

- **Derivation and inflection**
- **Morphological acquisition**

Background reading:

- CL Ch 4, §2 (except §2.2), inflection
- CL Ch 4, sec 4, derivation
- CL Ch 9, sec 4, acquisition of morphology

0. Course information

- **HW #5 is due**

- Please put it in the pile on the table that is labeled with your TA's name & recitation number
- **Make sure your recitation number is visible on your homework paper!**

Yuhan (10:10) —601

Esther (10:10) —602

Esther (11:15) —603

Yuhan (11:15) —604

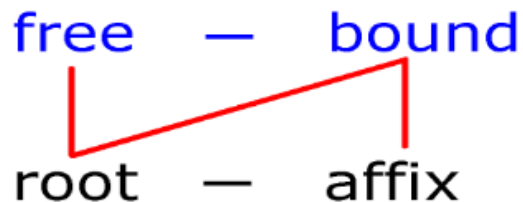
0. Course information

- See Canvas [Announcement](#) (F Oct 6)
 - Exam #1 information and statistics
 - How/*who* to ask questions about the exam
 - Opportunity: Exam #2 will count **2x the weight of Exam #1** for people who do better on #2
 - Start fresh now if the first part of the course didn't go as well as you had hoped!
 - Readings: Prepare before class
 - Lecture slides: Review after class
 - Use your recitation to ask questions

1. Words and morphemes

Review:

- We've seen that **morphemes** are either **free** or **bound**, and are either **roots** or **affixes**
 - **Affixes** are always **bound**
 - **Roots** may be **free** or **bound**

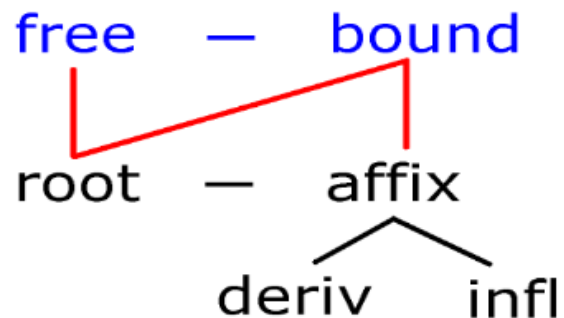


- **Words** are, by definition, **free**
 - A word may contain **one** or **more morphemes**
 - Every word contains at least one **root**

1. Words and morphemes

- Today, we will look at different **categories of affix** and different **kinds of word formation**
- Words are built from morphemes by **processes** of:
 - **derivation**
 - **inflection**
 - compounding
 - other processes
- **Affixes** can be **derivational** or **inflectional**

- Summary diagram:



2. Derivational affixes

- A **derivational affix** “build[s] a word with a meaning and/or category distinct from that of its base” (*CL*, p 129; emphasis added)
 - **Some** derivational affixes change the category of the word they attach to
 - Some do **not**
- There is a convenient **list** of many of the commonly used derivational affixes in English in Table 4.6 on p 131 of *CL*

2. Derivational affixes

- Try it: Can you state meanings and **word-formation rules** for these derivational affixes?

-y

cloud + *y* → *cloudy* 'full of clouds'

fog + *y* → *foggy* 'characterized by fog'

dream + *y* → *dreamy* 'like a dream'

wiggle + *y* → *wiggly* 'full of wiggles'

- Reminder: A **word-formation rule** contains...
 - the sound shape of the affix
 - the word category that the affix attaches to
 - the word category that the affix creates

2. Derivational affixes

- Try it: Can you state meanings and **word-formation rules** for these derivational affixes?

-y

cloud + *y* → *cloudy* 'full of clouds'

fog + *y* → *foggy* 'characterized by fog'

dream + *y* → *dreamy* 'like a dream'

wiggle + *y* → *wiggly* 'full of wiggles'

Word-formation rule: N + /i/ → A

Meaning (approximate): 'full of or characterized by N'

2. Derivational affixes

- Try it: Can you state meanings and **word-formation rules** for these derivational affixes?

un-

un + wrap → *unwrap* 'make no longer be wrapped'

un + tie → *untie* 'make no longer be tied'

un + lock → *unlock* 'make no longer be locked'

un + hook → *unhook* 'make no longer be hooked'

