Babbling as a Potential Predictor of Difficulty in Segmental Acquisition

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Background
- Research into relationships between babbled utterances (non-meaningful word-like utterances) and phonological development has been ongoing over the last three decades (Oller 1980; Stark 1980; Stoel-Gammon & Cooper 1984; Vihman, Ferguson & Elbert 1986)
- Broad similarities across babbles and word productions have been documented
- Research into broad segmental properties of babbles suggests that there is a high degree of cross-linguistic universality (Kern & Davis 2009)
- The current research compares the segmental development of sounds which are or are not produced in babbled utterances to attempt to find

Research Questions
1) Are there sounds absent from recorded babbled utterances?
2) If so, how do they develop in words?
3) Are there sounds which are present in babbles that display similar acquisition patterns?

Data
- Cameron: Davis corpus on PhonBank
- Corpus contains transcribed audio recordings from naturalistic setting
- Dataset properties:
  - Number of Sessions: 52
  - Age Range: 0-7.11 - 2-11.24
  - Number of Babbled Utterances: 4680
  - Number of Word Attempts: 10537

Results
- With the exception of [θ]:
  - All English phonemes are
  - Every segment present in babbles before words

(4) Selected segmental inventory in babbles and words (θ = babble; A = attempt in words; P = produced in words)

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(5) Current research compared the segmental development of sounds which are or are not produced in babbled utterances to attempt to find

What about more frequently babbled sounds?
- Even sounds which are consistently produced in babbles can be variable in word attempts
  - [θ] is consistently produced in babbles between 0.08 and 1.02
  - [θ] isn’t acquired until 2.10
  - Cameron even fails to produce target-like [θ] in word attempts which share similarities with previously produced babbles

(6) Cameron’s babbled [θ] and targeted [θ]
  a) Babble Utterances
  b) Attempted Words
  i) [θ] 
  ii) [θ]
  iii) [θ]
  iv) [θ]
  v) [θ]

| Number of [θ] produced here is in fact the same as produced for [θ] is unclear
- If these two sounds are acoustically different, then it is possible that Cameron did produce her approximation of [θ] in babbles

Do any sounds present in babbles show similar behaviour?
- Yes, variability is also observed in sounds produced in babbles
- [θ] is produced in babbled utterances in multiple sessions after 1.00, but displays variability similar to [θ]

(4) Attempts of [θ] in Singleton Onsets

Discussion
- There is variation in how babbled sounds behave in attempted words, even those which are consistently produced in babbles
- So babbling may be more useful to show what a child is unlikely to produce accurately in words

Conclusions
- In Cameron’s development:
  - [θ] absence of a segment indicates potential difficulty in acquisition
  - Presence of a sound in babbling does not guarantee acquisition
  - The ability to produce a segment does not ensure its acquisition

References: