	Conj	<i>and, because, but, if, or</i>

Table 3: Word classes (lexical categories)

4.4 Lexical morphology

Lexical morphology, as was said above, is one of the core areas of morphology and deals with the systematic relationships holding between different lexemes. There are quite a large number of different word-formation processes that underlie these relationships, three of which we will have a closer look at, namely **DERIVATION**, **CONVERSION** and **COMPOUNDING**.

4.4.1 Derivation

In the sections above, we have already seen instances of derivation, for example in:

- (83) develop + *-ment* = development

- (84) development + *-al* = developmental

What we see here is a systematic relationship between different words. In both cases this relationship is indicated by a specific lexical affix. (83) and (84) can be generalized as follows:

- (85) Verb + *-ment* = Noun

- (86) Noun + *-al* = Adjective

Example (85) is illustrated in words such as *involvement*, *entailment*, *employment*, *containment*, *instalment* and others; (86) in *original*, *marginal*, *octagonal*, *educational*, *national* and others. Hence, derivation is a morphological process that involves affixation with a lexical affix to 'create' a new lexeme. Here are some more examples:

- (87) own + *-er* = owner (Verb → Noun)

- (88) owner + *-ship* = ownership (Noun → Noun)

- (89) frighten + *-ing* = frightening (Verb → Adjective)

- (90) law + *-ful* = lawful (Noun → Adjective)

- (91) un- + lawful = unlawful (Adjective → Adjective)
 (92) bold + -ly = boldly (Adjective → Adverb)
 (93) de- + compose = decompose (Verb → Verb)

Examples (88) and (91), i.e. *ownership* and *unlawful*, indicate that derivation is a **RECURSIVE** process: it can be applied to a word that already underwent a derivational process. As concerns *unlawful*, this word can again undergo derivation:

- (94) unlawful + -ly = unlawfully (Adjective → Adverb)

A word often used to show that recursiveness results in complex, potentially infinite strings is *anti-disestablishmentarianism* (which underwent at least seven derivational processes and seems to just go on and on...).

4.4.2 Conversion

Conversion is often described as a special kind of derivation, namely derivation without a lexical affix. Compare the following two sentences:

- (95) Can you pass me the butter?
 (96) Would you please butter my toast?

We have a noun *butter* in (95) and a verb *butter* in (96). The verb, though, is not overtly marked as derivative of the noun. In a way, then, we could describe this process as follows:

- (97) butter + ∅ = butter (Noun → Verb)

This might also explain why some call conversion 'zero-derivation'. Other examples:

- (98) shoulder + ∅ = shoulder (Noun → Verb, as in 'He shouldered the bag')
 (99) carpet + ∅ = carpet (Noun → Verb, as in 'They carpeted the hall')
 (100) empty + ∅ = empty (Adjective → Verb, as in 'She emptied the ashtray')
 (101) tidy + ∅ = tidy (Adjective → Verb, as in 'He tidied his flat')
 (102) cough + ∅ = cough (Verb → Noun, as in 'She developed a bad cough')
 (103) smile + ∅ = smile (Verb → Noun, as in 'What a lovely smile')²

There are quite a few cases where conversion correlates with a change in stress-pattern, cf.

- (104) 'take off (noun) – take 'off (verb)
 (105) 'subject (noun) – sub'ject (verb)
 (106) 'increase (noun) – in'crease (verb)

Conversion is much more frequent in English than it is in, say, German. We might come back to this in the section on inflectional morphology.

4.4.3 Compounding

Let us next look at compounds, that is lexemes consisting of two free bases, such as

- (107) house + wife = housewife

² Here, you might wonder why we say that *smile* as a noun is derived from *smile* as a verb - and not vice versa (in other words, a chicken-and-egg question). Actually, there are a number of reasons to do so, but it would go beyond the scope of this reader to answer this.

- (108) washing + machine = washing machine
 (109) soup + spoon = soup spoon
 (110) silver + spoon = silver spoon

We can distinguish a number of different types of compound depending on which word classes are involved:

	Adjective	Noun	Verb
Adjective	bitter + sweet	red + head	dry + clean
Noun	life + long	sea + food	steam + clean
Verb	fail + safe	jump + suit	stir + fry

Table 4: Types of compound

These classes vary considerably in size: Verb-Adjective compounds, for example, are actually very rare in English, while Noun-Noun or Adjective-Noun compounds are very frequent.