2. Derivational affixes

- Try it: Can you state meanings and **word-formation rules** for these derivational affixes?

un-

un + *wrap* → *unwrap* 'make no longer be wrapped'

un + *tie* → *untie* 'make no longer be tied'

un + *lock* → *unlock* 'make no longer be locked'

un + *hook* → *unhook* 'make no longer be hooked'

Word-formation rule: /ʌn/ + V → V

Meaning (approximate): 'make something no longer be Ved; reverse the action of V'

2. Derivational affixes

- *Data/phenomenon*: Sometimes a word formed by derivation takes on a specialized, **unpredictable** meaning
- Which meaning is **predictable**?
 - *transmit* + [ʃ]ion → *transmission*
 - 'act/result of transmitting'
 - 'part of a car'
 - *recite* + al → *recital*
 - 'act/result of reciting'
 - 'music/dance performance'

2. Derivational affixes

- *Data/phenomenon*: Sometimes a word formed by derivation takes on a specialized, **unpredictable** meaning
- Which meaning is **predictable**?
 - *transmit* + [ʃ]ion → *transmission*
 - 'act/result of transmitting' | predictable
 - 'part of a car' | unpredictable
 - *recite* + al → *recital*
 - 'act/result of reciting' | predictable
 - 'music/dance performance' | unpredictable

2. Derivational affixes

- *Data/phenomenon*: Sometimes a word formed by derivation takes on a specialized, **unpredictable** meaning
- *Model*: How can we account for this phenomenon in our model of mental grammar?
 - **Where** in our model of the mental grammar is **unpredictable** information handled?
 - Review slide 30 from last time if you are unsure about this

2. Derivational affixes

- *Data/phenomenon*: Sometimes a word formed by derivation takes on a specialized, **unpredictable** meaning
- *Model*: How can we account for this phenomenon in our model of mental grammar?
 - A word formed by derivation that develops an **unpredictable** meaning must be **memorized** (stored in the **mental lexicon**)
...even though it was built from morphemes that already have their own lexical entries!

2. Derivational affixes

- Which of these words contain(s) the same **derivational affix** as that found in *transmission*?
 - a. transmittable
 - b. discussion
 - c. construction
 - d. activation
 - e. realization

2. Derivational affixes

- Which of these words contain(s) the same **derivational affix** as *transmission*? | /ʃən/, V → N
 - a. transmittable
 - b. discussion
 - c. construction
 - d. activation
 - e. realization

2. Derivational affixes

- Which of these words contain(s) the same **derivational affix** as *transmission*? | /ʃən/, V → N
 - a. transmittable | NO
 - b. discussion | YES
 - c. construction | YES (don't be fooled by spelling!)
 - d. activation | YES *act-iv-ate-/ʃən/*
 - e. realization | ?? **realizate* does not occur;
this is *realize - ation*
- But... Table 4.6 classifies /ejʃən/ and /ʃən/ as variant forms of the same morpheme

2. Derivational affixes

Reminder:

- A **derivational affix** “build[s] a word with a meaning and/or category distinct from that of its base” (*CL*, p 129; emphasis added)
 - **Some** derivational affixes change the category of the word they attach to
 - Some do **not**

3. Inflectional affixes

- An **inflectional affix** “modifi[es]...a word’s form to indicate grammatical information of various sorts” (CL, p 138)

Examples:

- **number** (singular/plural) for N
- **tense** and **aspect** for V
- **comparative/superlative** for A

- Inflectional affixes **do not change the category** of the word they attach to

3. Inflectional affixes

- *Data/phenomena* — Facts about inflection:
 - **Regular** inflectional affixes are extended to newly created words (*blogged, chatbots*)
 - Inflection can be marked **irregularly**, as by vowel changes (*s[æ]ng*) or irregular affixes (*children*)
- *Model*: How can we account for this phenomenon in our model of mental grammar?
 - **Regular** inflectional form:
 - **Irregular** inflectional form:

3. Inflectional affixes

- *Data/phenomena* — Facts about inflection:
 - **Regular** inflectional affixes are extended to newly created words (*blogged, chatbots*)
 - Inflection can be marked **irregularly**, as by vowel changes (*s[**æ**]ng*) or irregular affixes (*children*)
- *Model*: How can we account for this phenomenon in our model of mental grammar?
 - **Regular** inflectional form: generated by **rule**
 - **Irregular** inflectional form:
stored in **mental lexicon**

3. Inflectional affixes

- Inflection and mental grammar
 - **Regular** inflectional form: generated by **rule**
 - **Irregular** inflectional form:
stored in **mental lexicon**

Side note: Some interesting evidence for this difference

- Word frequency affects word-recognition speed
(=speed of accessing stored form in lexicon)
- We see frequency effects for *irregular* verb past forms
(stored in lexicon)
- But not for *regular* past verb forms (made by rule!)

4. Distinguishing inflection and derivation

- **Meaning** difference:
 - **Derivation** actually **changes** the meaning (and/or the word category)
 - **Inflection** only adds “**grammatical** meaning” (like plural or past tense)
- English has only about 8 regular inflectional affixes (see *CL* Table 4.15, p 138)
 - Helpful to memorize them

4. Distinguishing inflection and derivation

Some additional differences

- Inflectional affixes
 - Typically **more productive** (irregulars aside); apply generally to many N, V, etc.
 - Typically have a very **predictable meaning**
- Derivational affixes
 - Typically **less productive**; may apply only to specific sets of words
 - May take on an **unpredictable meaning** (as seen above)

4. Distinguishing inflection and derivation

- Try it: Are these affixes derivational or inflectional?

soften *The cloth is very soft.*
Heating the wax may soften it.

kingdom *That castle belongs to the king.*
The knight rode across the kingdom.

4. Distinguishing inflection and derivation

- Try it: Are these affixes derivational or inflectional?

soften *The cloth is very soft.* | A

Heating the wax may soften it. | V

- Word category change → **Derivational**

kingdom *That castle belongs to the king.* | N

The knight rode across the kingdom. | N

- No word-category change, but...
- Meaning change (person vs. domain) → **Derivational**

4. Distinguishing inflection and derivation

- Try it: Are these affixes derivational or inflectional?

readinging *I can read.*

I am reading a book.

readinging *I can read.*

The reading of the poem was lovely.

- Are these *-ing* suffixes the **same** morpheme?

4. Distinguishing inflection and derivation

- Try it: Are these affixes derivational or inflectional?

reading ing *I can read.* | V

I am reading a book. | V

- Change in grammatical meaning (to ongoing action) → **Inflectional**

reading ing *I can read.* | V

The reading of the poem was lovely. | N

- Word category change → **Derivational**

- Are these *-ing* suffixes the **same** morpheme? | **No!**

4. Distinguishing inflection and derivation

- As was mentioned last time:

When a word has an inflectional affix, this can make it more difficult to apply the **distributional tests for word category**

- Try it with *I am reading a book*
I walked to the store

4. Distinguishing inflection and derivation

- If both inflectional and derivational affixes are added to the same root, what is the **order** in which they are added?

<i>construct</i>	+ (t)ion	+ s	<i>*construct</i>	+ ed	+ (t)ion
<i>cloud</i>	+ y	+ est	<i>*cloud</i>	+ s	+ y
<i>modern</i>	+ ize	+ ing	<i>*small</i>	+ est	+ ize

Remember that '*' means 'ungrammatical'

4. Distinguishing inflection and derivation

- If both inflectional and derivational affixes are added to the same root, what is the **order** in which they are added?

BASE	DERIV	INFL	*BASE	INFL	DERIV
<i>construct</i>	+ (t)ion	+ s	* <i>construct</i>	+ ed	+ (t)ion
<i>cloud</i>	+ y	+ est	* <i>cloud</i>	+ s	+ y
<i>modern</i>	+ ize	+ ing	* <i>small</i>	+ est	+ ize

Remember that '*' means 'ungrammatical'

→ **Derivation** occurs before **inflection**

5. For fun: More about word formation

- What are some other ways that words can be formed? (not on exam, but see *CL* Ch 4, §3 and §5.2 for more information if you're interested)
 - compounds (words containing more than one root): *blackbird, roller skate, blow-dry*
 - acronyms/initialisms: *laser, ATM*
 - clippings/truncations: *math, dorm*
 - blends: *brunch, spork*

6. L1 acquisition of morphology

Review from our phonology acquisition discussion:

- **Adults** can speak and understand their **native language(s) (=L1)** because they have a **lexicon** and **mental grammar** of that language
 - **lexicon** — where sounds, meaning, and other unpredictable information are stored for each **word** or **morpheme**
 - **mental grammar** — rules and principles that handle predictable / systematic patterns, including phonology and **morphology**

6. L1 acquisition of morphology

Review from our phonology acquisition discussion:

- A child in the process of acquiring a grammar goes through different **stages** of development
 - These stages reflect **intermediate mental grammars** on the way to the adult grammar
- A child often shows **variable** behavior
 - A rule may be applied only some of the time
 - Multiple versions of a rule may be in use
- But we can still find a great deal of **systematicity** in children's language behavior

6. L1 acquisition of morphology

- Aspects of **morphology** that children must acquire:

Are these a matter for the **lexicon** or for the **mental grammar**?

- The morphemes
- Word-formation rules

6. L1 acquisition of morphology

- Aspects of **morphology** that children must acquire:

Are these a matter for the **lexicon** or for the **mental grammar**?

- The morphemes
 - stored in **lexicon**
- Word-formation rules
 - learned/stored in **lexicon** with relevant affix
 - but: **applied** by the **mental grammar**

6. L1 acquisition of morphology

- Two strong sources of **evidence** that children are **constructing a mental grammar** as they acquire their language come from morphology:
 - **overgeneralization**
(also known as overregularization)
 - **productive use of morphology** (*wug*-tests)

7. Overgeneralization

- Here is a common pattern in children at three different **stages** of development (younger→older):

Stage 1			
<i>show</i>	<i>showed</i>	<i>go</i>	<i>went</i>
Stage 2			
<i>show</i>	<i>showed</i>	<i>go</i>	<i>goed</i>
Stage 3			
<i>show</i>	<i>showed</i>	<i>go</i>	<i>went</i>

- What happened? Why did the child's language ability seem to "go backward"?

7. Overgeneralization

- Does a child hear forms like *goed* (or *mans*, or *bringed*) in the adult speech community? No!
 - Why does the child produce such forms, often *after* a stage with the correct forms?

7. Overgeneralization

This is **evidence** for **morphological rules**!

- At first, the child stores each form (present/past, singular/plural, etc.) **separately** in the lexicon
- Then, the child develops a **word-formation rule**
- We know this *because* the child sometimes applies it even to irregular forms — **overgeneralization**
 - The adult lexicon marks some roots as irregular, making them not undergo the rule
 - The child has to learn these exceptions!


7. Overgeneralization

- How we analyze what the child is doing


Stage 1			
<i>show</i> lexically listed	<i>showed</i> lexically listed	<i>go</i> lexically listed	<i>went</i> lexically listed
Stage 2			
<i>show</i> lexically listed	<i>showed</i> formed by rule	<i>go</i> lexically listed	<i>goed</i> formed by rule
Stage 3			
<i>show</i> lexically listed	<i>showed</i> formed by rule	<i>go</i> lexically listed	<i>went</i> lexically listed

- The past-tense word-formation rule is (temporarily) **overgeneralized** to the root /gow/

8. Productive use of morphology

- Children perform quite well at tasks like these:
 -  *This is a wug. Now there is another one.*
There are two of them! There are two ___.
 - *What would we call someone who crushes things?*
Someone who crushes things is a ___.
- Children can **create** morphological forms they have never heard before, using familiar or “new” words
 - What does this show us about a child’s developing mental grammar?

8. Productive use of morphology

- Children perform pretty well at tasks like these:
 -  *This is a wug. Now there is another one.*
There are two of them! There are two ___.
 - *What would we call someone who crushes things?*
Someone who crushes things is a ___.
- Children who can complete these tasks have the relevant inflectional and derivational **word-formation rules** in their mental grammar
- See the original wug-test article (very accessible):
Berko [Gleason], Jean. 1958. The child's learning of English morphology. *Word* 14: 150-177. [[PDF file](#)]

9. Implications

- In morphological acquisition, we see children...
 - applying **rules** of the mental grammar
 - in **non-adult-like** ways
- This is important evidence that part of L1 acquisition involves **developing linguistic rules**
 - Children applying non-adult-like rules **can't be just copying** from their language environment
 - Crucially, their **productive** use of these rules shows that their mental grammar is involved