Hyperarticulation and Infant-Directed Speech (IDS) in a Small-Scale Society

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Screen capture from www.native-land.ca
Road map

1. Project background
   a. Babytalk
   b. Spectral variation in IDS
   c. Sites
   d. Languages

2. Experimental methodology

3. Results

4. Conclusions
  Open questions
The way we talk to babies is different from how we talk to adults

Content-wise:
- More repetitive, simpler, shorter

Prosodically:
- Slower, higher-pitched, more pronounced changes in pitch

Segmentally:
- More extreme and variable versions of speech segments
Hyperarticulation in IDS

Kuhl et al. (1997)

- For English, Swedish, and Russian, IDS has
  - higher f0,
  - exaggerated f0 contours,
  - expanded vowel space (for triangle /i-a-u/)

From Kuhl (2004: 839)
Hyperarticulation in IDS

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Further studies have found some form of hyperarticulation in...

- Cantonese (Rattanasone et al 2013)
- Mandarin (Tang et al 2017)
- Japanese (Andruski et al 1999)
- ...

From Kuhl (2004: 839)
Vowel variability in IDS (and why?)

From McMurray et al (2013: 373, Fig. 7); also found in Kuhl et al (1997)
Does this seem WEIRD to you?
Sites: Vanuatu (& Canada)

12 villages on the island of Tanna in Vanuatu (5 Kastom)

1 Vancouver site, on university campus
Lenakel not extensively documented.

According to Lynch's (1978) *A grammar of Lenakel*:

- 6 vowels: /i e a o u i/
- 15 consonants, including /p t k s/
- Penultimate stress in 3-syllable words
Lenakel IDS
Broesch & Bryant (2015, 2017)

Acoustic analysis for pitch (aka f0):

- Looking WEIRD...

What about segments?

Fig.s from Broesch & Bryant (2015)

Photo from members.psyc.sfu.ca/broesch
Methodology in brief: Materials and task

Linguistic materials: nonce words /tiˈsisi/ /kuˈsusu/ /paˈsasa/

Physical materials: 4 soft toys. 1 familiar (banana), for context; 3 nonce-named

Language & demographic questionnaire

Task: speak about toys to baby, then to adult
Results: Data

- **Vanuatu**: 37 mother-child-peer triads
  - Children aged 6-18 months (mean = 0;11.9)
  - 25 analysed here (12 excluded for noise)
  - /i/ = 732, /a/ = 661, /u/ = 609

- **Canada**: 10 mother-child-peer triads
  - Children aged 8-16 (mean = 12;0)
  - 5 analysed here (still recruiting)
  - /i/ = 133, /a/ = 182, /u/ = 143
Results: Pitch

Mothers spoke with **higher** and **more variable** pitch in IDS than ADS.
Results: Vowels

Vanuatuan mothers did not alter vowels in IDS compared to ADS
Results: Vowels

Vanuatuan mothers **did not alter vowels** in IDS compared to ADS; Canadian mothers (so far) **increase variability** in ID vowels.
1. Project background
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Prosodically: ✓

Spectrally: not universally!

Is IDS linguistically-determined, or culturally?
"Do segmental aspects of IDS help/hurt?" is a WEIRD question; We should hear from some less WEIRD voices to speak to it.
Thank you for your attention


Is it formal education?

No difference in degree of IDS by maternal education, or by age of child.
5. Analysis

Annotation (human, then Montreal Forced Aligner)

Extraction (Praat)

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5. Analysis

Annotation (human, then Montreal Forced Aligner)

Extraction (Praat)

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