Compounding is an interesting process, but as we lack space and time, we can only discuss very briefly some of the more noteworthy phenomena occurring in this area.

Endocentric vs. exocentric compounds

The following English compounds

- (111) afterthought (preposition-noun)
 (112) spoon feed (noun-verb)
 (113) green house (adjective-noun)

each consist of two free bases. The second of these bases determines the overall word-class of the compound: *afterthought* is a noun (not a preposition), *spoon feed* is a verb, *green house* is a noun again. We will call the element that determines the word class the **HEAD** of the compound.

Semantically, we can also argue that the rightmost element is the head, because in all three cases, the left element serves to specify the right element: an afterthought is a specific kind of thought (not a specific kind of after), spoon feed is a specific kind of feeding (not a specific kind of spoon) and a green house is a specific kind of house (not a specific kind of green).

Things are a bit different in the following cases:

- (114) walkman
 (115) blue stocking

Here, we cannot say that a walkman is a specific kind of man but instead in miniature cassette player, and a blue stocking (German: *Blaustrumpf*, *Suffragette*) does not refer to a specific kind of stocking, but instead to a woman with certain political beliefs. The meaning of these compounds is thus **OPAQUE**, as it cannot be derived from the meaning of their parts.

Compounds that denote a semantic subclass of their heads (as *afterthought*, *spoon feed* and *green house*) are **ENDOCENTRIC**, compounds that denote something else completely (like *walkman* and *blue stocking*) are **EXOCENTRIC**.

Compound - or no compound?

Examples (113) and (115) are remarkable from another point of view, too, and so are

(116) short story

(117) black bird

All these are sequences of an adjective (*green, blue, short, black*) and a noun (*stocking, house, story, bird*). The interesting question here is: how do we know that these sequences are compounds (i.e. lexemes) – and not just a concatenation of an adjective and a noun? We would not, as a matter of fact, consider the sequence adjective-noun in the following sentence to be a compound:

(118) She is an ugly blonde.

Actually, without any context, the difference is sometimes hard to tell. Orthography is not much of a help, since compounds are only sometimes written as one word (*bedroom*) or with a hyphen (*word-formation*), but often, the elements stand separately (as in the examples above).

One criterion that we can use to distinguish compounds from non-compounds is stress. Take example (116): if we refer to the literary genre, the adjective is stressed:

(119) 'short story (*Kurzgeschichte*)

If, on the other hand, we talk about a story that is short, the noun carries the main stress:

(120) short 'story (*kurze Geschichte*)

The 'syntactic' behaviour of compounds and non-compounds is different, too. We can, for example, only modify the adjective with an adverb in case of non-compounds:

(121) a very short story

In (121), the sequence adjective-noun allows for a non-compound reading only (cf. *eine sehr kurze Geschichte* - **eine sehr Kurzgeschichte*).

As a matter of fact, the question 'compound or not?' is very interesting from a contrastive point of view, as well: this problem hardly appears in German. This, though, has to do with differences concerning the inflectional properties of adjectives in English and German.

4.4.4 Miscellanea

In most introductory textbooks, you will find mention of a number of other word-formation processes, all of which imply some kind of shortening, such as

Acronymy

The initial letters of a sequence of words form a new word, as in *radar* (RADIO Detection And Ranging), UNESCO (United Nations Educational, Scientific and Cultural Organization), SALT (Strategic Arms Limitation Talks) etc.

Initialism

The initial letters of a sequence of words are spoken individually, as in TV (TeleVision), BBC (British Broadcasting Corporation), USA (United States of America) etc.

Clipping

Only a part of a word is kept, as in *phone* (telephone), *ad* (advertisement), *fridge* (refrigerator), *demo* (demonstration), *flu* (influenza).

Blending

The shortened forms of two words combine to make a new word, as in *smog* (smoke + fog), *Eurovision* (Europe + television), *chunnel* (channel + tunnel), *brunch* (breakfast + lunch)

We will not elaborate on any of these processes: although often an area of linguistic creativity, none of them could be said to have a systematic status within the field of lexical morphology.

Back-formation

This process occurs in pairs such as

(122) edit / editor

Morphologically, this pair looks exactly the same as

(123) act / actor

where we have a derivational process, namely

(124) act + -or = actor (Verb → Noun)

The analogy to *edit–editor* is not sound, though, because in this case, the process went the other way round: the noun *editor* appeared first in the English language, and the corresponding verb *edit* was derived from *editor* via back-formation:

(125) editor – -or = edit (Noun → Verb)

Note that to be able to identify whether some word is a back-formation of another, say, *televize* of *television* (it is), you need to know the etymology of the words in question. Since the historical sources for such information are not always reliable, we will ignore this process in our reader.

