I. Background

- One source of phonetic variation: lexical competition (e.g. minimal pair competitor existence, neighborhood density)
- Competition can cause hyperarticulation, especially of vowel formants ([1], [2])
- Minimal pair competitor existence, but not neighborhood density, causes contrastive hyperarticulation of the English initial stop voicing contrast:
  - Longer VOT for voiceless stops (T) ([3], [6])
  - Shorter VOT for voiced stops (D) ([6])

Research question: Is there contrastive hyperarticulation of the English final stop voicing contrast on the cue of preceding vowel duration?

- Goldrick, Vaughn, & Murphy 2013: in a reading task, minimal pair competitor existence shortens Vs before final D → reduces final voicing contrast; no effect on Vs before final T
- Current study: Corpus study, modeled on Wedel, Nelson, & Sharp 2018, looking for contrastive hyperarticulation of the final stop voicing contrast

III. Results

- What would contrastive hyperarticulation look like? An interaction of MinPair and Voicing and/or ND and Voicing such that:
  - Greater competition makes Vs longer before D and/or shorter before T
  - Or greater competition at least makes difference in V duration before D vs. T bigger

  - Significant main effect of minimal pair competitor existence ($p(\chi^2) = 0.023$)
  - Smaller V ratios before D and T
  - No contrastive hyperarticulation
  - Instead, across-the-board reduction

  Effect Plot: MinPair by Voicing

- Marginaly significant interaction of ND and Voicing ($p(\chi^2) = 0.072$)
  - Contrastive hyperarticulation?

  Effect Plot: ND by Voicing

IV. Discussion

- Minimal pair competitor existence reduces Vs before final voiced and voiceless stops
- Failure to find contrastive hyperarticulation under minimal pair competition consistent with Goldrick, Vaughn, & Murphy 2013

  What accounts for these results?

  - Three accounts of lexically conditioned phonetic variation ([5]):
    - Production-internal: pronunciation varies with ease of lexical access and production
    - Listener-oriented: competition → increased intelligibility to aid listener
    - Perceptual restructuring: with competition, stored exemplars more extreme
      → production targets more extreme
  - Listener-oriented and perceptual restructuring accounts predict contrastive hyperarticulation, which is not found

  Production-internal explanations of the current results:

    - Initial minimal pairs (tip/dip) → facilitation/increased activation → contrast enhancement/hyperarticulation
    - Final minimal pairs (tap/tab) → inhibition/reduced activation → contrast reduction/hypoarticulation

V. Conclusion

- A corpus study corroborates Goldrick, Vaughn, & Murphy 2013’s experimental result:
  - Minimal pair competitor existence does not cause contrastive hyperarticulation of the final stop voicing contrast on the cue of preceding V duration
  - Instead, words with minimal pair competitors have shorter Vs before final voiced and voiceless stops → across-the-board reduction

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Selected References


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