

Syllables

What do we know about the syllable?

- We know how to count them
 - How many syllables in *nitriansky*, *extrasyllabicity* ?
 - But might cause problems in non-native language!
 - *ski* is 1 syllable for English/Slovak speakers but 2 syllables for Japanese speakers (Beckman 1996). This is because Japanese has predominantly CVCV structure of words so Japanese speakers ‘think’ they hear *s^vki*, which conforms to the Japanese phonotactic pattern.
 - *tkat*’ might sound like 2 syllables for many English speakers
- But we are less sure where the syllable boundaries are
 - e.kstra vs. ek.stra vs. eks.tra vs. ekst.ra vs. ekstr.a

We use syllables in processing of what we hear

- Mehler et al. 1981
 - Task: press the button as soon as you hear the target (/ba/ in balance vs. balcony)
 - *ba* as a target is recognized faster in the word ‘*balance*’ and slower in the word ‘*balcony*’
 - *bal* is recognized faster in the word ‘*balcony*’ and slower in the word ‘*balance*’
- Cutler et al. 1986
 - Much stronger for French than English
 - Much stronger for liquids ([l], [r]) than other segments

Syllables participate in speech errors

- Fromkin (1971)
 - Segments
 - “a phonological rule” → “a phonological fool” (Consonant Perseveration)
 - “fill the pool” → “fool the pill” (Vowel Reversal)
 - Syllables
 - “unanimity of opinion” → “unamity of opinion” (Syllable Deletion)
 - “Stockwell and Schacter” → “Schachwell and Stockter” (Syllable Reversal)
 - Speech errors seem to obey a “structural law of syllable place”. Initial syllables interact with initial syllables, medial with medial, and final with final.
 - Crucially, onsets interact with onsets, peaks with peaks and codas with codas

Syllables are crucial in defining allophones

- Recall from the first lecture that /p/ and /b/ are **phonemes** (in the mind) while [p] and [p^h] **allophones** (produced by the mouth). WHY?
- We need syllables for describing the context in which the particular allophone occurs
 - E.g. [p^h] occurs at the very beginning of a stressed syllable (*pin*) while [p] is preceded by [s] (*spin*) or occurs in unstressed syllables (*copy*)

Syllable structure obeys language-specific 'rules'

- Most varieties of English have at least 24 consonants. Hence, there should be 24x24 initial 2-consonant clusters. Is this the case?
 - Is there a pattern?
 - Why is [kɹæmp] a good syllable but [ɹkæpm] a horrible one?
 - Genuine articulatory constraints
 - **Sonority Sequencing Principle:** onsets rise in sonority, codas fall in sonority
 - Sonority: roughly, the amount of 'sound' while loudness is constant, [a] > [i] > [j] > [l] > [m] > [b] > [p]

Intermediate summary

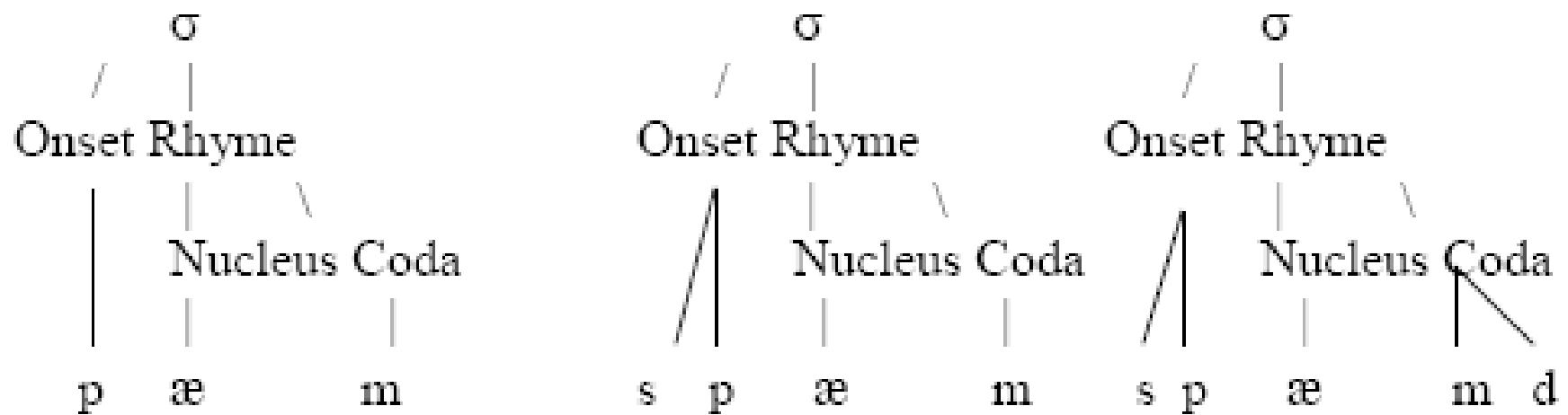
- Syllables are **cognitively real** divisions of speech
 - Processing
 - Syllabic priming
 - Production
 - Speech errors
 - Allophonic rules
 - Have structure
 - phonotactics

Syllable structure

- Every syllable must contain a syllabic segment – the **nucleus (peak)** of the syllable. The nucleus can be a vowel or a syllabic consonant.
- **Onset**: any consonant or sequence of consonants preceding the nucleus.
- **Coda**: any consonant or sequence of consonants following the nucleus.
- The nucleus is said to form a unit with the coda called the **rhyme/rime**.

Visually...

The hierarchy of the syllable



English syllable phonotactics

- Phonotactics: patterns that guide which sounds combine with which sounds
- Nicely described in Roach, pp 67-74
- Any vowel can form a peak of a syllable
- Some consonants can be peaks as well
 - Most common are [l] & [n]
 - Bottle, eaten,...

Onsets

- 0-3 consonants
- Single consonants
 - [ŋ] is impossible, [ʒ] is very rare
- CC clusters
 - s + C
 - C + [l, ɹ, j, w]
- CCC clusters
 - s + [p, t, k] + [l, ɹ, j, w]

Codas

- 0-4 consonants
- Single consonant
 - [ɹ, w, j, h] not possible
- CC clusters
 - [m, n, ŋ, l, ɹ, s] + C
 - C + [s, z, t, d, θ]
- CCC clusters
 - Combination of the two CC patterns
- CCCC
 - Extremely rare, and often simplified in real speech

Full structure

