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Discussion Section A: Mondays 10:30–11:30 AM, 2 Arrow St Room 420
Section B: Tuesdays 12:00–1:00 PM, 2 Arrow St Room 408
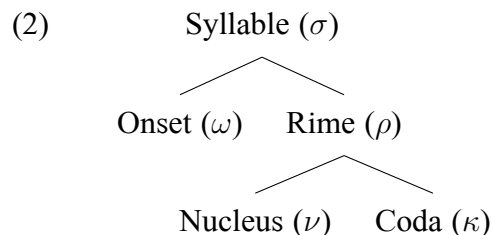Office Hours: Mondays 2:30–3:30 PM, 2 Arrow St Room 423

Discussion Handout 8

2023 Apr 16/17

(1)   Today:

       a.   Syllable Structure
       b.   Phonotactics and the Sonority Sequencing Principle
       c.   Stress

Syllable Structure

(2)   Syllable (σ)

        Onset (ω)   Rime (ρ)

               Nucleus (ν)   Coda (κ)

You will not have to memorize all of the greek letter abbreviations; just remember σ is syllable.

(3)   a.   Onset and coda are typically composed of consonants. Segments in these positions have [−SYL] feature. Remember non-syllabic markers for vowels: [e̯]
       b.   Nucleus is typically composed of vowels. Segments in nucleus have [+SYL] feature. Remember syllabic markers for consonants: [n̩]
       c.   Rime is considered a constituent (consisting of nucelus and coda) due to mutliple factors:
           (i)   Rhyming in poetry tends to care only about the rime
           (ii)   Phonotactics and Allophony tend to place special emphasis on rime as a constituent (English: dark l appears in rime position), while it's very rare to find rules that care about onset and nucleus but not coda
           (iii) Speech errors and ludlings: people tend to keep the rime intact when messing up/around with language; spoonerisms.
           (iv) Syllable weight depends on rime structure and size, but rarely about onset.

(4)   Onset maximization.

       a.   Know your nuclei! For all syllabic segments, assign a nucleus.
       b.   Find what are considered 'acceptable' onsets in the language. Can this cluster be the onset? One way to check is if it can be at the beginning of a word.

(i)   For each consonant cluster, determine whether the rightmost consonant can be an onset: if it can be, then it is an onset.

(ii) Check the rightmost two consonants: can they form an onset? If so, then they are an onset.

(iii) Continue until all consonants in a cluster are covered or until you reach a cluster that cannot be an onset.

c.   All other consonants will be codas.

d.   Assign onsets to the following nucleus, and codas to the previous nucleus to syllabify.

Try: "tribute", "inspect", "ringer"

Phonotactics

Different languages constraint which segments can go in onset, nucleus, and coda position.

(5)   Restrictions on Onsets

a.   Some languages require that some segment be in onset position.

b.   No language bans onsets

c.   Some languages ban complex (consisting of more than one segment) onsets.

d.   No language bans simple onsets.

(6)   Restrictions on Codas

a.   Some languages ban codas.

b.   No language requires codas.

c.   Some languages ban complex codas.

d.   No language bans simple onsets.

(7)   Restrictions on Nuclei

a.   Languages differ in how sonorant a vowel must be.

b.   All languages allow vowel nuclei.

c.   Languages cut off acceptable nuclei somewhere on the sonority hierarchy. If it includes something, it includes everything to the left of it:

Vowels/Glides ← Rhotics ← Lateral (approx) ← Nasals ← Fricatives ← Affricates ← Plosives

Even in languages where multiple different levels of sonority are okay for nuclei, languages will still optimize for more sonorant nuclei,

(8)   How would you syllabify:

a.   [bʌkln] > likely [bʌk.l̩n]

b.   [bʌknl] > likely [bʌk.n̩l]

c.   Even though [n] and [l] are both okay nuclei in English, we tend to prefer [l] as a nucleus over [n]

Sonority Sequencing Principle

Syllables tend to rise in sonority at the beginning, and fall near the end.

