Word learning and recognition in mono– and multilingually-raised infants

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(1) Introduction

Word learning requires forming appropriately *specific* representations of how words sound and what they mean:

- Accepting novel tokens as the same word even if they sound different (e.g. new talker, new accent)
- Rejecting changes to the word that break the word-object link (e.g. objects referred to with incorrect labels or vice versa)

At 8 months of age[1], infants:

- Recognize familiar and newly learned words when produced by the same talker at familiarization and test
- Have trouble recognizing words when produced:
  - by a new talker[1,2],in a new affect[3,] in a new accent[4]
- Hearing more variability helps in the lab[1,5]
- Some evidence that more variable real world experience (e.g. multiple accents, multiple languages) also shapes word learning[6,7]

(2) Current Study

Does real world experience with speech variability shape whether infants accept new tokens of newly-learned words?

- **Specifically, does experience with multiple languages or accented speech influence early word recognition?**

One-word switch task[8]

Exp 1: Recognizing newly-learned words produced by a new talker

- 43 8mo. (18 mono-, 25 multilingually-raised, >25% exposure non-English

Exp 2: Recognizing newly-learned words produced in a new accent

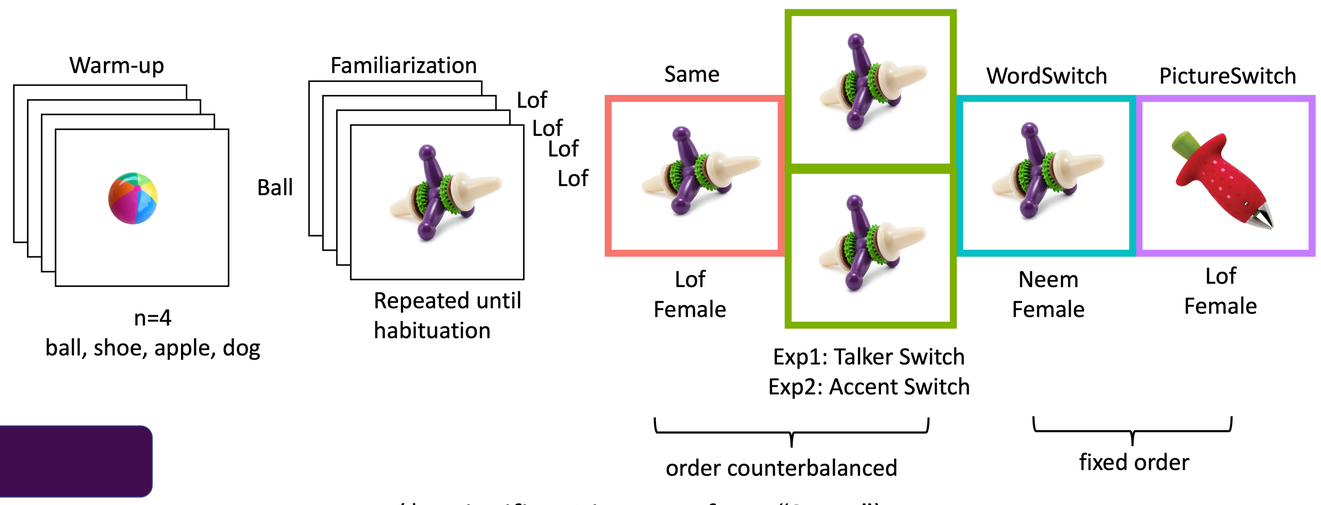
- 38 8mo. (21 mono-, 19 multilingually-raised, > 25% exposure non-English)

Accented Stimuli Selection

14 adults rated 72 potential tokens from Chinese- and Spanish-Accented speakers for: Accentedness and Intelligibility (1 – 7 , "not at all" – "very")

Final Selected Tokens, Spanish accented:

- **Lif** – accentedness: 5.5, intelligibility: 3.94
- **Nam** – accentedness: 5.62, intelligibility: 3.94

