Linguistics 1A Morphology

2 Complex words

In the previous lecture we noted that words can be classified into different categories, such as verbs, nouns, adjectives, prepositions, determiners, and so on. We can make another distinction between word types as well, a distinction that cuts across these categories. Consider the verbs, nouns and adjectives in (1)-(3), respectively. It will probably be intuitively clear that the words in the (b) examples are complex in a way that the words in the (a) examples are not, and not just because the words in the (b) examples are, on the whole, longer.

(1)   a.   to walk, to dance, to laugh, to kiss
        b.   to purify, to enlarge, to industrialize, to head-hunt

(2)   a.   house, corner, zebra
        b.   collection, builder, sea horse

(3)   c.   green, old, sick
        d.   regional, washable, honey-sweet

The words in the (a) examples in (1)-(3) do not have any internal structure. It does not seem to make much sense to say that *walk*, for example, consists of the smaller parts *wa* and *lk*. But for the words in the (b) examples this is different. These are built up from smaller parts that each contribute their own distinct bit of meaning to the whole. For example, *builder* consists of the verbal part *build* with its associated meaning, and the part *–er* that contributes a 'doer' reading, just as it does in *kill-er*, *sell-er*, *doubt-er*, and so on. Similarly, *washable* consists of *wash* and a part *–able* that contributes a meaning aspect that might be described loosely as 'can be done', as it does in *refundable*, *testable*, *verifiable* etc.

The smallest parts of words that add their own distinct meaning component to the word are called *morphemes*. Thus, the (a) examples in (1) to (3) show that some words consist of just one morpheme. Such words are called *simple* or *simplex*. Other words consist of two or more morphemes. These are called *complex* words.

The definition of morphemes as the smallest *meaning-bearing* units of words is actually not entirely unproblematic. In some cases, when we divide a word into smaller parts because we detect parts that add their own distinct meaning component, we are left with another bit that appears not to have any independent meaning. Consider the following examples:

(4)   blueberry
        blackberry
        gooseberry
        cranberry

It seems clear that we want to say that these words all share the same morpheme *berry* on their right-hand side, with the same meaning 'a small round fruit on particular plants and trees'. In the first cases, that leaves us with morphemes on the left-hand

side that also have an independent meaning (although in the case of *goose* it is unclear what the relation is of this meaning to the meaning of the whole). In the case of *cranberry*, however, this leaves us with the morpheme *cran* as left-hand part, which is not a meaningful morpheme in (current) English. Such meaningless morphemes are called *cranberry morphemes*, after this particular example (note that it is *cran*, not *cranberry*, that is the cranberry morpheme in this case).

For the large majority of cases, however, defining morphemes as the smallest meaningful units into which we can divide words works well. Not all morphemes are of the same type. We have already seen that words can consist of just one morpheme. Put differently, it is possible for a morpheme to constitute a word in its own right. Examples are the words in (1a), (2a) and (3a), all consisting of just a single morpheme. But not all morphemes can do this. Consider the following examples:

(5)   a.   Q: Is that green?
               A: *No, at best it's –ish.
        b.   Q: Is she any good at football?
               A: *Yes, she's a great –er.
        c.   Q: Does he play the piano often?
               A: *Yes, he –s it all the time.

In contrast to morphemes like *horse* or *green*, morphemes such as *-ish*, *-er* or *–s* cannot stand on their own as a complete word. They have to attach to another morpheme and form a complex word with that.

When a morpheme can occur as a word on its own we speak of a *free morpheme*. In contrast, morphemes that obligatorily attach to another morpheme are *bound morphemes*, also called *affixes*. There are affixes that must attach to the right of their host, the so-called *suffixes*:

(6)   green-*ish*, build-*er*, wash-*able*, solid-*ify*, industry-*al-ize*

And there are affixes that must attach to the left of their host, the so-called *prefixes*:

(7)   *en*-large, *re-en*-act, *de*-throne, *ex*-minister

Though much more exceptional, an affix can also consist of two parts, with one part attaching to the left of the word the affix combines with and one part attaching to the right. An example of such a *circumfix* is the affix that forms the past participle form of verbs in Dutch. Note that in (8) the *ge-* and *–d* parts really do form a single affix – you would not get the past participle of the verb if you left one of them out, while at the same time neither of them does anything else but make the past participle form of the verb.

