What is a word?

LING 20: Introduction to Linguistic Analysis

UCLA · Winter, 2022

Morphology

- **Phonetics:**
  How are sounds produced?
- **Phonology:**
  What are the rules affecting how a word is pronounced?
- **Morphology:**
  What are the rules for forming words?

Example: English plural

Speakers have detailed knowledge about word formation:

(1) a. [kʰæt] ~ [kʰæts]

Example: English plural

Speakers have detailed knowledge about word formation:

(1) a. [kʰæt] ~ [kʰæts]
b. [gus] ~ [gis] *[gusɨz]

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(1)	a.	[kʰæt]	~	[kʰæts]	
	b.	[gus]	~	[gis]	*[gusɨz]
	c.	[tɹus]	~	[tɹusɨz]	*[tɹis]

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	b.	[gus]	~	[gis]	*[gusɨz]
	c.	[tɹus]	~	[tɹusɨz]	*[tɹis]
	d.	[mus]	~	[mus]	*[mis], *[musɨz]

English: *-(a)licious*

Speakers have detailed knowledge about word formation:

(2) a. [pʌpilɪʃəs], [hʌŋkəlɪʃəs], [buɾilɪʃəs]

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(2) a. [pʌpilɪʃəs], [hʌŋkəlɪʃəs], [burilɪʃəs]

b. *[kā͡jndəlɪʃəs], [hæpilɪʃəs]

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Speakers have detailed knowledge about word formation:

(2) a. [pʌpilɪʃəs], [hʌŋkəlɪʃəs], [burilɪʃəs] *Nouns*

b. *[kə͡jndəlɪʃəs], [hæpilɪʃəs] *Adjectives*

c. *[gɹo͡wlɪʃəs], [dɪstɹɔ͡jlɪʃəs] *Verbs*

d. *[ʌpəlɪʃəs], [o͡wvɬɹlɪʃəs] *Prepositions*

What is a word?

While easy to intuit, it is difficult to formally define the notion of ‘word’.

Hypothesis #1: Orthography (Spelling)

- **Hypothesis:** A word is a linguistic unit separated from other words in writing by spaces.

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(3) a. wallpaper, wall plug
b. leapfrog, leap year
c. blacklist, black belt
d. longbow, crossbow, recurve bow, compound bow

Hypothesis #2: Internal integrity and cohesion

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b. a **clueless** student
*What less is the student? **Clue.**

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b. a **clueless** student
*What less is the student? **Clue.**

(5) a. That's not at all possible.
b. *That's **im**-*at all*-**possible**.

Hypothesis #2: Internal integrity and cohesion

- **Hypothesis:** A word is a linguistic unit that cannot be “split apart”.
- However, this rules out things that we would probably want to consider words:

(6) Cali-freaking-fornia

(7) Who did you see?
  a. the child
  b. *child

Hypothesis #3: Phonology

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(8) a. (blácк) (bírd) ⇝ a bird that is black
b. (blácк bird) ⇝ a species of bird

(9) a. (wéek) (énd) ⇝ the end of the week
b. (wéek end) ⇝ Saturday and Sunday

Hypothesis #3: Phonology

- **Hypothesis:** A word is a linguistic unit that is prosodically demarcated (i.e. separated by pauses) and serves as the domain for stress assignment.
- But, typical speech doesn't really have pauses in it
- Also, sometimes the domain of stress assignment seems like more than one word:

(10) a. I've, she's, could've, couldn't, I'd've
b. (the gírl), (a gírl), (ásk her)

Morpheme

- Every definition of ‘word’ overgenerates or undergenerates to some degree.
- Even though there is not a clear definition of ‘word’, there is a meaningful linguistic unit that we can use to study morphology: **MORPHEMES**.

Terminology: Morpheme

A **MORPHEME** is the smallest unit of indivisible sound and meaning in a given language.

Example of morphemes

[ɹidəbl̩] = [ɹid] + [əbl̩]

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[ɹidəbl̩]	=	[ɹid]	+	[əbl̩]
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[wɑʃəbl̩]	=	[wɑʃ]	+	[əbl̩]
[juzəbl̩]	=	[juz]	+	[əbl̩]

Example of morphemes

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Morphological analysis

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Recap: Morpheme

Terminology: Morpheme

A **MORPHEME** is the smallest unit of indivisible sound and meaning in a given language.