4.5 Inflectional morphology

One of the key interests of inflectional morphology is the description of the various relations that hold between word-forms of the same lexeme. The term *inflection* (German *Flexion*) refers to various processes that result in such different forms and is a hyperonym for

- **DECLENSION,**
- **CONJUGATION ,**
- **COMPARISON.**

An inflectional process adds what is often called 'grammatical meaning' to a stem: it does not change the 'lexematic identity' of a word as derivation would. We already saw instances of this in the sections above, for example in connection with WALK. The core-meaning of this lexeme was described as

(126) WALK: [ACTION, DIRECTED MOTION, ON-TWO-LEGS]

This core-meaning stays invariant in all forms that represent this lexeme, i.e. *walk, walks, walked, walking*. What they differ in can be subsumed under the term

'inflectional category', which refers to constructs that you have probably heard about in school such as **NUMBER** (*Numerus*), **PERSON** (*Person*), **TENSE** (*Tempus*), **ASPECT** (*Aspekt*) and others.

The following examples list a series of morphological contrasts, each of which illustrates one specific inflectional category. As has been mentioned above, the inflectional system of English is rather impoverished, we therefore have to take some examples from German.

- (127) The dog barks - The dogs bark (NUMBER)
 (128) I love the dog - He loves the dog (PERSON)
 (129) Die Frau lacht - Der Mann lacht (GENDER)
 (130) I love John - John loves me (CASE)
 (131) John shouts - John shouted (TENSE)
 (132) John shouts - John is shouting (ASPECT)
 (133) John kicks Bill - Bill is kicked by John (VOICE)
 (134) He kicks her - Kick her (MOOD)
 (135) Mary is tall - Mary is taller (COMPARARISON)

We can interpret each of these categories as a morphological feature consisting of an attribute that comprises a certain range of values. The following table shows some inflectional categories and their respective values:

Attribute	Values
NUMBER	singular, plural
PERSON	1, 2, 3
GENDER	masculine, feminine, neuter
CASE	subjective, objective
TENSE	past, non-past
ASPECT	progressive, non-progressiv ³
VOICE	active, passive
MOOD	indicative, subjunctive, imperative
COMPARISON	absolute, comparative, superlative

Table 5: Inflectional categories (examples)

This little overview raises a number of questions (some of which are rather troublesome). Each of these questions will be addressed in the sections to come.

4.5.1 Which inflectional categories are actually associated with a given word-class?

Word-classes differ with respect to the inflectional categories they are associated with. On a very first level, we can say that there are a number of word-classes that are not inflected at all, namely prepositions, adverbial particles and conjunctions. As concerns

³ For the sake of simplicity, we will disregard the difference between perfect and non-perfect forms

the others, we can easily see that only adjectives and adverbs inflect for comparison, only verbs inflect for tense and so on.

Actually, this is what the terms *declension*, *conjugation* and *comparison* refer to: they name exactly those inflectional categories that are associated with certain word-classes. A very traditional definition of these concepts would look like this:

- DECLENSION refers to the inflection of 'nominal' categories such as determiners, adjectives or nouns with respect to number, person, gender and case
- CONJUGATION refers to the inflection of verbs with respect to person, number, tense, aspect, voice and mood
- COMPARISON refers to the inflection of adjectives with respect to categories such as comparative and superlative.

If we try to apply these definitions to English, though, we get a problem. Compare

(136) die schöne Blume / die schönen Blumen (NUMBER)

(137) ein schöner Tisch / eine schöne Kerze / ein schönes Auto (GENDER)

What we have here is of course adjective declension. How does this compare to English? Well, it doesn't, really:

(138) the beautiful flower / the beautiful flowers

(139) a beautiful $\left\{ \begin{array}{l} \text{table} \\ \text{candle} \\ \text{car} \end{array} \right\}$

Actually, adjectives are not inflected at all in (present-day) English, but they are in German. This shows that different languages may vary concerning the association between word-classes and inflectional categories.

4.5.2 Which inflectional categories does a language actually exhibit?

As examples (129) and (137) show, there is an inflectional category GENDER in German. We are hard pressed when it comes to finding an English equivalent, though: there are some words, namely the pronouns *he*, *she* and *it* that exhibit inherent gender (we would accordingly call them *masculine*, *feminine* and *neuter*), but in these cases, there is a strong correlation between grammatical gender and biological gender. This is not the case at all in German, GENDER and concepts such as masculine and feminine are independent from any biological basis. This is shown nicely in the following comparison of German and French, another language with grammatical gender:

(140) Der Mond (masculine) vs la lune (feminine)

(141) Die Sonne (feminine) vs le soleil (masculine).

In example (132), we saw the aspectual difference between a non-progressive form such as

(142) John smokes.

and its progressive counterpart

(143) John is smoking.

Aspect can be described as an inflectional category of English verbs that is expressed via the auxiliary *be* and a present-participle form of the main verb:

(144) progressive: *be* + V-ing

In German, however, we do not have a comparable inflectional category. If we want to express the grammatical meaning 'progressive', we have to employ strategies other than verb-inflection (we cannot express this by using a specific form of the verb). A translation that captures the progressive aspect of (143) could use special adverbs or specific syntactic constructions, for example

(145) John raucht gerade.

(146) John ist dabei, zu rauchen.

(147) John ist am Rauchen.

These examples show the difference between languages concerning their respective inventories of inflectional categories. The last example leads us nicely to our next question:

4.5.3 How is the grammatical information actually encoded?

Examples (145) — (147) have shown that German, lacking the inflectional category aspect, uses other strategies to express the same kind of grammatical information. Actually, we can make out quite a number of different options concerning the way grammatical meaning is expressed.

Suppletion

Compare

(148) kick - kicked

(149) go - went

The category tense, or to be more precise, the contrast between non-past and past is expressed via affixation in (148). In (149), though, this difference is expressed by a different stem which actually originates in an unrelated morphological paradigm. *went*, as a matter of fact, is the past-tense form of the verb *WEND* (which nowadays is only used as a literary expression).

This is what suppletion is about: supplementing a morphological paradigm with items from another. The morphological paradigm associated with the lexeme *GO* shows this: it contains the stem *went*, which has no phonological similarity to the other forms:

(150) *GO*: {go, went, gone, going}

Some more cases of suppletion are

(151) *GOOD*: {good, better, best}

(152) *BE*: {be, am, are, is, was, were, been}

Modification / Vowel alternation

Compare

(153) dog - dogs

(154) mouse - mice

While the category tense, or to be more precise, the contrast between singular and plural is expressed via affixation in (153), it is indicated by a change in the vowel of the stem in (154). This process can be called *VOWEL ALTERNATION*.

Other examples:⁴

(155) sing - sung

(156) drink - drank

(157) find - found

(158) goose - geese

(159) man - men

Analytic vs. synthetic

Affixation, suppletion and modification, i.e. those strategies used to encode grammatical information discussed so far, have in common the fact that they are all 'strictly' morphological: each involves some kind of change in the stem - either by adding an affix, or by supplementing the morphological paradigm with other elements, or by alternating the vowel of the stem.

Things are a bit different in the following example:

(160) John smokes.

(161) John will smoke.

The difference between *smokes* (commonly called 'simple present') and *will smoke* (commonly called 'simple future') is neither indicated by an affix, nor by a different stem, nor by a change in the vowel. Instead, a separate lexical item, in this case the modal *will*, is used to express the grammatical meaning. This situation is comparable to the following example:

(162) John is ugly, and Bill is even uglier.

(163) Mary is beautiful, and Jane is even more beautiful.

In the second of these sentences, comparison is not expressed by any change in the adjective *beautiful*, but by using the adverb *more*.

The difference between affixation, suppletion and modification on the one hand and the use of specific lexical items (such as *will* for future, *more* for comparative) is captured by the terms

- **SYNTHETIC**
synthetic encoding of grammatical information means the use of specific morphological processes such as affixation or modification
- **ANALYTIC**
analytic encoding of grammatical information means the use of specific lexical items and/or syntactic strategies.

Examples (161) and (163) are analytical: the grammatical information concerning tense and comparison is encoded by use of special lexical items. Examples (160) and (162), however, are synthetic because here, the grammatical information is expressed by a specific morphological process (in these cases: affixation).

⁴ We won't distinguish between *ABLAUT* ((155)–(157)) and *UMLAUT* ((154), (158) and (159)) here.