(8)   speel *ge*-speel-*d*   leef *ge*-leef-*d*   huur *ge*-huur-*d*
                play   played   *live lived*   *hire hired*

A very curious type of affix is the *infix*, which can go right *into* the word with which it combines, rather than attaching to an edge of it. An example of an infix is the verb-forming affix *um* in the Philippine language Tagalog:

(9)　　　　　base: labas　　verb: l-um-abas 'come out'
　　　　　　　base: pasok　　verb: p-um-asok 'enter'
　　　　　　　base: bili　　　verb: b-um-ili 'buy'

Let us now take a closer look at how a complex word can be built up out of two or more morphemes. There are two basic possibilities. The first is to combine two free morphemes. Although free morphemes can form a simplex word on their own, it is possible to combine two (or more) of them to create a complex word. This process is termed *compounding*; the resultant words are *compounds*. Here are some examples:

(10)　　　　　sea + horse → sea horse
　　　　　　　head + strong → headstrong
　　　　　　　hand + made → handmade

(Don't be misled by the space that English orthography puts between *sea* and *horse* in *sea horse*: a *sea horse* behaves just like any other noun, so it is a compound noun).

Some types of compounding are very *productive* indeed in English, others less so. We will come back to this in the next lecture. For now, note that it is possible to take any two simplex nouns in English and form a compound out of them. Some of these will be *existing words* in the English lexicon, such as *sea horse*. Others, such as the ones in (11), are not existing words, but these are nevertheless all *possible words* of English. Their absence from the current English lexicon reflects that there is no current need to use them. However, they are allowed by the principles of English morphology.

(11)　　　　　word + kitchen → word kitchen (e.g. a kitchen for morphologists)
　　　　　　　tree + laptop → tree laptop (e.g. a laptop that has a tree painted on it)
　　　　　　　gorilla + window → gorilla window (e.g. a window through which you
　　　　　　　　　　　　　　　　　　　　　　　　can see a gorilla)
　　　　　　　window + gorilla → window gorilla (e.g. a gorilla that always sits
　　　　　　　　　　　　　　　　　　　　　　　　behind a window)

The second type of complex word, next to compounds, involves affixation. That is, it involves the combination of a bound morpheme with a free morpheme, or with a complex word. This type comes in two subtypes.

In one type of affixation process, the affix makes a whole new word out of the word it attaches to, with a different meaning and often also of a different lexical category:

(12)　　　　　build$_{VERB}$　　→ build-er$_{NOUN}$
　　　　　　　large$_{ADJECTIVE}$ → en-large$_{VERB}$
　　　　　　　industry$_{NOUN}$ → industry-al$_{ADJECTIVE}$ → industry-al-ize$_{VERB}$

This process of affixation is called *derivation*; the affixes involved hence are derivational affixes.

Another type of affix does not make a completely new word out of the word it attaches to. Rather, it expresses some grammatical information about that word, such as for example the person and number of a finite verb, or whether a noun is plural or not. Such affixes consequently never change the lexical category of the word they attach to. This process of affixation is called *inflection*; the affixes involved are inflectional affixes. Some examples of inflection are the *–s*, *–ed* and *–s* suffixes in the following examples:

(13) work$_{\text{VERB}}$-s (expresses that the verb has a third person singular subject)
 work$_{\text{VERB}}$-ed (expresses that the event expressed by the verb took place in the past)
 house$_{\text{NOUN}}$-s (expresses that we are dealing with more than one house)

English has very little inflectional morphology. There are languages in which it is ubiquitous (as we will see in a later lecture).

The distinction between derivational affixes and inflectional affixes is not always clear-cut. What about the English prefix *re-* for example? This does not change the category of the word it attaches to: *rebuild* is a verb just like *build* is, and *rematch* is a noun just like *match*. It does add a distinct meaning component to the word, however, that of repetition. The question then is whether we want to say this is grammatical information about the word it attaches to (its 'repetitive aspect' for instance) or whether we want to say it is really a new word we are dealing with. Presumably we want to say that *re-* is derivational, because of another aspect that distinguishes inflectional morphology from derivational morphology. This is that *in some syntactic contexts it is obligatory to put inflectional affixes on certain words* (to *inflect* those words). There are no syntactic contexts in which only words containing derivational morphology can show up. Since there are no syntactic contexts in which it is obligatory to put the prefix *re-* on a verb we may conclude that this is a derivational affix.

Let us consider one case in which inflectional affixation is required in English. It was stated above that free morphemes can stand on their own. In that context, verbs such as *dance* and *walk* were mentioned. In certain types of sentences, however, namely those with a third person singular subject, these forms, despite being free morphemes, cannot show up on their own. The verb must be inflected with the *–s* that expresses the person and number of the subject:

(14) a. *Sylvia usually walk to work.
 b. Sylvia usually walks to work.

The form of the verb stripped of its inflection, that is, the seemingly free morpheme that nevertheless requires inflection in particular syntactic contexts, is called its *stem*. Nouns and adjectives sometimes must carry inflectional morphology in particular syntactic contexts as well, certainly in some languages other than English. We will see later what kind of inflection that is.

Let us return to derivation now. Recall that it is possible to derive a new word, usually of a different lexical category, by adding a derivational affix to a word. Interestingly,

it seems that sometimes it is possible to do exactly the same *without* adding any affix. Consider the following examples:

(15)   to build – a build-er
        to dance – a danc-er
        to run – a run-er
        to kill – a kill-er
        to cook – a cook

These examples show that it is possible to take a verb that implies some 'doer' and derive a noun from it that refers to this 'doer' by adding the suffix –*er*. In the last example, however, there is precisely the same relationship between the verb *to cook* and the noun *cook* as in the other examples, but in this case no suffix –*er* shows up. Cases in which one word appears to be derived from another without there being any derivational morphology are known as *zero derivation* or *conversion*. The term 'zero derivation' indicates what some people think is going on in such cases: there really *is* a derivational affix present, but it happens not have any phonological content. It is a *null affix*. Conversion can be very common in some languages. In English, there are quite a few noun-verb pairs that are related by conversion, and conversion between some other lexical categories is possible too:

(16)   to run$_{VERB}$ – a run$_{NOUN}$
        yellow$_{ADJECTIVE}$ – to yellow$_{VERB}$
        down$_{PREPOSITION}$ – to down$_{VERB}$
        green$_{ADJECTIVE}$ – a green$_{NOUN}$

Null affixes occur in the inflectional domain as well (but here the phenomenon is not referred to as 'conversion', since inflectional affixes do not derive a new word). It was noted above that in English a verb needs to carry a third person singular suffix if there is a third person singular subject present. So, inflecting a verb in sentences with a subject appears to be obligatory. However, if there is a first person or second person subject, it seems as if this requirement does not hold any longer:

(17)   I/You usually go- to the market on Saturdays.

If inflection is required in sentences with a third person subject, it is rather unexpected that this requirement is voided when the subject is first or second person. At least, we would have to think of a reason for why that should be so. Perhaps it is more likely that (17) indicates instead that the inflectional affixes for first and second person verbs in English happen to be null affixes.