The mental lexicon

Terminology: Lexicon

The mental **LEXICON** stores idiosyncratic information about morphemes in memory.

For each morpheme, a speaker has memorized:

1. Phonemic representation
2. Meaning
3. Part of speech (noun, verb, ...)
4. ...

Example of a lexical entry

“Cat”:

- *Phonemic representation:*
- *Part of speech:*
- *Meaning:*

Example of a lexical entry

“Cat”:

- *Phonemic representation:* /kæt/
- *Part of speech:*
- *Meaning:*

Example of a lexical entry

“Cat”:

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Forming complex words

- As we have seen, it is possible to combine meaningful parts into complex words.
- In many cases, these meaningful parts cannot stand on their own.

Meaningful parts

[ɹidəbl̩]	=	[ɹid]	+	[əbl̩]
[duəbl̩]	=	[du]	+	[əbl̩]
[la͡jkəbl̩]	=	[la͡jk]	+	[əbl̩]
[skɹætʃəbl̩]	=	[skɹætʃ]	+	[əbl̩]
[wɑʃəbl̩]	=	[wɑʃ]	+	[əbl̩]
[juzəbl̩]	=	[juz]	+	[əbl̩]

[əbl̩] with new words

- Speakers can add [əbl̩] to new words:

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[tɨɹl] “to rip out by the roots”

[əbl̩] with new words

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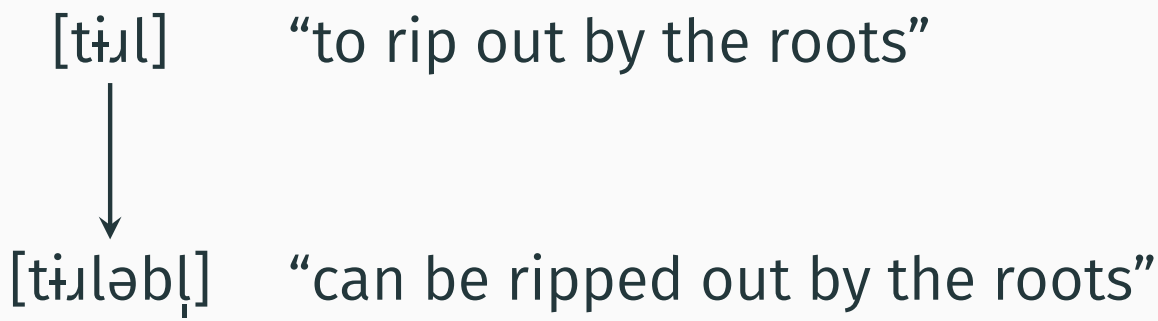
[tɨɹl] “to rip out by the roots”

[tɨɹləbl̩] “can be ripped out by the roots”

[əbl̩] with new words

- Speakers can add [əbl̩] to new words:



- **Consequence:**
  Speakers do not just have all the words with [əbl̩] memorized. Rather, there seems to be a **rule** that adds [əbl̩].

Meaningful parts

- The meaning of words that contain [əbl̩] is very systematic:

Meaningful parts

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[ɹidəbl̩]	“can be read”
[duəbl̩]	“can be done”
[lā͡jkəbl̩]	“can be liked”
[skɹætʃəbl̩]	“can be scratched”
[wɑʃəbl̩]	“can be washed”
[juzəbl̩]	“can be used”

Meaningful parts

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[wɑʃəbl̩]	“can be washed”
[juzəbl̩]	“can be used”

- **Meaning of “X-[əbl̩]”:**
  “can be X-ed”

Languages have productive rules for combining meaningful parts to form complex morphological expressions.

Reminder

- A **MORPHEME** is a sequence of phonemes that carries a meaning and does not itself consist of meaningful parts.

→ [ɹid] and [əbl̩] are both morphemes.

Terminology

Terminology: Free morpheme

A **FREE MORPHEME** can stand on its own, i.e. as a free “word”.

Examples: [ɹid], [kæt], [aɹdvaɹk]

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Terminology: Bound morpheme

A **BOUND MORPHEME** cannot stand on its own.

Examples: [əbl̩], [nɛs]

Terminology

Terminology: Affix

An **AFFIX** is a bound morpheme that attaches to a stem.