4.5.4 Which values does a given inflectional category actually comprise?

This is the fun part of our list of questions. To motivate the problem, let us start off with the result of an online-poll courtesy of www.usingenglish.com:

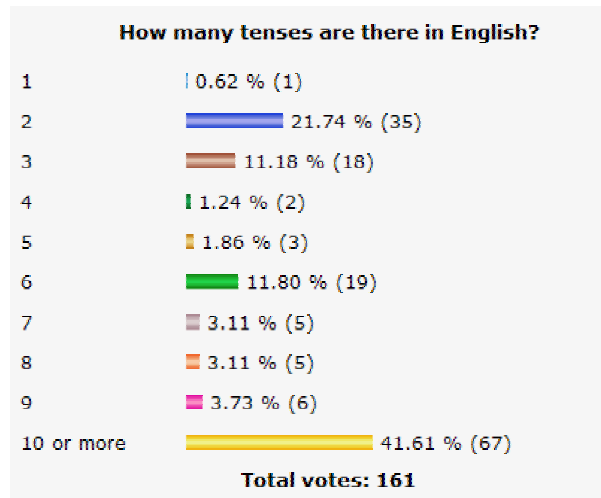


Fig. 7: How many tenses are there in English?

The target-group of the web page in question is English language professionals, mainly teachers; people one thinks ought to be able to come up with one consistent answer to the question asked. But this is not the case: answers range from 'one tense' (which is a bit strange) to 'more than ten tenses'.

This, however, is not really surprising: it is actually no more than a reflex of the fact that the number of tense-forms always depends on how wide or how narrow we define the term tense itself.

If we regard tense as a purely formal, synthetic, inflectional category, than there just are no more than two tense-forms in English, namely non-past and past as in (164) kick - kicked.

If, on the other hand, we regard tense as a semantic category that serves to localize a situation in time relative to the time of the utterance, we could say there are three tense-forms, namely present, past and future; future being expressed analytically by using a modal:

(165) kick - kicked - will kick

Here you can see how the number of values for a given category depends on the exact specification of that category: the more categories that we subsume under the heading 'tense', the more forms we will have. If we include perfect and progressive, we get even more tense-forms, for example

(166) He will have been singing (future perfect progressive)

Exactly the same situation occurs when it comes to naming the values of the attribute case. In German, things are pretty straightforward (nominative, genitive, accusative, dative), but concerning English, opinions vary: some say that English has no case-forms at all, some say it has two (we did so in Table 5), some say three, some say four.

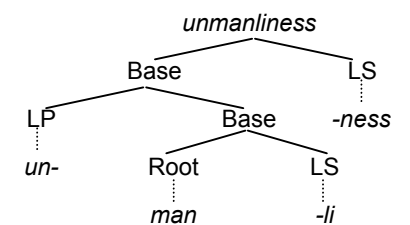
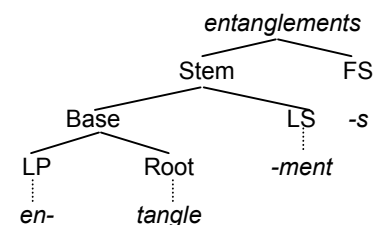
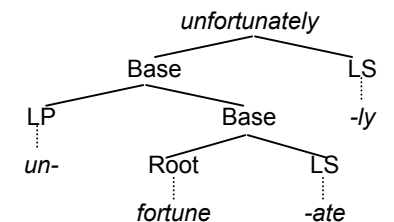
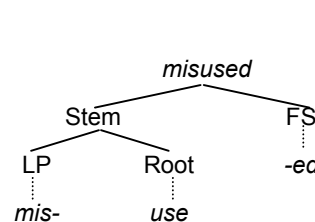
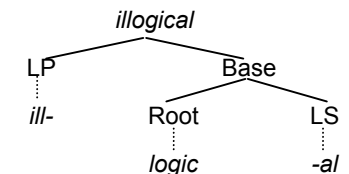
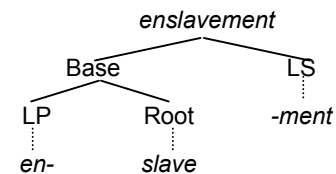
For beginning linguists, this may be frustrating – but again: this is science and the thing to note is that there are no 'ready-made' answers to questions like the ones above: you will have to live with different authors arriving at different solutions.

Thus, when chancing upon an author using the terminology in question, try and find out how he introduces the relevant concepts - what exactly do the terms stand for? Are they used in a rather narrow or in a wider sense? Always be prepared for more than one opinion or approach to the subject matter.