(9)   a.   Onset clusters will usually start with less sonorant sounds and end with more sonorant sounds.

            b.   Coda clusters will usually start with more sonorant sounds and end with less sonorant sounds.

            c.   Common exceptions to this in English and across languages are sibilants like [s]

(10)   It is not just that onsets become more sonorous or that codas become less, there also needs to be a certain "distance".

            a.   [kw] onset; plosive to glide: this is good in English

            b.   [wk] onset; glide to plosive: this is bad in English because it disobeys Sonority Sequencing Principle

            c.   [ks] onset: plosive to fricative: obeys Sonority Sequencing Principle, but still banned in English; the 'distance' between plosive and fricative sonority is not great enough (cutoff).

(11)   In English, we tend to be more forgiving of shorter sonority distances in codas:

            a.   [ækt] okay

            b.   [tkɑ] not okay

Sonority Sequencing Principle is not strictly followed cross linguistically; it is a tendency.

Phonotactic Exercises

Imagine languages A and B with the following phonotactic constraints:

(12)   Language A

            a.   Nuclei: vowels (including diphthongs)

            b.   Onsets: only one consonant (or nothing) + glide

            c.   Codas: only single nasals (or nothing)

(13)   Language B

            a.   Nuclei: vowels (including diphthongs) or syllabic liquids

            b.   Onsets: complex onsets of two consonants are allowed, they do not need to follow sonority sequencing principle

            c.   Codas: no codas

These languages have many loan words from English, and use the repair strategy of vowel epenthesis to solve phonotactic restrictions, lets say language A epenthesizes /i/ and B epenthesizes /u/. What would the forms (including syllable boundaries) be for the following loans from English?

English	English IPA	Lang A	Lang B
computer	kɔm.pju.tɻ̩		
schoolhouse	skul.haʊs		
automotive	ɔ.toʊ.moʊ.tɪv		
international	in.tɻ̩.næʃ.n̩.l̩		
balloon	bə.lun		
squirrel	skwɹ̩l		

(14)

Intro to Stress

(15) Stress is a property of some languages, in which certain syllables are more 'prominent'
   a. More intense F0 (highest or lowest)
   b. Longer duration
   c. Greater intensity
   d. Greater vowel peripherality/tensity (more tense)
   e. Less spectral tilt (more amplitude in high frequency areas)

(16) Not all languages have stress, and not all stress languages use all cues:
   However, tone cannot be the only use; otherwise the language may be tonal or pitch accented, rather than stressed.

(17) In English, all five matter.

(18) Languages differ in how predictable stress is:
   a. For completely predictable stress (Finnish); stress is not contrastive, and is not encoded in the vocabulary. One does not need to memorize stress, only memorize the rules for stress assignment
   b. For partially predictable stress (Spanish): stress is contrastive in a small number of words. One only needs to memorize stress for a small class of words, for the vast majority of words, stress is not encoded in the lexicon but defined through rules.
   c. For unpredicatble stress (Russian): stress is contrastive and lexically specified for each word. One must memorize the stress for all words in the vocabulary.

Compare the underlying lexicons for these three kinds of languages; in which languages is stress defined in the lexicon?

(19)

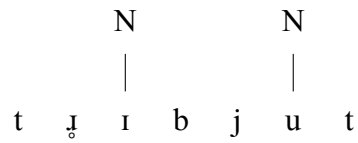| Predicable			Partially Predicable			Unpredicable		
/adaba/	→	[adabá]	/adaba/	→	[adabá]	/adába/	→	[adába]
/kosoni/	→	[kosoní]	/kósoni/	→	[kósoni]	/kósoni/	→	[kósoni]
/kedumda/	→	[kedumdá]	/kedumda/	→	[kedumdá]	/kedumdá/	→	[kedumdá]
/joke/	→	[joké]	/jóke/	→	[jóke]	/jóke/	→	[jóke]
/nokson/	→	[noksón]	/nokson/	→	[noksón]	/noksón/	→	[noksón]

Syllable Structure Walkthough
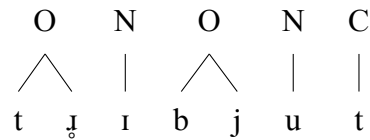
Three examples:

