Final review

LING 20: Introduction to Linguistic Analysis

UCLA · Winter 2022

Phonetics:

- Anatomy of the vocal tract
- Articulatory properties of sound classes
- Read and write English in IPA; use IPA chart

manner of articulation
stop, fricative, approximant, nasal, etc...
place of articulation: labiodental, alveolar, velar, bilabial, glottal
voicing

Phonology:

- Syllabification

onset, nucleus, coda

1) identify nucleii
2) maximize onset
3) identify codas: anything that can't be onset is coda

- Phonotactic constraints

*[-voice][+voice] in a coda

- Articulatory features

+alveolar, -voice, etc...
p, k: +stop, -voice, -alveolar, -glottal

- Phonemes vs. allophones
- Rule ordering

Morphology:

- Types of morphemes
- Morphological analysis
- Morphological trees
- Right-Hand Head Rule
- Ambiguity

Syntax:

- Parse sentences into tree structures

- Syntactic analysis

- Ambiguity

- Recursion   I know that Shelly did what

- Movement   What did she eat___?   I know <u>what</u> Shelly did ___

- Islands   Structure which can't be moved out of Coordinate structure, Subject,
             Complex NP

- Phrase-structure rules for other languages

I know to which town Mike ran___.   I know which town Mike ran to ___

* I know to which Mike ran __ town. <-- not a constituent

3

Semantics & pragmatics:

- Information content: asserted, presupposed, implicated

- Gricean theory of implicatures

Sound articulation

How are sounds with particular articulatory properties articulated?

- How are voiced and voiceless sounds articulated?

- How are stops articulated?

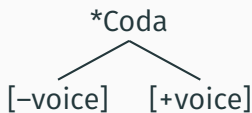- How are fricatives articulated?

- How are nasals articulated?

- …

You need to know how the syllabification algorithm works and be able to apply it to strings of sounds.

We have discovered several constraints on English codas:

(1)
```
           *Coda
          /     \
   [−voice]     [+voice]
```

(2)
```
                    *Coda
                  /        \
```

$$\begin{bmatrix} +\text{fricative} \\ -\text{dental} \\ -\text{labiodental} \\ -\text{glottal} \end{bmatrix} \qquad \begin{bmatrix} +\text{fricative} \\ -\text{dental} \\ -\text{labiodental} \\ -\text{glottal} \end{bmatrix}$$

s z ʃ ʒ f v θ ð

Phonotactic constraints

You should be able to formulate phonotactic constraints based on grammatical and ungrammatical words/onsets/codas.
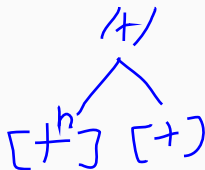
How did we analyze the distribution of plural forms of English using a single underlying form that is changed when a phonotactic constraint is violated?
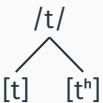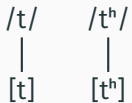
Phonemes and allophones

- What is a phoneme? the smallest unit of sound   'underlying'

- What is an allophone? variant of a phoneme   calculated by rule, predictable

- Complementary distribution   where one appears, the other never does

- Minimal pair   cat ~ bat   pair of words that differ by just one sound

- Allophones of the same phoneme vs. different phonemes

  allophones of the same phoneme

  allophones of different phonemes

/t/

[tʰ] [t]

10

	Allophones of the same phoneme	**Allophones of different phonemes**
Minimal pair:	no	yes
Sounds predictable:	yes	no
Complementary distribution:	yes	no
One sound produced from the other:	yes	no
Example:	[t] and [tʰ] in English	[t] and [tʰ] in Thai
Structure of example:	/t/ [t] [tʰ]	/t/ /tʰ/ [t] [tʰ]

Phonemes and allophones

- Given some dataset, are two sounds allophones of the same phoneme or of different phonemes?

- Analyze a dataset, determine the distribution of sounds, underlying forms, phonotactic constraints, and rules.

How do we describe classes of sounds using articulatory features?

Rule interactions

1. **No interaction**

2. **Feeding:**
   Rule A makes Rule B possible

3. **Bleeding:**
   Rule A makes Rule B impossible

Morphology: Terminology

- Free vs. bound morphemes
  can only exist with other morphemes   'cran'   'cranberry'

- Stems and roots
  always a single morpheme
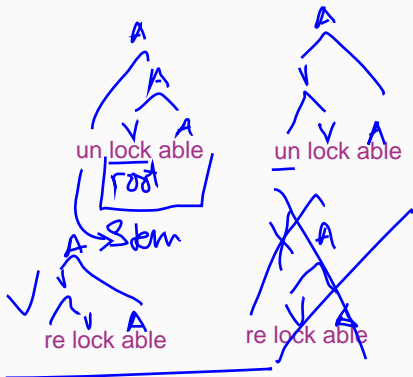 *can be multiple*

- Types of affixes:

  1. Suffix

  2. Prefix

  3. Infix

  4. Circumfix

- Reduplication

- Compounding

- 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:**
  In English, the head of a morphologically complex expression is the right-most morpheme.

door-frame

dragonfly

airplane

rainbow

speedwalk

airbrush

16

- Draw morphological trees for complex words.

- Infer category of affixes using the Right-Hand Head Rule.

- Identify morphological ambiguity and draw trees for it.

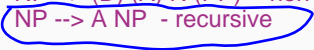- Draw tree representation for compounds.

dragon fly

Ambiguity

- What is structural ambiguity?

- How do we represent it?

Morphological analysis

- Given a dataset from a language, identify the morphemes occurring in that dataset.

- Translate English expressions into that language using these morphemes.

- Construct **trees** for English sentences using **phrase-structure rules**.

  NP --> (D) (A) N (PP) - non-recursiv

  NP --> A NP - recursive

- What is recursion? Why do we use recursive rules?

- Find multiple possible tree structures for **ambiguous** sentences and identify the meaning that goes with each tree.

Syntax: Movement and islands

- Identify the structure of sentences that contain grammatical or ungrammatical **movement**.

- Reason about sentences with ungrammatical movement:

  - Identify **islands**.

  - Explain why sentences are ungrammatical.

Syntax: Word-order variation

- Many languages assemble words into sentences differently than English.

- Come up with a set of phrase-structure rules that captures a set of sentences from another language.

Implicatures

- Gricean Maxims: Relation, Quality, Quantity, and Manner

- Diagnostics: cancellability and reinforceability

- Calculate an implicature given:

  – the asserted content of the speaker,

  – the conversational Maxims, and

  – certain background facts and assumptions.