The syllabification of medial clusters: evidence from stress assignment

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Background
- English speakers both rate and perceive some word-initial CC clusters better than others (Olejarzczuk, 2017; Brandt et al., 2015).
- Cluster well-formedness appears to be gradient:

  pr  dw  bn  bd  lb

  better  worse

  • factors said to contribute to well-formedness include:
    - word-initial legality
    - attested > novel (pr > dw > bn, bd, lb)
    - word-initial frequency
    - frequent > rare (pr > dw)
    - sonority profile
    - rising > flat > falling (bn > bd > lb)
  - word onsets are assumed to be representative of all syllable onsets in behavior
  - word-edge phenomena are taken as evidence of syllable structure at large

Question
- Is the gradience of (word-)onset well-formedness also reflected in syllabification (production) tendencies?
- Do legality, frequency, and sonority contribute to this gradience?

Previous Research
- Legality correlates highly with syllabification; frequency under-investigated; mixed results on sonority (Trommer & Goldstein, 2010; Redford & Zukowski, 1990).
- Variability may be due to the problematic nature of the tasks traditionally employed in syllabification studies:
  - word edges differ from word onset edges,
  - syllable onsets behave like word onsets,
  - vocalic syllable onset edges may not be well-defined

Method
- Assumptions
  1. syllable weight affects stress placement in English (Hays, 1982).
  2.Tri syllabic tendency: con/di/di/di

- Predictions

  syilabification

  • legality influences syllabification
  • sonority profile shows some numerical tendency but is not a significant factor
  • legal/rising affects realism
  • legal/rising affects strings by subjects and items
  • syllable vs. word frame

Participants
- 37 adult English speakers (monolingual)
- CC clusters placed in CV/CV frames to make nonwords
- 5 conditions based on word-initial legality and sonority profile:

<table>
<thead>
<tr>
<th>legality</th>
<th>sonority</th>
</tr>
</thead>
<tbody>
<tr>
<td>rising</td>
<td>flat</td>
</tr>
<tr>
<td>flat</td>
<td>flat</td>
</tr>
<tr>
<td>legal</td>
<td>rising</td>
</tr>
<tr>
<td>illegal</td>
<td>legal</td>
</tr>
</tbody>
</table>

Stimuli
- Controls contained singletons (CV/CV/CV)
- Context frames were kept constant across conditions:

  • tamapamish tamapamish tamapamish sibidoss sibidoss

Setup
- Each condition set placed in 2 (out of 44) unique frames
- 170 stimuli, 506 fillers (1-5 syllables, phonologically legal)

Results
- Legality and Sonority

<table>
<thead>
<tr>
<th>legality</th>
<th>sonority</th>
<th>difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>rising</td>
<td>flat</td>
<td>no difference</td>
</tr>
<tr>
<td>flat</td>
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- Frequency

  word-final CC frequency does not significantly correlate with likelihood of split syllabification

- different bar color = conditions significantly different

Discussion
- Conclusions
  - With respect to syllabification, all word-initial legal CC onsets are equally 'good' and all illegal ones are equally 'bad', regardless of sonority profile
  - Not a task effect, since subjects were only required to pronounce whole words
  - Illegality and sonority manipulate sub-word units
  - Within attested clusters, syllabification is not predicted by word-initial frequency, but correlates with coda frequency of the first C of the cluster
  - Why do the present results differ from findings of perception and judgment studies?
    - Perception more sensitive to gradience than syllabification
    - Word onsets differ from word-internal syllable onsets
  - Is gradient well-formedness a word-edge phenomenon?

Future Work
- Confirm perceptual judgments of stress placement in phonetic terms
- Incorporate word-internal frequency measures
- Investigate gradient well-formedness with respect to the perception of medial clusters

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