TUTORIAL
5.11

Morphology 2

This tutorial explains some more aspects of morphology, and looks at some examples from different languages.

Introduction

We noted in the last tutorial that in every language, there are rules of how morphemes fit together to form words - they must be in a certain order and in a certain place in the word. We also looked at some different types of morphemes and what function those different types have.

Stems and Roots

The *root* of a word, as we said before, is most often a free morpheme (it can stand on its own) to which the bound morphemes attach. It carries the central meaning of the word and could be thought of as the core of the word.

Derivational affixes (that change the meaning) are normally closer to the root than inflectional morphemes (that carry grammatical information).

So we say **walk-er-s** (not **walk-s-er**)

So the information (derivational affix) that changes the meaning of the word comes before the information (inflectional affix) that adds grammatical information (in this case, makes it a plural).

We say that derivational suffixes attach to *roots* to create *stems*. The stem in the word above is *walker*. A stem is a word in its own right. Inflectional affixes are added to stems, not roots. The meaning must be established first and then the grammatical information is added to that.

Morphology and the Lexicon

The final question we need to consider about morphemes is a fairly basic one: how are they stored? Speakers of a language store morphemes in a *lexicon* - a mental dictionary that they have in their minds.

There are two main differences between the mental lexicon and an ordinary (written) dictionary:

- The mental lexicon does not contain words that have more than one morpheme in them, whereas dictionaries include complex words.
- The lexicon people store in their minds contains bound morphemes, whereas dictionaries don't usually contain entries for bound morphemes.

Let's explain that a bit more. Speaking is a *creative* process - we are able to take a limited number of pieces of language and combine them using specific rules to create an unlimited number of utterances. We don't have to *memorise* every single thing we are ever going to say. We have a certain number pieces (free and bound morphemes) stored in our lexicon, and we are able to combine them according to grammatical rules to say what we want to say.

So, when we want to *write* a lexicon for a language, we want to follow the same logical pattern that people use to store morphemes in their mental lexicon. We follow the pattern of writing just the pieces - the separate morphemes - and we don't write every single word that can be made by combining those morphemes.

We write these morphemes as *lexical entries*. A lexical entry includes many pieces of information, including a meaning; the group of sounds that convey that meaning; the lexical category, etc. For example:

walk V root 'bipedal locomotion characteristic of humans'

Walk is a verb (V), it is a root, and it means a certain action.

But what about a word like *walking*, which consists of two morphemes? We do not store the whole word in the lexicon - like this:

walking V 'bipedal locomotion characteristic of humans; progressive aspect'

The problem with this kind of listing is that you end up with lots of words that mean much the same thing. This is a problem in English, but it gets to be a much bigger problem in languages with really complex morphology. You would end up with thousands of related forms.

So we avoid listing *walk*, *walks*, *walking* and *walked* as separate lexical entries. We don't give every word a lexical entry, but we give every *morpheme* its own lexical entry.

So as well as lexical entries like the one for *walk* above, there'll also be lexical entries of the following type for bound morphemes.

-ing TA 'Progressive aspect'

-ed TA 'Past tense'

-s NUM ‘Plural’
-ly ADV ‘Manner’
re- ‘Do again’

These lexical entries have basically the same form as the lexical entry for the free morpheme **walk**. They contain a meaning and the sounds that conveys that meaning.

The only difference from the entry for the free morpheme is that they contain a hyphen indicating where they attach to. So for a suffix, like **-ing**, the hyphen comes before the sound because **-ing** attaches to the end of the verb. For a prefix, like **re-**, the hyphen comes after the sound because **re-** attaches to the beginning of the verb.

Notice that **-ed** and **-ing** both have the lexical category TA. This means “tense or aspect”. We give this that lexical category because **-ed** indicates tense (past tense), while **-ing** indicates aspect (progressive aspect, i.e. the event is ongoing), but these two fit into the same position in a word. We can say *walked* or *walking*.

The plural marker has the lexical category NUM, meaning “number”. The suffix **–ly** has the lexical category ADV, because it has the effect of turning an adjective into an adverb – it brings its own lexical category to the word it builds. But **re-** doesn’t have a lexical category at all because it has no effect on word class – it attaches to verbs and they stay verbs. Don’t worry too much if some of these terms are new to you, we will be explaining them in more detail later when we look at the structure of English.

Allomorphy

Sometimes morphemes can have different phonological forms - and change their sound depending on their environment. Just as we saw that a phoneme can have different allophones in different environments, a morpheme can also have different *allomorphs* in different environments. For example, in English the morpheme for the indefinite article can be *a* or *an*:

a *car*, ***a*** *house*, and ***a*** *piano,*
an *apple*, ***an*** *elephant*, and ***an*** *umbrella*.

Whether we get ***a*** or ***an*** depends on the first sound in the word that comes after it. If that word begins with a consonant we get the allomorph *a*. If it begins with a vowel, we get the allomorph *an*.

Another example is the English regular past tense suffix **-ed** that attaches to verbs. This morpheme actually has three forms: /-d/, /-t/ and /-əd/.

beg → *begged* /bɛg-d/
rob → *robbed* /ɹɔb-d/
hug → *hugged* /hɐg-d/
walk → *walked* /wɔːk-t/
nip → *nipped* /nɪp-t/
lock → *locked* /lɔk-t/
kiss → *kissed* /kɪs-t/

If the suffix comes after a voiced consonant you get /-d/ (which is voiced). If the suffix comes after a voiceless consonant you get /-t/ (which is voiceless).
What if the suffix **-ed** comes after a vowel?

glue → *glued* /glʉ-d/
sigh → *sighed* /sɑe-d/
roar → *roared* /ɹɔː-d/
sew → *sewed* /səʉ-d/

If the suffix comes after a vowel you get /-d/. Why? Because vowels are voiced.
But that's not the end of the story.
need → *needed* /niːd-əd/
hoot → *hooted* /hʉt-əd/
If the suffix comes after /t/ or /d/, the suffix is /əd/. Why? Because the consonant at the end of the root is too similar to the consonant of the suffix – they're both alveolar plosives. They need to be separated by a vowel, so the most neutral vowel, schwa, is inserted to keep the consonant of the suffix separate from the consonant of the root.