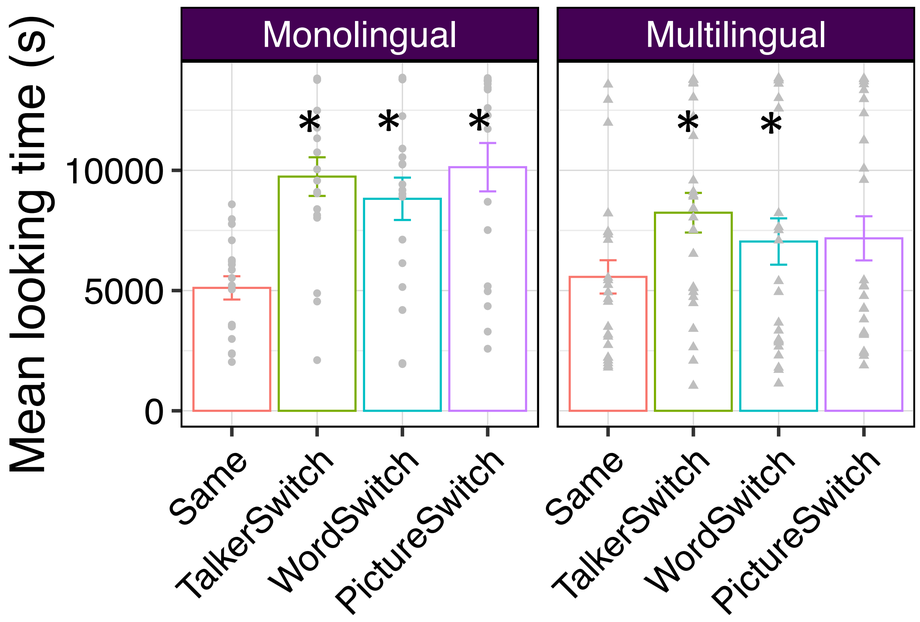


TalkerSwitch = new male talker
AccentSwitch = new female talker with Spanish accent

(3) Results

(* = significant increase from "Same")

Experiment 1: New Talker



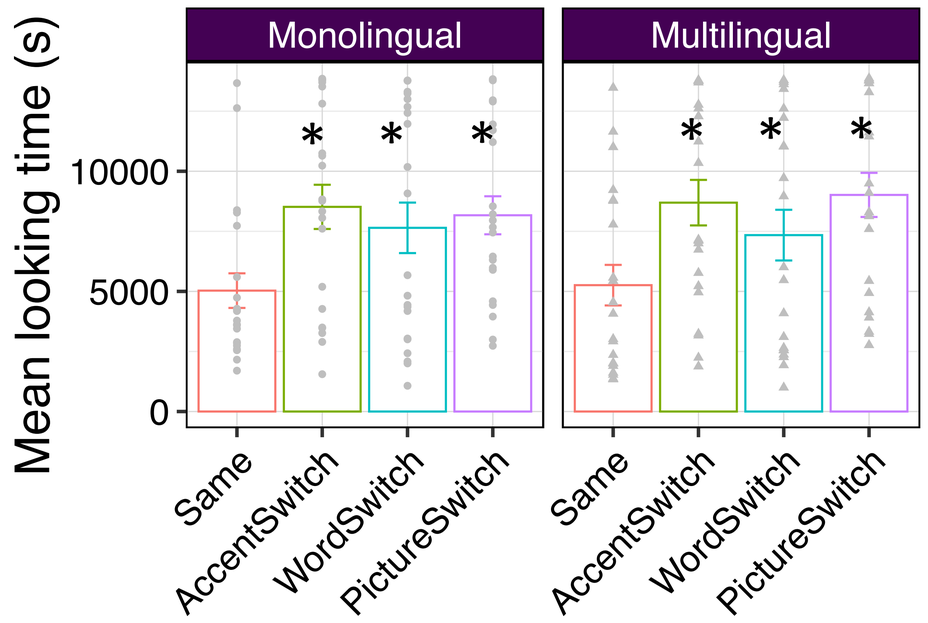
Experiment 1 Results:

Infants increase looking time to all Switch trials

No effect of language background on TalkerSwitch or WordSwitch (p>.05)

Language background effect for PictureSwitch (p=.033)

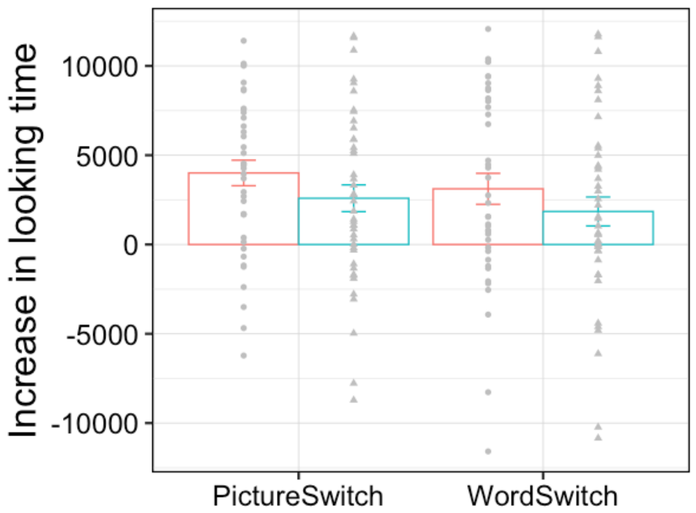
Experiment 2: New Accent



Experiment 2 Results:

Infants increase looking time to all Switch trials

No effect of language background on TalkerSwitch, WordSwitch or PictureSwitch (p>.05)



Exploratory Cross-Experiment Analysis:

No significant differences across groups in increases in looking time to PictureSwitch or WordSwitch, suggesting no difference in use of Mutual Exclusivity at this age

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(4) Conclusions

- Monolingual and multilingual infants exhibited difficulty recognizing newly learned words produced by new talkers (Exp 1) and new accents (Exp 2)
- Across experiments, both groups appropriately reject breaks to the word-object link (WordSwitch and PictureSwitch)
- Exposure to (Spanish) accented speech does not change pattern on AccentSwitch trial
- Percent English exposure not related to increases in looking time
- **Multi- vs. mono-lingual exposure does not shape word recognition for newly-learned words in the lab, as tested here**

Citations

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