Morphology

LING 200: Introduction to the Study of Language

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Outline

Slides credit: Rebecca Starr

Review

Key points: morphemes

- **Morphology** is the study of words and their structure.
- More specifically, the study of **morphemes**.
- The **morpheme** is the smallest meaningful unit in a language.
- Morphemes can be bound or free.
  - **Bound morphemes** cannot stand alone as independent words.
  - **Free morphemes** can stand alone as independent words, or appear with additional affixes.

Review

Key points: morphemes

- Most bound morphemes in English are **affixes**.
- Affix types: prefix, suffix, infix, circumfix.
  - reapply, climbing, Alafreakingbama, *gespielt*.
- Productive vs. unproductive affixes.
  - retweetable, sisterhood.
- Inflectional vs. derivational affixes.
  - retweets, rational.

More morphemes

Making words

- We've seen that a word is composed of one or more morphemes.
  - neighbor
  - neighborhood
  - neighborgoods

More morphemes

Making words

- Another way to make words is through **compounding**: combining two already existing words into one (ignore the spelling).

  fire house   red hot

  green house   nation wide

  after thought   over look

  dry clean   in grown

  under estimate   white wash

  spoon feed   sky blue

- What determines the category of the compound?

⇨ The rightmost morpheme = the **head** of the compound

Compounds

Can you think of a compound word using....

(1) board   whiteboard, skateboard

(2) rain   rainbow, raincoat

(3) bird   birdseed, blackbird

(4) inspiring   awe-insipiring

Compounds

Orthography and compound words

- You know how sometimes when you are writing a compound, you are not sure whether it should be two words, hyphenated, or a single word?
    - house wife
    - house-wife
    - housewife

- These differences in orthography (writing) don't matter in defining a compound word.

Compounds

Orthography and compound words

- So, how can we tell the difference between a two-word phrase and a compound word?
    - She visited the White House.
    - She lives in a white house.

- Notice anything different when you say these sentences?

- Compound words only stress the first word:
  WHITE house

- Two-word sequences stress both words:
  WHITE HOUSE

Compounds

More examples

- Which of these is a compound word, according to the stress test?

  a. My French teacher is Canadian.
  A teacher of French. Compound word

  b. We have a French teacher for history class. She is from Paris.
  A teacher from France. Not a compound word

Morphemes and word structure

How morphemes combine

- Earlier, we saw that affixes have rules about what word class they attach to and what word class they create.
- Example:
    - V + **-able** = able to V (ADJ)
    - drink (V) + **-able** = drinkable (ADJ)
    - walk (V) + **-able** = walkable (ADJ)
    - *high (ADJ) + **-able** = *highable (ADJ)

Morphemes and word structure

How morphemes combine

- Sometimes, affixes can be attached to more than one word class.
- In this case, the meaning of the affix is slightly different for each word class.
- Example:
  - **un-** + ADJ = not ADJ (uncool, unfair)
  - **un-** + V = reverse the process of V (untie, undo)
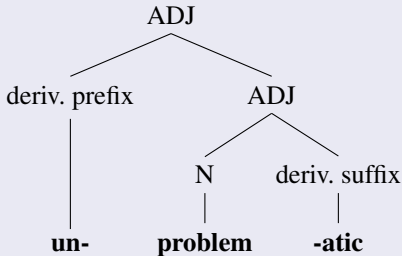
Morphemes and word structure

Multiple affix puzzle

- What happens when more than one affix is involved?
- Example: **unproblematic**, un-problem-atic
- Is un- attaching to "problem" (N) or "problematic" (ADJ)?
- What do you think?

- Earlier, we saw that **un-** attaches to adjectives and verbs.
  Does **un-** work with nouns?
  - No. *uncat, *untree, *unidea.
- The only way that "unproblematic" makes sense is if "problematic" is formed first, and then **un-** gets involved.
- So the steps to creating this complex word are:
  problem → problematic → unproblematic

Morphemes and word structure

Multiple affix puzzle

- We can represent this structure using a hierarchical tree:

```
                    ADJ
              _____|_____
             |             |
        deriv. prefix     ADJ
             |          ___|___
             |         |       |
             |         N   deriv. suffix
             |         |       |
           un-      problem   -atic
```

Morphemes and word structure

Key features of morphological structure trees

- Binary-branching.
- Each node has a label.
- Each stage must be a well-formed word.

```
                              ADJ
                       _____/    _____
                  deriv. prefix        ADJ
                       |            ___/  \___
                       |           N      deriv. suffix
                       |           |          |
                      un-       problem     -atic
```
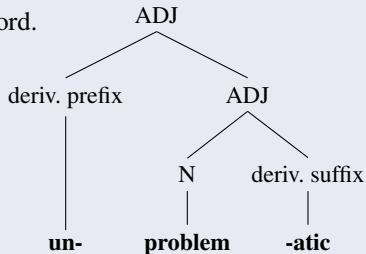
Morphemes and word structure

Word structure ambiguity

- Let's think about the word "unlockable."
- What does it mean

- Actually, it is **ambiguous**. It has two possible interpretations:

  (a) "I've lost the key for this door, so it's unlockable."
  - not able to lock the door.

