Hyperarticulation in Infant-Directed Speech in a Small-Scale Society

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**Theoretical background**

- Infant-directed speech (IDS) differs from adult-directed speech (ADS):
  - Prosodically: slower, higher & more variable pitch (Fernald et al., 1989)
  - Segmentally: hyperarticulation of consonants and vowels; increased spectral variability within vowel categories (Kuhl et al., 1997)
- Gap: cross-linguistic/cross-cultural IDS?
  - Some small-scale societies do use prosodic cues (Broesch & Bryant 2015, 2018)
  - Not all languages hyperarticulate (e.g. Cantonese–Rattanasone et al., 2013)

**Socio-linguistic background**

- Tanna (Vanuatu). Small-scale society containing Kastom & Traditional villages: Kastom villages follow pre-colonial practices and ways of life, while Traditional ones follow Kastom containing Tanna
- Language: Lenakel dialect chain (Nahuel, Natuar)
  - 6 vowel-system: /i, e, a, t - o, u/ (Vanuatu).
  - 17 consonants, including /k, p, s, t/ (Vanuatu).
  - Vowels stable in CVS/VSV contexts (Lynch 1978)
  - Penultimate stress (in trisyllabic words; for more detail see Lynch 1978)

**Methodology**

- Recorded adults saying nonce words to adults and children -> pitch & vowel formants in target words.
  - 4 toys
    - 3 unfamiliar, nonced-named toys /tisii/ /kusu susu/ /pa sasa/, introduced by videos.
    - 1 contextualizing toy (a banana) using Lenakel name
  - 2 sessions: recording with first infant, then adult peer.
  - 8+ utterances of each nonce word in each condition, tracked by research assistant (RA).
  - 37 mother-child-adult trios
  - Children aged 0;6-1;6: mean = 0;11.9, SD = 0.34

- Currently recording English-speaking participants in Vancouver; 10 trios have participated to date, 5 trios are analysed below.

**Results**

- 25 Vanuatan (VU) mothers (/i/ = 732, /a/ = 661, /u/ = 609)
- 5 Canadian Anglophone (CA) mothers (/i/ = 133, /a/ = 182, /u/ = 143)
- Excluded: Initial unstrressed vowels, and vowels >1.5 SD away from the mean; Mis-measured vowels (i.e., /u/’s with F2 <700 Hz or >2000 Hz); Mothers who were left with 5 or fewer tokens of a given vowel in a given register
  - Fig. 3: IDS pitch higher and more variable than ADS; Welch’s t-test comparing raw AD pitch to ID pitch: \(p < 0.01\)
  - Fig. 4: VU IDS vowels not hyperarticulated; Paired t-test comparing AD areas to ID areas for each mother (\(p = 0.367\))
  - Fig. 5: VU education does not contribute to hyperarticulation; Linear model fitting IDS-ADS by maternal education (\(p > 0.6\))

**Discussion**

- Lenakel IDS shows higher and slightly more variable pitch, but no hyperarticulation or increased vowel variability
- Prosodic and segmental aspects of IDS can be independent
  - Role of education is insignificant in degree of hyperarticulation (in Lenakel)
- New method for eliciting IDS in fieldwork
  - Why does IDS not differ at the segmental level: Is it a feature of Austronesian languages? ... other small-scale societies?
- Future Directions:
  - Finishing English sample
  - Urban environment for Lenakel; clear speech in Lenakel adults
  - Speech rate: do all prosodic differences in IDS correlate?

**References & Acknowledgments**

Thank you to SSHRC for funding, and to RAs lawlim, Erin Czech, Sera Pinter, Kim Mann, and Laura Dand for all their hard work. Thanks also to SFU’s PhonArea group, LangDev Lab, and Tania Zamuner’s Centre for Child Language Research for comments.