Terminology: Stem

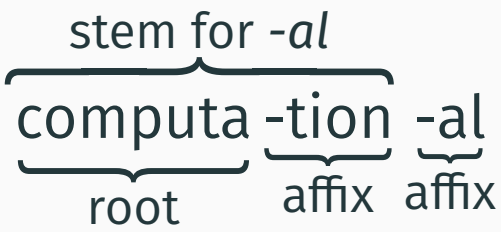
A **STEM** is a unit to which affixes can be attached.

Terminology: Root

A **ROOT** is a stem that cannot be analyzed any further into constituent morphemes.

Roots and stems

All roots are stems, but not all stems are roots.



In this example, the root is also the stem for *-tion*.

Towards the [əbl̩]-rule

- [əbl̩] attaches to the end of stems. (We will see shortly that such affixes are called suffixes.)
- [əbl̩] can attach to the end of **verbs**:

  (1) [wɑʃ] + [əbl̩] = [wɑʃəbl̩]

- But [əbl̩] does not attach to **adjectives**:

  (2) *[hæpi] + [əbl̩] = [hæpiəbl̩]

- [əbl̩] also does not attach to **nouns**:

  (3) *[ɹʌg] + [əbl̩] = [ɹʌgəbl̩]

Towards the [əbl̩]-rule

When [əbl̩] attaches to a verb, it forms an **adjective**:

(4) a. [ɹidəbl̩]

b. [duəbl̩]

c. [la͡jkəbl̩]

Summary: Properties of the [əbl̩]-rule

1. It only combines with verbs, not nouns or adjectives.
2. It attaches to the right of the verb.
3. The result of attaching [əbl̩] is an adjective.

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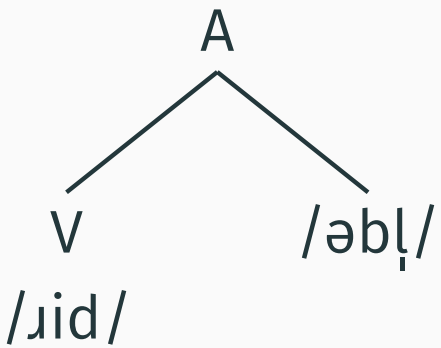
Verb + /əbl̩/ = Adjective

