

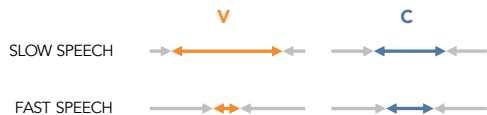
# Vowels are “stretchier” than consonants: A cross-linguistic corpus study of the segmental implementation of articulation rate

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## 1. Introduction

- How is variation in articulation rate implemented by different segment types? [1–4]
- Articulatory mechanisms / aerodynamics dictate “stretchiness”
  - Do vowels “stretch” more than consonants?
  - Do classes of consonants differ in their “stretchiness”?



## 2. Methods

### 2.1 Corpora

- English (Buckeye [5]), Kapampangan, Seoul Korean & Taiwanese Mandarin (OoPS-Lab corpora)
- B: 40 speakers; O: 20 speakers / language
- read speech (O) & spontaneous speech (O & B)
- processed using MFA [6] and PolyglotDB [7]

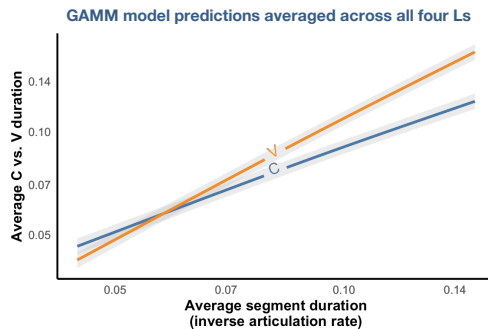
### 2.2 Analysis

- articulation rate = average segment duration within utterance
- higher average segment duration → slower speech
- analysis via Generalised Additive Mixed Models [8] in R [9]

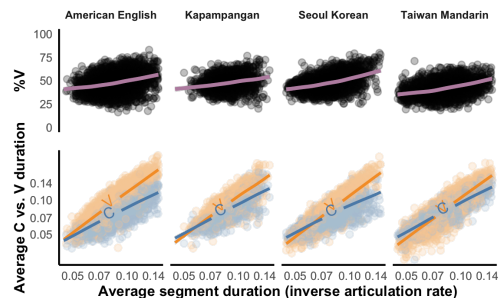
## 3. Results

### 3.1 Comparing Vowels and Consonants

- Vs undergo significantly greater duration adjustment than Cs
- fast articulation rates: Vs same or shorter duration than Cs
- slow articulation rates: Vs up to 1.5x longer than Cs

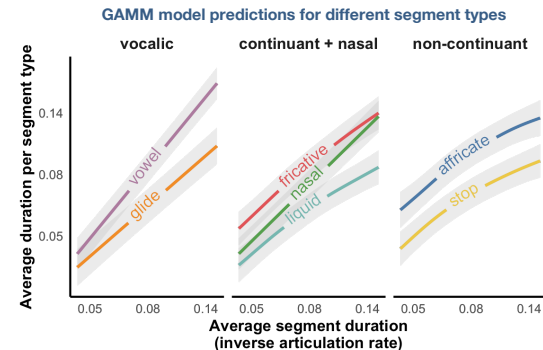


### Separate GAMM model predictions for each L



### 3.2 Comparing different manners of articulation

- non-continuant durations vary less than continuant durations
- Vs clearly stand apart



## 4. Conclusion

- “stretchiness” primarily determined by temporal and aerodynamic complexity of segments
- Vs can shrink and stretch without consequences; non-continuant Cs cannot



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