(20) a. "tribute"

t ɹ̥ ɪ b j u t

b. Assign nuclei

```
        N           N
        |           |
t  ɹ̥  ɪ  b  j  u   t
```

c. [tɹ̥] is an acceptable onset in English ([tɹ̥eɪn]),
    [bj] is an acceptable onset in English ([bjutifʌl])
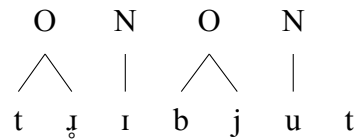
```
    O   N   O   N
    /\  |  /\   |
t  ɹ̥  ɪ  b  j  u   t
```

d. Everything else is a coda.

```
    O   N    O   N   C
    /\  |   /\   |   |
t  ɹ̥  ɪ   b  j   u   t
```

e. Onsets group with following nucleus, Codas with preceding nucleus

```
        σ              σ
       /\            /  \
    O   N    O     N     C
    /\  |   /\     |     |
t  ɹ̥  ɪ   b  j   u     t
```
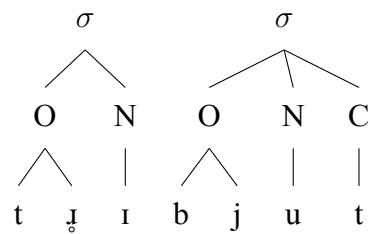
(21) a. "inspect" ɪ   n   s   p   ɛ   k   t

b. Assign nuclei

```
    N               N
    |               |
    ɪ   n   s   p   ɛ   k   t
```
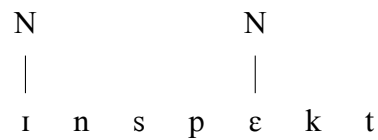
c. [sp] is an acceptable onset in English ([spɔɹt]) , but [nsp] is not.
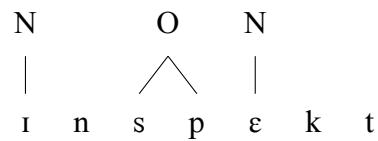
```
    N           O   N
    |          /\   |
    ɪ   n   s   p   ɛ   k   t
```

d. Everything else is a coda.

```
    N   C   O   N    C
    |   |  /\   |   /\
    ɪ   n   s   p   ɛ   k   t
```

e. Onsets group with following nucleus, Codas with preceding nucleus

```
           σ                σ
          / \             / | \
         N   C           O  N  C
         |   |          /\  |  /\
         ɪ   n         s  p ɛ  k  t
```
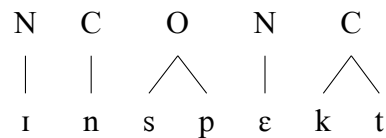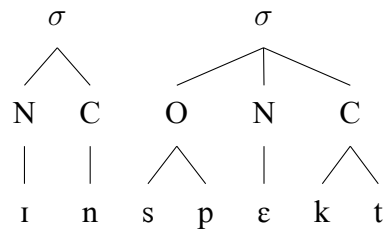
(22) a. "ringer" ɹ   ɪ   ŋ   ɹ̩
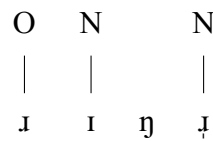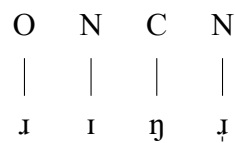
b. Assign nuclei

```
         N       N
         |       |
     ɹ   ɪ   ŋ   ɹ̩
```
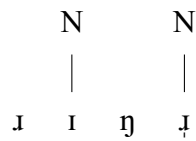
c. [ɹ] is an acceptable onset in English ([ɹoʊst]),
   [ŋ] is not an acceptable onset in English

```
     O   N       N
     |   |       |
     ɹ   ɪ   ŋ   ɹ̩
```

d. Everything else is a coda.

```
     O   N   C   N
     |   |   |   |
     ɹ   ɪ   ŋ   ɹ̩
```

e. Onsets group with following nucleus, Codas with preceding nucleus

```
          σ           σ
         /|\          |
        O N C         N
        | | |         |
        ɹ ɪ ŋ         ɹ̩
```