This is a process called *assimilation* – something changes to become more like the sounds around it in some way. This is just one of the morphological rules that apply to our language and that we store in our minds as English speakers. Every language has different rules.

Differences in languages

It is in their morphology that we most clearly see the differences between languages. Some of the major types of morphologies are:

- **Isolating** - such as Chinese, Indonesian, Thai and Yoruba (West Africa). Isolating languages use grammatical morphemes that are separate words.
- **Agglutinating** - such as Turkish, Finnish, Tamil, Austronesian and Tibeto-Burman languages. Agglutinating languages use grammatical morphemes in the form of attached syllables called affixes.
- **Inflectional** - such as Russian, Latin and Arabic. Inflectional languages may go one step further and actually change the word at the phonemic level to express grammatical morphemes.

All languages are really mixed systems - it's all a matter of proportion. English, for example, uses all three methods.

Turkish is an example of an agglutinating language that makes extensive use of suffixes.
One example is the Turkish word *terbiyesizliklerindenmis:*

'good manners'	*terbiye*
'without good manners, rude'	*terbiye**siz***
'rudeness'	*terbiyesiz**lik***
'their rudeness'	*terbiyesizlik**leri***
'from their rudeness'	*terbiyesizlikleri**nden***
'I gather that it was from their rudeness'	*terbiyesizliklerinden**mis***

ACTIVITIES
Morphology 2

Do the following exercises. Answers are provided below, but try to work them out for yourself first.

1. Divide the following words into their morphemes. Indicate which morphemes are inflectional and which are derivational.
    a. mistreatment
    b. deactivation
    c. psychology
    d. airsickness
    e. terrorized
    f. uncivilized
    g. lukewarm
2. Look at the following language data from Ata (PNG), then try to answer the questions. (The language is written in the Ata orthography, using the symbol ' for the glottal stop.)

    a'a ulai no xai *'the dog will go to the garden'*

    a'a mulai no tuala *'the dog went to the village'*

meme ulai no xai	*'the pig will go to the garden'*
tameme milai no xai	*'the pigs went to the garden'*
taa'a milai no lexa	*'the dogs went to the river'*
molomolo mulai no tuala	*'the child went to the village'*
tamolomolo milai no xai	*'the children went to the garden'*
meme ulai no tuala	*'the pig will go to the village'*
tamolomolo milai no tuala	*'the children went to the village'*
tamolomolo ilai no lexa	*'the children will go to the river'*

a. What are the Ata morphemes (roots) for 'garden', 'river', 'village', 'pig, 'dog, 'child'?
b. How is the plural indicated morphemically?
c. How is past tense indicated?
d. Translate the following into Ata:
    - 'the dog will go to the river'
    - 'the child went to the river'
    - 'the pigs went to the village'
e. If the Ata root for man is '*mulu'*, translate 'the man went to the river'.

Answers:

2. Words into their morphemes
    a. mistreatment **= treat** (root) **+ mis-** (derivational) **+ -ment** (derivational)
    b. deactivation **= act** (root) **+ de-** (derivational) **+ -ive (**derivational) **+ -ate** (derivational) **+ -ion** (derivational)
    c. psychology **= psych-** ***or*** **psyche** (root) **+ -ology** (derivational)
    d. airsickness **= sick** (root) **+ air** (derivational) **+ -ness** (derivational)
    e. terrorised **= terror** (root) **+ -ise** (derivational) **+ PAST** (inflectional) if the word is a verb form

       OR terrorised **= terror** (root) **+ -ise** (derivational) **+ -ed** (derivational) if the word is an adjective

f. uncivilised **= civ-** (root) **+ -il** (derivational) **+ un-** (derivational) **+ -ise** (derivational) **+ -ed** (derivational)

   The root is ***"civ***-" because that root is also in words like ***"civic."*** In this case, the ***"-ed***" must be derivational, because ***"uncivilized"*** cannot be a verb form.

g. lukewarm **= lukewarm** (root) or: lukewarm **= warm** (root) **+ luke** (derivational or root)

3. Ata Data:
   a. Ata morphemes: ***xai*** 'garden', ***lexa*** 'river', ***tuala*** 'village', ***meme*** 'pig', ***a'a*** 'dog', ***molomolo*** 'child'
   b. The plural is indicated by the ***ta-*** prefix on the noun (in Ata, this prefix is used for animate (living) things only - such as people and animals). The verb changes to indicate plural subjects also: ***mu-*** changes to ***mi-*** (past tense) and ***u-*** changes to ***i-*** (future/present tense). So plural subject with future/present tense would be ***ilai*** (they will go/ they are going), or with past tense it would be ***milai*** (they went).
   c. Past tense is morphemically indicated by the ***m-*** prefix on the verb (tense and aspect are actually much more complex in Ata, but from the data here, this is what you should have noticed). ***m-*** is prefixed on the verb to indicate past tense for singular subjects, changing from ***ulai*** to ***mulai***, but with plural subjects the verb becomes ***milai***.
   d. Translations:
      - a'a ulai no lexa *'the dog will go to the river'*
      - molomolo mulai no lexa *'the child went to the river'*
      - tameme milai no tuala *'the pigs went to the village'*
   e. mulu mulai no lexa *'the man went to the river'*