It is certainly not always easy to decide whether a particular affix is just absent from a language or whether it is null affix. However, when there are overt affixes for a particular inflectional category in a language, such as for 'person' or 'tense' in English, it seems to make sense to assume that, for those values of this category that are not expressed by a visible affix, we are dealing with a null affix. When there are no affixes at all for a particular category, however, it may well be that that inflectional category is absent from the language altogether. For example, many languages have verbal inflectional affixes that express the so-called 'mood' of a verb, which reflects the speaker's attitude towards the factuality of the event expressed by the verb -

whether it is to be taken as a possibility, something that is not the case, something that may be the case in the future, a wish, an order, etc. In English, there is no inflection to express these categories. Does this mean that English has a battery of null affixes expressing all these categories? It seems more economical to assume that English simply does not have inflection for mood. This is not just a more economical assumption, but it may also account for the fact that English uses different means to express verbal mood, namely by certain auxiliary verbs such as *can* and *will*. In general, auxiliary verbs in one language fulfil the same function as morphological inflection in another language.

We have seen the various ways in which a complex word can be made now: by compounding, by derivation or by inflection. These processes can be combined, or reiterated, so that a complex word consisting of three or more morphemes results. For example, we can derive the verb *teach* with the suffix *–er*, resulting in the noun *teacher*, which can be compounded with *school* to get *school teacher*, which can be pluralized with the inflectional suffix *–s*: *school teachers*. The internal structure of such complex words can be transparently represented by a so-called *tree diagram*. The tree diagram for *school teachers* looks as follows:

(18)

```
                        N
             _____/_____
            N                      plural
       ____/\____                    |
      N          N                   s
      |       __/\__
   school    V      N
             |      |
          teach    er
```
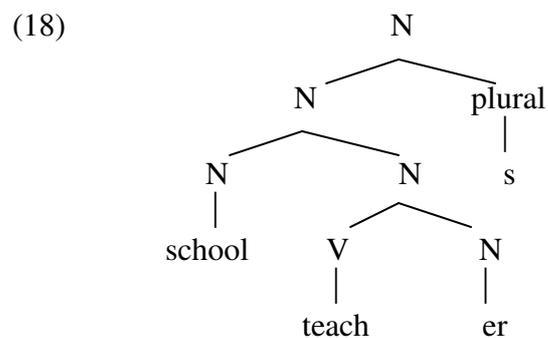
A tree diagram should be read as follows. The top *node* in the tree (the uppermost N in (18)) *branches* into two other nodes (another N and 'plural'). This means that the whole word (represented by the upper node) is a noun that consists of two smaller parts, another noun and a plural morpheme. The 'plural' node does not branch any further, which means it has no further internal structure. The left-hand node, however, branches further, namely into two other N nodes. This means that the part of the word that that node represents (the part *dominated* by that node, so the *school teacher* part in (18)) consists in turn of two smaller parts, both of which are a noun. The left-hand part does not branch any further, so has no further internal structure (indeed, *school* is not morphologically complex). But the right-hand part branches still further, into a V node and an N node. This expresses that the N node dominating the *teacher* bit of the structure is internally structured, consisting of a verb (*teach)* as its left-hand part and an affix that makes a noun (*-er*) as its right-hand part. Thus, a tree diagram is a visual means to indicate what the internal structure is of complex words. (In the syntax module you will see that tree diagrams can be used in the same way to visualise the internal structure of complex phrases and sentences. Note that the 'tree' metaphor for such diagrams is used in such a way that the tree is actually upside down, the top node being the root of the tree, and the tree branching out downwards).

Some complex words can be *structurally ambiguous*. This means that they have two different meanings, which correspond to a different internal structuring of the word. An example is the word *ex-president-office-manager*. This can mean 'manager of the office of an ex-president' or 'former manager of a president's office ':

(19) a.   This ex-president-office-manager works for Bill Clinton.
      b.   This ex-president-office-manager is now a street artist.

These different meanings correspond to the two structures expressed by the tree diagrams in (20a) and (20b), respectively. The difference between the two concerns the hierarchical position that the prefix *ex-* occupies.

(20) a.

```
                        N
                 ┌──────┴────┐
                 N           N
             ┌───┴───┐       │
             N       N     manager
          ┌──┴──┐    │
         ex     N  office
                │
            president
```

      b.

```
                 N
              ┌──┴───┐
             ex      N
                 ┌───┴───┐
                 N       N
              ┌──┴──┐    │
              N     N  manager
              │     │
          president office
```