4.6 Appendix

4.6.1 Word structure: some examples

Abbreviations: LP: lexical prefix, LS: lexical suffix, FS: inflectional suffix



4.6.2 Morphological processes: some examples

The following table precisely identifies each morphological process evident in the words in the leftmost column:

<i>unhelpfulness</i>	help (V) → help (N)	conversion
	help (N) + -ful → helpful (A)	derivation
	un- + helpful → unhelpful (A)	derivation
	unhelpful(A) + -ness → unhelpfulness (N)	derivation
<i>window cleaners</i>	clean (V) + er → cleaner (N)	derivation
	window + cleaner → window cleaner	compounding
	window cleaner + -s → window cleaners	inflection: affixation
<i>TV executive</i>	execute (V) + -ive → executive (N)	derivation
	Television → TV	acronymy
	TV + executive → TV executive	compounding
<i>hit men</i>	hit + man → hit man	compounding
	hit man → hit men	inflection: modification
<i>baby sitters</i>	sit (V) + -er → sitter (N)	derivation
	baby + sitter → baby sitter	compounding
	baby sitter + s → baby sitters	inflection: affixation
<i>fabric softener</i>	soft (A) + -en → soften (V)	derivation
	soften (V) + -er → softener (N)	derivation
	fabric + softener → fabric softener	compounding

4.6.3 Lexical affixes: some examples

Affix	Informal description ⁵	X → Y	Examples
<i>-ism, -ity, -ness</i>	property of being X	A → N	realism, sensitivity, kindness
<i>-ance, -ment, -al</i>	activity or result of Xing	V → N	reference, engagement, refusal
<i>-ful / -less</i>	full of / lacking X	N → A	joyful, joyless
<i>-able</i>	able to be Xed	V → A	breakable, readable
<i>-en</i>	(cause to) become (more) X	A → V	reddden, loosen, tighten
<i>de-</i>	remove X from	N → V	debug, delouse
<i>dis-, de-, un-</i>	not X or reverse X	V → V	disagree, decompose, unlock
<i>-let, -ette, -ie</i>	small X	N → N	piglet, cigarette, girlie
<i>un-</i>	not X	A → A	untidy, unsound, unsafe

⁵ These descriptions are taken from Andrew Carstairs-McCarthy's *Introduction to English Morphology* (Edinburgh: Edinburgh University Press 2002). 'X' is to be substituted with the base to which the affix attaches.

4.6.4 Exercises Morphology

- I) Dissect the following sentence into morphemes and identify whether these are free or bound:
Surprisingly, her older brother disappeared some years ago.
- II) Diagram the structure of the following words:
1: perfectionalists, 2: indisputably, 3: re-enacts
- III) Give one concrete example each for the following abstract sequences:
1. lexical prefix—root—lexical suffix—inflectional suffix
2. root—lexical suffix—lexical suffix
- IV) Single the odd one out in the following sets and explain in what way it differs from the others:
1. drive—drove, give—gave, sing—sang, go—went, dig—dug
2. write—writer, drive—driver, run—runner, cook—cooker, buy—buyer
- V) Which of the following compounds are exocentric; which ones are endocentric:
1: wallpaper, 2: blackhead, 3: car mechanic, 4: jail bird, 5: fat cat
- VI) Identify each morphological process evident in the words that are underlined:
When she took her grandparents to hospital, they were ill-fed and terribly weak
◇ADVANCED◇
- VII) The lexical suffix *-ity* can be employed to derive nouns from adjectives. Its range of application is restricted, though – it does not attach to any adjective.
1. Which of the following adjectives 'work' with *-ity*?
normal, kind, real, red, weak, scarce, stupid, curious, soft, formal
2. Can you come up with a hypothesis as to which factor may influence whether *-ity* can be employed to derive nouns from adjectives?
- VIII) How could you explain the fact that in A-N sequences such as *short story* or *blue stocking*, the question 'compound or phrase' is not an issue in German, but it is in English? Use appropriate examples to illustrate your answer.
◇EVEN MORE ADVANCED◇
- IX) Theoretically, *disappointment* could be analysed in two different ways:
1. [[dis- appoint] -ment]
2. [dis- [appoint -ment]]

As opposed to *unlockable*, though, whose ambiguity is reflected in two different structures, *disappointment* has only one meaning and we need to decide on one analysis. Which of the structures presented is preferable to the other, and why? (Hint: you will find a clue to this question in chart 4.6.3.)