

The syllable and sonority

Phonotactic theory (EGG 2025, Zagreb)

1 The role of the syllable

- It is common to state phonotactic generalizations in terms of syllables. For example, English /h/ only occurs in the onset of a tonic syllables.
- Numerous restrictions on word-medial consonant clusters can be stated in terms of syllable edges (e.g., Haugen 1956, Pierrehumbert 1994):

(1) MEDIAL CLUSTER LAW (Gorman 2013:67): A medial cluster can consist maximally of a well-formed medial coda and a well-formed medial onset.

- Blevins (2003) argues that it is preferable to state such generalizations as **string-based** constraints (i.e., sequence-based) rather than referring to syllable positions.
- A few examples from her paper:
 - Lithuanian, obstruents are voiced only before sonorants, even when the sonorant is the onset of the following syllable as in *res.pùb.li.ka* ‘republic’.
 - Many languages (e.g., Gujarati, Toda, Diyari) only contrast alveolar and post-alveolar consonants after vowels, but “after vowels” is not a syllable position.
 - Some languages (e.g., Lenakel) forbid medial triconsonantal clusters but allow word-initial and/or word-final biconsonantal clusters.¹
- Pierrehumbert (1994), henceforth P, surveys the inventory of triconsonantal medial clusters in English and proposes three static restrictions:²
 - “velar obstruents occurred only before coronals in the clusters studied, never before labials or other velars” (P:173).³
 - “clusters with a coronal obstruent in the coda do not occur” (P:175), but note exceptions like *a[n̩tl]er*, *ke[st̩r]el*, *oi[n̩tm]ent*.
 - “[there is] a lack of clusters with identical first and third elements” (P:176), irrespective of voice.

¹This of course could reflect specific edge effects, as Blevins notes.

²P doesn’t explain why she only considers triconsonantal clusters; English has medial clusters as short as two consonants as in *a[n̩t]ics* and as long as four as in *mi[n̩str]el*.

³Note that biconsonantal clusters of this form do occur: e.g., *a[km]e*, *ru[gb]y*, *pi[gm]ent*.

- In my dissertation (Gorman 2013: ch. 4), I attempt to reproduce these findings, but find that none of P’s three generalizations are statistically significant.
- Of course, the MEDIAL CLUSTER LAW ignores any phonological processes that apply to medial clusters. So, I also evaluate three constraints projected from surface-true rules:
 - OBSTRUENT VOICE ASSIMILATION predicts that there will be no hetero-voiced obstruent clusters,
 - NASAL PLACE ASSIMILATION predicts that there will be no nasal codas followed by a heterorganic obstruent.
 - DEGEMINATION predicts that there will be no adjacent identical segments, irrespective of voice.
- All three of these constraints are near-exceptionless and statistically significant.
- These results suggest that this corner of the English lexicon reflects the “occluding” effects of surface-true rules.

2 The role of sonority

- The **sonority sequencing principle** (SSP) is claimed to be a universal generalization about syllable shape.

(2) A traditional sonority scale: stops > fricatives < nasals < liquids < glides < vowels
- The basic generalization, stated informally, is that sonority rises throughout the onset, peaks in the nucleus, and then falls throughout the coda.
- The predictions here are most salient for onset and coda clusters. For example:
 - [tl] is a better onset than [lt], but
 - [lt] is a better coda than [tl].
- **How does this prediction jibe with languages you know?**
- Daland et al. (2011), henceforth D&A, asks whether the SSP is:
 - part of the genetically endowed faculty of language,
 - “phonetically grounded—learned from experience in producing and comprehending speech” (D&A:199), or
 - projected from the lexicon.
- D&A present English speakers with nonce words that contain unattested onsets either conforming to (e.g., *[tl]) or violating (e.g., *[lt]) the sonority sequencing principle, and find that they prefer the former.
- They argue that phonotactic knowledge includes sonority, though their results are not conclusive regarding the SSP’s ontology.

References

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