Representing morphological structure

Verb + /əbl̩/ = Adjective

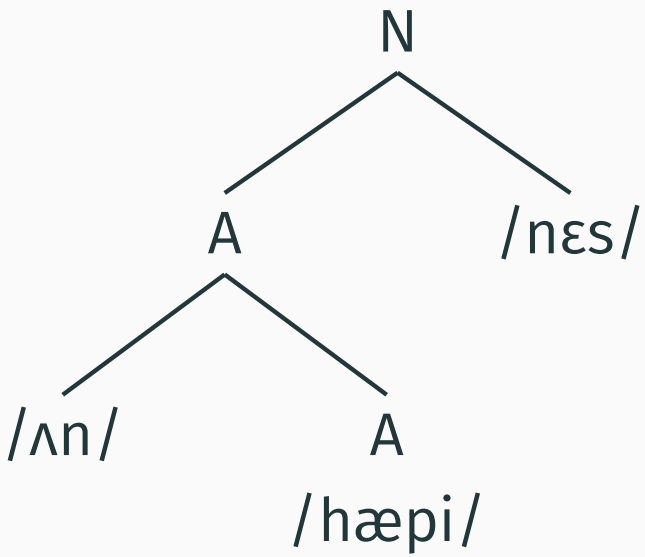


Summary: Some morphological rules of English

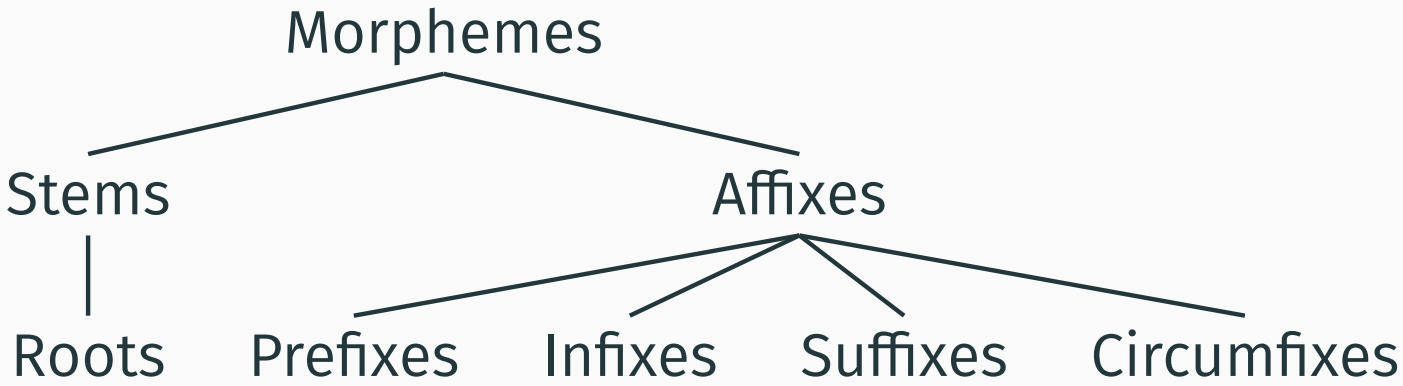
1. Verb + /əbl̩/ = Adjective
2. Adjective + /nɛs/ = Noun
3. Adjective + /ən/ = Verb
4. Verb + /ɨɹ/ = Noun
5. /ɹi/ + Verb = Verb
6. /ʌn/ + Adjective = Adjective
7. /ʌn/ + Verb = Verb
8. Verb + /mɛnt/= Noun
9. Noun + /lɛs/= Adjective
10. Noun + /fʊl/= Adjective
11. /dɪs/ + Verb = Verb
12. Noun + /z/ = Noun
13. Verb + /d/ = Verb

Example

Unhappiness:



Types of affixes



Prefixes and suffixes

Terminology: Prefix

A **PREFIX** attaches to the **front** of the stem.

Examples: [ʌn], [pɹi]

Prefixes and suffixes

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Examples: [ʌn], [pɹi]

Terminology: Suffix

A **SUFFIX** attaches to the **end** of the stem.

Examples: [əbl̩], [nɛs]

Ambiguity

- If a sequence of sounds, morphemes, or words can have more than one meaning, we say that this sequence is **AMBIGUOUS**.

- **Two types of ambiguity:**

  1. **Lexical ambiguity:**
     two morphemes happen to sound the same
  2. **Structural ambiguity:**
     arrangements of elements differs

Examples of lexical ambiguity

- *bank*: edge of a river –or– a financial institution

Examples of lexical ambiguity

- *bank*: edge of a river –or– a financial institution
- *bat*: an implement to hit a ball with –or– the animal
- *[ɹɛd]*: the color –or– the past tense of [ɹid]
- *can*: be able to –or– a cylindrical metal container

Morphological ambiguity

- **Observation:**
  Some words can be formed in more than one way, giving rise to different meanings. This is a kind of structural ambiguity.

- **Example:** *“Unlockable”*

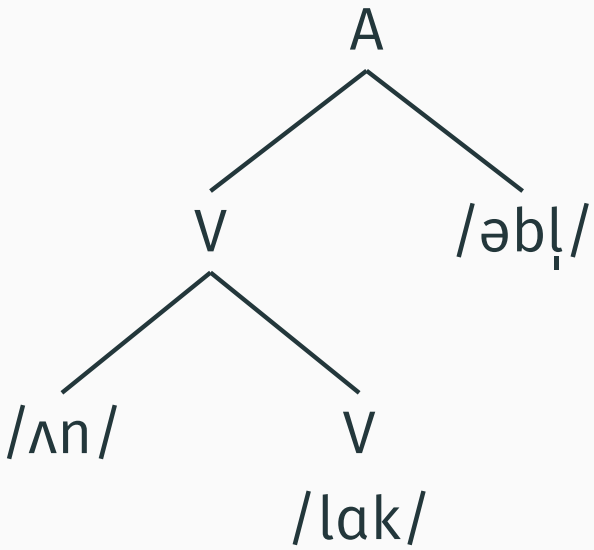
  1. *capable of being unlocked*
     (“The door is unlockable; I can open it with my keys.”)
  2. *not capable of being locked*
     (“The door is unlockable; the lock is broken.”)