  (b) "In Fallout 3, all the doors are unlockable, you just need to have a high enough skill level."
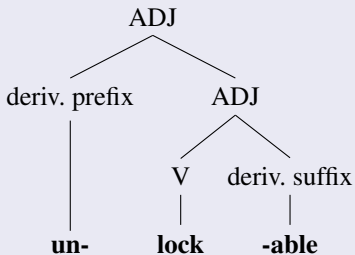 - able to unlock the door.

Morphemes and word structure

Multiple affix puzzle

- See if you can come up with two tree structures that correspond to each interpretation of "unlockable."

Morphemes and word structure

Multiple affix puzzle

(a) not able to be locked

```
                    ADJ
              _____/_____
             /              \
      deriv. prefix         ADJ
             |          ____/\____
             |         /          \
             |        V        deriv. suffix
             |        |            |
            un-     lock         -able
```

Morphemes and word structure

Multiple affix puzzle

(b) able to be unlocked

```
                    ADJ
                   /    \
                  V      deriv. suffix
                 / \         |
       deriv. prefix  V      |
            |         |      |
           un-      lock   -able
```

Review
More morphemes
Words

Defining the word
Parts of speech
Word formation
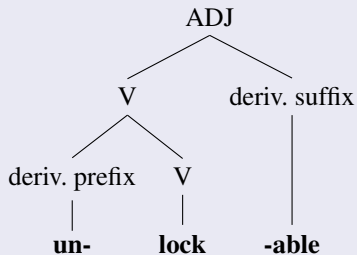
Words

Defining the word

- We've talked about how words are made up of morphemes, and how those morphemes are hierarchically structured.
- But what is a word? Do we really need this unit in our theory of language now that we have the morpheme?

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Words

Do we need the word

- The **word** is the smallest meaningful unit that can occur in isolation in a language.
- Although morphemes are a useful unit, we have seen that they are organized into larger word units (e.g., unlockable).
- Thus, we need both the morpheme and the word in our theory of how language works.

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Words

Do we need the word

- Intuitively, a word is "the stuff between spaces when we write."
  - We call a segment surrounded by spaces in written language an "orthographic word."

- But should orthography be the only criterion for defining words in a language?

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Words

Do we need the word

- In English, there is a reasonable correspondence between orthography and word segmentation.
    - But sometimes there are spaces or hyphens between things we consider to be a single compound word (e.g., ice cream).
- However, not all languages have spaces between words (e.g., Chinese, Japanese).
- And many languages have no writing system at all.

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Words

Factors used in identifying word boundaries

- **Orthography**: Are there spaces here in the written language?
- **Phonology**: What is the stress pattern? Are there any phonological rules that apply only within words?
- **Divisibility**: Can this sequence be divided to insert more material?
- **Pause**: Can speakers put a pause here?

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Parts of speech

Parts of speech / word class

You are probably familiar with these **parts of speech**:

- **Noun (N):** cat, happiness, realization, ...
    - **Pronoun:** I, she, mine, himself, ...
    - **Proper name:** Hadas, Colin, Don, Francesco, ...

- **Verb (V):** laugh, realize, climb, ...

- **Adjective (ADJ):** tall, unfortunate, furry, ...

- **Adverb (ADV):** quickly, happily, often, yesterday...

- **Preposition (P):** on, under, between, ...

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Parts of speech

Parts of speech / word class

Some additional important classes we use in linguistics:

- **Determiner (Det):** a, the, this, every, two, ...
- **Conjunction (Conj):** and, but, or, ...
- **Auxiliary Verb (Aux):** (a subclass of Verb,) helping verbs that come before the main verb in English (I **have** gone, I **will** go)

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Content vs. function words

Open class and closed class words

- We can also divide words into two broad classes, encompassing several parts of speech:
- **Content words:**
  - Includes nouns, proper names, verbs, adjectives, adverbs.
  - **Open-class** (new words can easily be added).
    - Google, hangry, snowpocalyple, hardwire, sexting, interwebs, crowdfunded, totes, ...
  - Contentful. We can easily define what they mean.
- **Function words:**
  - Includes determiners, pronouns, conjunctions, prepositions, auxiliary verbs.
  - **Closed-class** (lexicon is relatively stable).
  - Serve grammatical functions, indicate relationship between content words.

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Content vs. function words

Open-class and closed-class words

'Twas brillig, and the slithy toves
Did gyre and gimble in the wabe;
All mimsy were the borogoves,
And the mome raths outgrabe.

