

Six-month olds' acquisition of variable and stable vowel categories

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Background

In language learning:

- 6-month olds have begun to organize their vowel space along language-specific categories (Kuhl et al. 1992)
- Some vowel categories are more variable than others

Is vowel category learning related to within-category variation?

How does 6-month olds' vowel perception related to adults' perception?

Infant Procedure

6-month olds

Two groups: /u/ n=11; /I/ n=13

10 Centroid trials

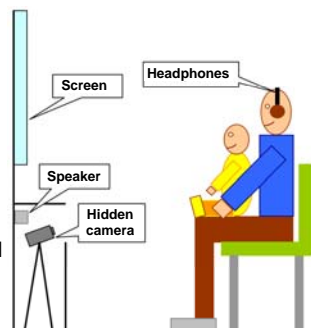
- 12 repetitions of centroid token

8 Alternating trials

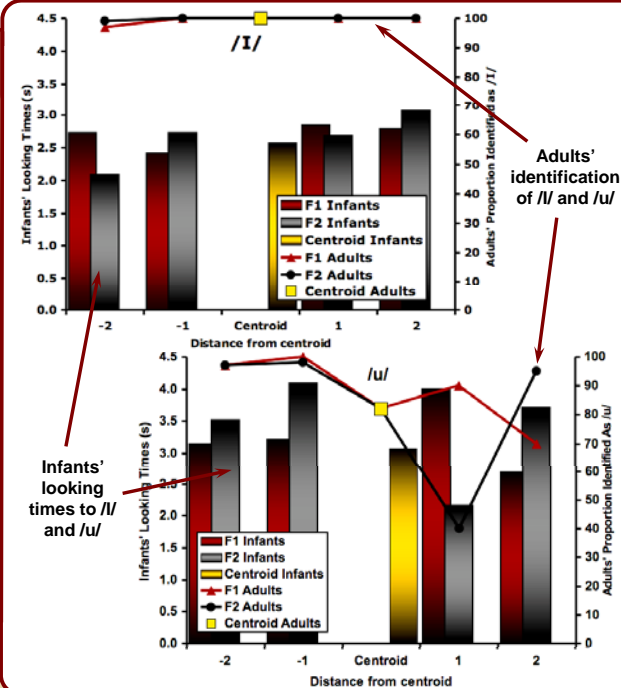
- 4 distances x 2 formants
- 4 centroid + 4 alternating + 4 centroid

Record looking time

Prediction: Looking times to centroid trials will differ from looking times to alternating trials that lie outside of infants' category boundaries

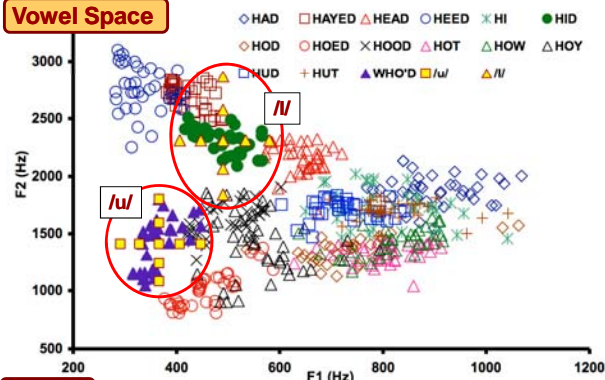


Adult Comparison



Calgary Vowels

Vowel Space

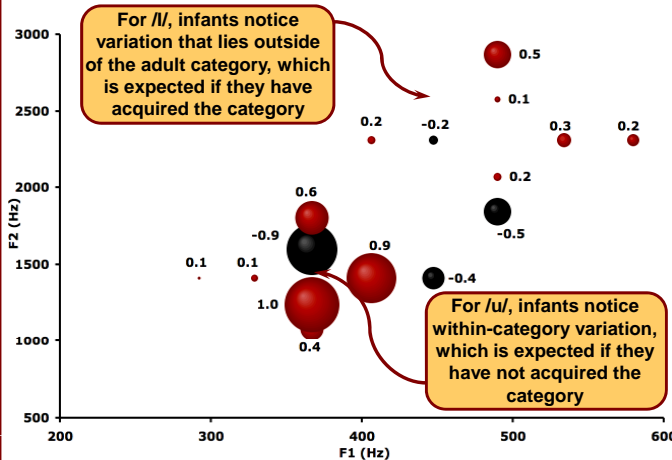


Stimuli

- Measured vowel space of 10 native Calgarian women
- Chose one relatively stable (/I/) and one more variable and shifting (/u/) vowel
- Synthesized vowel continua based on center of distributions
- Created tokens that are equal Mel steps apart

Data

Looking time differences (Centroid-Switch) plotted by F1 and F2



Discussion

- Infants' response to variability is similar to that of adults
- However, infants are slower to approach adult-like performance for /u/ than /I/
- **Infants acquire vowel categories gradually, starting with the most stable/least variable categories first**



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