Real-life examples

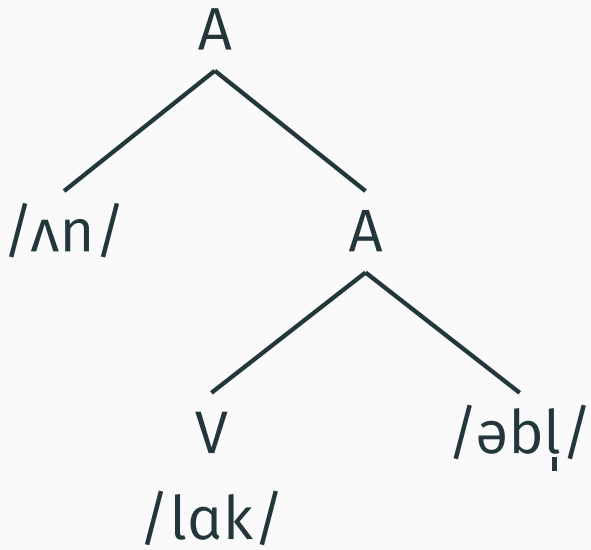
“The facilities at Harvard Law School included lockable and **unlockable** carrels and lockable rooms.”

“This **unlockable** demo allows customers to use the full-featured product free for seven days.”

Two structures



“capable of being unlocked”



“not capable of being locked”

Affixation gone wild

Antidisestablishmentarianism:
“opposition to the withdrawal of state support or recognition from an established church”

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  "an opponent of disestablishment"
- ***Antidisestablishmentarian-ism:***
  "the movement or ideology that opposes disestablishment"

Infixation

Terminology: Infix

An **INFIX** attaches **inside** the stem.

- **Tagalog (Philippine):**

[bili]	‘buy’	[binili]	‘bought’
[basa]	‘read (pres.)’	[binasa]	‘read (past)’
[sulat]	write	[sinulat]	‘wrote’
[ʔibig]	‘love’	[ʔinibig]	‘loved’

- **Tagalog past-tense rule:**
  The past tense of a verb is formed by inserting [in] after the first sound.

An English infix

incredible	→	in-freakin'-credible
		*incredi-freakin'-ble
fantastic	→	fan-freakin'-tastic
		*fantas-freaking'-tic
California	→	Cali-freakin'-fornia
		*Ca-freakin'-lifornia
underestimated	→	under-freaking'-estimated
		*underes-freakin'-temated

An English infix

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underestimated	→	under-freaking'-estimated
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Rule:

Insert /fɹɪkɪn/ between an unstressed and a stressed syllable.

Circumfixes

Terminology: Circumfix

A **CIRCUMFIX** attaches to both the **front** and **end** of the stem.

- Circumfixes are typologically rare.
- **English:**
  em-bold-**en**, **en**-light-**en**
- **German past participles:**
  ge-koch-**t** ‘cooked’, **ge**-bete-**t** ‘prayed’, **ge**-lieb-**t** ‘loved’

Summary: Types of affixes

- **Prefix:**
  attaches to the front of the stem
- **Suffix:**
  attaches to the end of the stem
- **Infix:**
  attaches inside the stem
- **Circumfix:**
  attaches around the stem
- Note: Affixes are fixed strings of sounds.

(Full) Reduplication

Indonesian (Malayic):

[oraŋ]	‘man’	[oraŋoraŋ]	‘men’
[anak]	‘child’	[anakanak]	‘children’
[maŋga]	‘mango’	[maŋgamaŋga]	‘mangoes

Indonesian plural rule:

Double the entire stem to form the plural.

(Partial) Reduplication

Ilakano (Philippine):

[pingan]	‘dish’	[pinpingan]	‘dishes’
[talon]	‘field’	[taltalon]	‘fields’

Ilakano plural rule:

Double the first CVC sequence to form the plural to make a plural.

Complete reduplication in English

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– *I'll make the tuna salad, and you make the SALAD-salad.*

Complete reduplication in English

- *I'll make the tuna salad, and you make the SALAD-salad.*
- *My car isn't MINE-mine; it's my parents's.*

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- *Do you want soy milk? – No, I want milk-milk.*
- *Is that carrot cheesecake or carrot CAKE-cake?*

Partial reduplication in English

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– *He's just a baby! – Baby-shmaby. He's already 5 years old!*

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- *He's just a baby! – Baby-shmaby. He's already 5 years old!*
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Partial reduplication in English

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- *What a sale! - Sale, schmale. I'm waiting for a larger discount.*
- *fancy-shmancy*

Reduplication vs. affixation

- Reduplication is not an affix. It is not a prefix, suffix, infix, or circumfix.
- Affixes involve the addition of a **fixed** string of sounds.
- This is not the case with reduplication. Rather, the sounds come from the stem itself.

Compounding

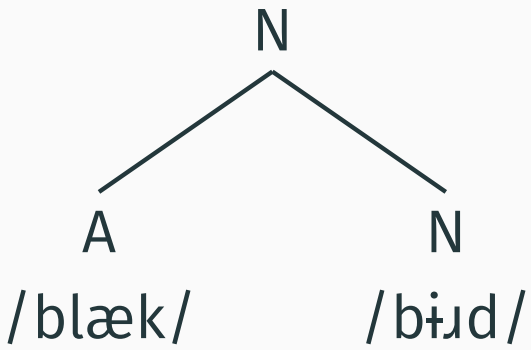
Terminology: Compound

A **COMPOUND** consists of two or more elements that can also occur on their own.

Examples:

blackbird, textbook, air conditioning, watch maker, bird watch, double book, ...

Representing the structure of compounds



Iterated compounding

- It is possible to take a compound and combine it with another free morpheme, creating a larger compound.
- In this way, compounds can get very large, for example:
  - *life-insurance salesman*
  - *income tax preparation fees*
  - *mint chocolate chip ice cream waffle cone*

Structure of “labor-union finance committee”

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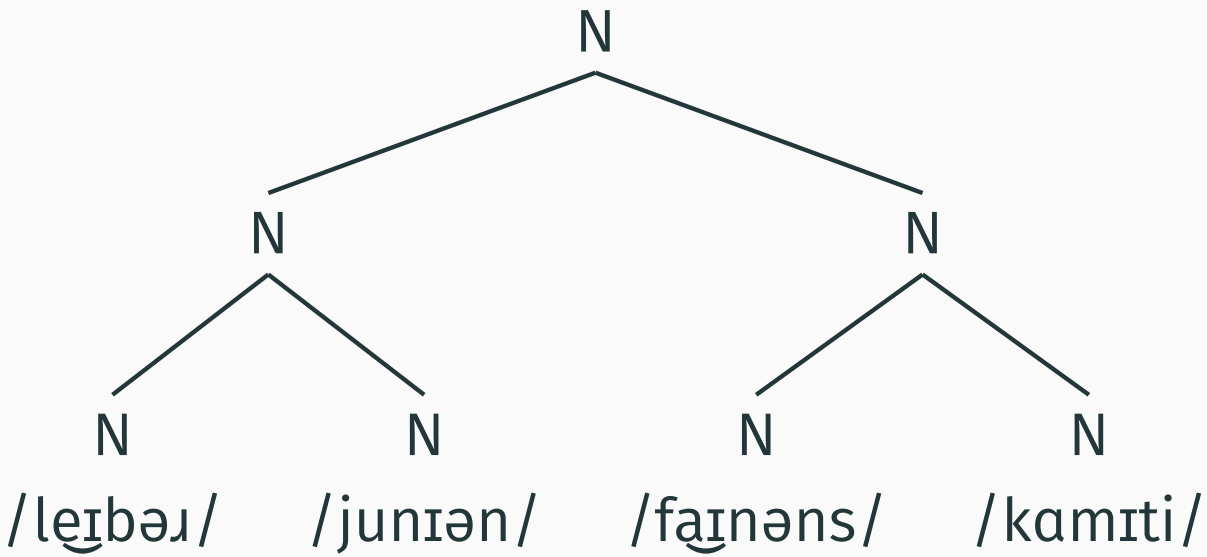

German compounding

German has a reputation for having very long words. This is because of compounding.