– Lewis Carroll
Through the Looking Glass

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Content vs. function words

The Jabberwocky

➡ *Closed-class normal,*
open-class invented

'Twas brillig, and the slithy toves
Did gyre and gimble in the wabe;
All mimsy were the borogoves,
And the mome raths outgrabe.

    – Lewis Carroll
       Through the Looking Glass

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Content vs. function words

The jabberwocky

➠ *Closed-class and open-class invented*

Glorm brillig, yurk lim slithnit tovem
Rur gyre yurk gimble uf lim wabe;
Caj mimsnit trid lim borogovem,
Yurk lim mome rathem nusgrube.

    – not Lewis Carroll
        not *Through the Looking Glass*
        Source: David Pesetsky 24.900 slides

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Content vs. function words

The jabberwocky

▶▶ *Closed-class invented,*
   open-class normal

Glorm cloudy, yurk lim noisy frogs
Rur croak yurk fidget uf lim lake;
Caj nervous trid lim hunting dogs,
Yurk lim hungry cats lay awake.

   – not Lewis Carroll
       not *Through the Looking Glass*
       Source: David Pesetsky 24.900 slides

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Content vs. function words

The Jabberwocky: function word edition

- This illustrates two key points about content vs. function words:
  - Function words indicate the relationship between content words. Without them, language becomes very difficult to understand.
  - Only content words are open class: we can create new ones and easily understand what they mean in a given context, thanks to inflectional affixes, function words, etc.

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Words

Word formation

- How are new words commonly created?
- We have already learned about two of the most common processes:
  - Affixation (e.g., driver)
  - Compounding (e.g., Chinatown)
- Other processes:
  - Conversion
  - Backformation
  - Clipping, Blending
  - Acronyms, Initialisms
  - Sound imitation (onomatopeia)

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Conversion

- A word changes word class, with no new morphemes added.
- In English, it is particularly common to turn nouns into verbs in this way.
  - "I like to verb nouns."
  - "Let me google that for you."
  - Other examples? to email, to strike, to switch,

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Word formation

Backformation

- Sometimes, a word can appear to be made up of certain morphemes, when actually it is not.
- Example: **hamburger**.
  - Original structure: Hamburg-er
  - Reanalysis: ham-burger
- This leads to the creation of new words:
  - **burger** (cheeseburger, veggie burger, etc.)
- Other examples: televise (from television), edit (from editor), one-up (from one-upmanship).

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Clipping and Blending

- **Clipping** refers to cutting off part of a word:
  - public house → pub
  - Internet → net
  - Fantacy → fancy
  - Refrigirator → fridge

- Putting clippings together creates a **blend**:
  - breakfast + lunch → brunch
  - hungry + angry → hangry
  - television + broadcast → telecast

- Blends are adorably common in Japanese:
  - Brad + Pitt → Burapi
  - unique + clothing → Uniqlo
  - pocket + monster → Pokémon

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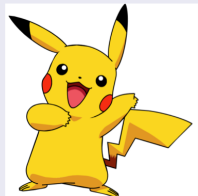
Word formation

Acronyms, Initialism

- **Acronym**: initials pronounced as a regular word (e.g., NASA, NATO).
    - There are many myths about words being derived from acronyms (e.g., "golf" is not really an acronym for "gentlemen only, ladies forbidden").

- **Initialism**: pronounced as letters (e.g., TV)
    - FAQ: frequently asked question
    - USA: The United States of America
    - BBC: British Broadcasting Corporation

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Word formation

Sound imitation

- **Sound imitation** (or **onomatopoeia**) naming an action or thing by a more or less exact reproduction of the sound associated with it
  - cock-a-doodle-do (English)
  - kukuriki (Hebrew)
  - kukeleku (Dutch)
  - wo-wo-wo (Mandarin)
  - ake-e-ake-ake (Thai)
  - kokekokkō (Japanese)
  - gaggala gaggala gú (Icelandic)

- Words denoting sounds produced by human being in the process of communication or expressing their feelings: mumble, babble

- Words denoting sounds produced by animals, birds, insects: meow, croak, buzz, bark;

- Words imitating the sound of water, the noise of metallic things, a forceful motion, movement: splash, clink, bang.

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Word formation

Word trivia: how were these words formed?

(1) laser

(2) to burgle

(3) bromance

(4) cab

acronym (Light Amplification by Stimulated Emission of Radiation)
backformation from *burglar*
blend of *bro* and *romance* (and *bro* is a **clipping** of brother)
clipping of *cabriolet*

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Defining the word
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Word formation

Summary

Key points for words

- Words are the smallest meaningful unit that can occur in isolation.
- Word boundaries can be tricky to define. We can use various cues including orthography, phonology, etc.
- Parts of speech: noun, verb, adjective, etc.
- Content vs. function words, open-class vs. closed-class.
- Word formation: affixation, compounding, conversion, backformation, clipping, blending, acronymy, initialism.

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For next time...

- **Assignment 3** is due next Monday (February 1).
- ➡ There is no reading for next week!