Rindfleischetikettierungsüberwachungsaufgabenübertragungsgesetz
'the law concerning the delegation of duties for the supervision of cattle marking and the labelling of beef'

Rind-fleisch-etikettier-ungs-überwach-ungs-aufgaben-übertrag-ungs-gesetz
cow -flesh -label -ing -supervise-ing -duties -delegate-ing -law

Overview of morphological processes

1. Affixation
   - Prefixation
   - Infixation
   - Suffixation
   - Circumfixation
2. Reduplication
3. Compounding

A regularity of compounding

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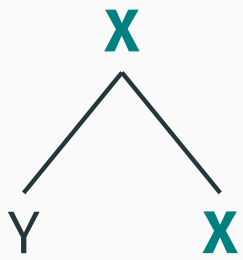
6. A + A = A ([blu] + [gɹin])

A generalization

The category of the compound is always the same as the category of the last morpheme in the compound.



Right-Hand Head Rule

- If X is the **HEAD** of Y, then the grammatical category (= part of speech) of Y is the same as that of X.
- **The Right-Hand Head Rule:** *(to be revised)*
  In an English compound, the head is the right-most morpheme.

Rethinking English affixes

English suffixes:

V + /ɨɹ/ = N

V + /mɛnt/ = N

V + /əbl̩/ = A

A + /nɛs/ = N

A + /ən/ = V

N + /lɛs/ = A

N + /fʊl/ = A

N + /z/ = N

V + /d/ = V

English prefixes:

/ɹi/ + V = V

/ʌn/ + V = V

/ʌn/ + A = A

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English prefixes:

/ɹi/ + V = V

/ʌn/ + V = V

/ʌn/ + A = A

/dɪs/ + V = V

Pattern:

- Prefixes **never** change the category.
- Suffixes **sometimes** change the category.

A more general Right-Hand Head Rule

- If X is the **head** of Y, then the grammatical category (= part of speech) of Y is the same as that of X.
- **Right-Hand Head Rule:** *(final)*
  In English, the head of a morphologically complex expression is the right-most morpheme.

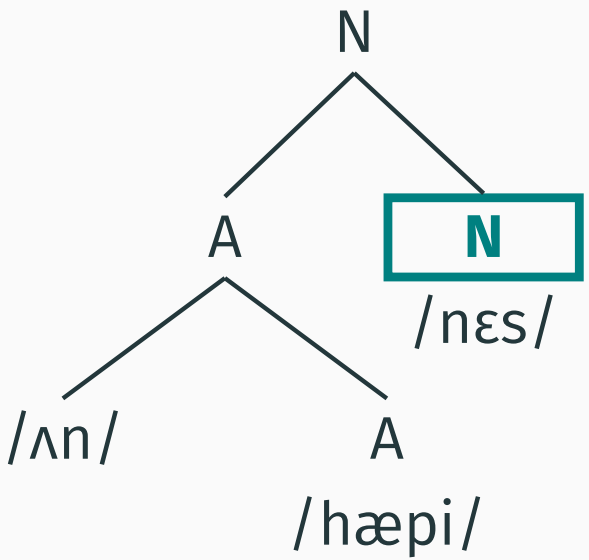
Rethinking English suffixes

Consequence:

Affixes have a category, just like free morphemes.

[ɨɹ]	***Noun***	“one who does X”
[mɛnt]	***Noun***	“action/result of X”
[əbl̩]	***Adjective***	“able to be Xed”
[nɛs]	***Noun***	“state of being X”
[ən]	***Verb***	“make/become X”

Example



Consequence

- The Right Hand Head Rule not only applies to compounding but also to affixation.
- What about prefixes? What is the category of prefixes?
- Because the category of a complex morphological expression is always determined by its right-most element, we do not know what the categories of prefixes are.

Summary:

1. Languages have productive rules to create morphologically complex expressions.
2. Morphological processes: affixation, reduplication, compounding
3. Right-Hand Head Rule: In English, the head of a morphologically complex expression is the right-most morpheme.

Fun aside: Cranberry morphemes

A **CRANBERRY MORPHEME** is a bound morpheme which distinguishes words, but which cannot be assigned an independent meaning.

(5) a. **cran**-berry, **mul**-berry, **rasp**-berry

b. **cob**-web, **luke**-warm

c. per-**mit**, com-**mit**, trans-**mit**, re-**mit**

d. re-**ceive**, per-**ceive**, con-**ceive**