Can a MAN be a MON?

Toddlers' Spoken-Word Familiarity Preferences in Native Versus Nonnative Dialects

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Précis

This experiment tested the idea that vocabulary growth facilitates a shift from use of phonetic information to use of phonological structure in toddler word recognition. Two ages participated, 20 toddlers aged 14 months and 20 toddlers aged 19 months. We employed a Conditioned Visual Fixation Serial Preference Procedure with familiar versus unfamiliar word sets in the native dialect (Connecticut English) versus a nonnative dialect (Jamaican English), which differ in vowels, consonants, and prosody. Following our predictions, dialect variation affected listening preferences differently in younger vs older toddlers. Both ages preferred familiar over unfamiliar words in the native dialect, but only older toddlers showed this preference in Jamaican English. Thus, older toddlers appear to have recognized familiar words despite dialectal variations, suggesting the emergence of more abstract phonological knowledge, but the younger toddlers' preference for familiar words was limited to their native phonetic patterning.

Background

What information do children use to recognize their first words? How does this change over development?

- At 14-15 months:
  - Expressive vocabulary ≈ 10-25 wds (average)
  - Some sensitivity to phonetic details in familiar words - faster fixation to BABY than mispronounced VABY (Swingley, 2003)
  - Phoneme changes in newly-learned words go unnoticed (BIH-DIH; Stager & Werker, 1997)
- At 19-20 months:
  - Expressive vocabulary ≈ 50+ wds (average)
  - Word learning more rapid and stable
  - Even new words show more complete phonetic specification (Werker et al. 2002)

Do older toddlers' words have stable *phonetic* specifications, or is the developmental progression better described as a transition from concrete *phonetic* to abstract *phonological* information (Brown & Matthews, 1997)?

By exploiting the natural phonetic and phonological variation that is present in dialects of the same language, we hypothesize:

- Younger toddlers recognize words as phonetic patterns which may be fairly detailed but which are, at best, underspecified phonologically. If so, they may not recognise familiar words spoken in a nonnative dialect.
- Older toddlers have better phonological specification in known words. If so, they have learned to ignore irrelevant phonetic variation and will recognise familiar words in the nonnative dialect.

The Key Question

- Do children on the brink of language recognize familiar words as global 'sound shapes,' as specific phonetic patterns, or as abstract phonological structures?

Method

Participants: 20 Toddlers aged 13.5-15.5 months
20 Toddlers aged 18.5-20.5 months

Stimuli: 12 Familiar and 12 Unfamiliar Words:

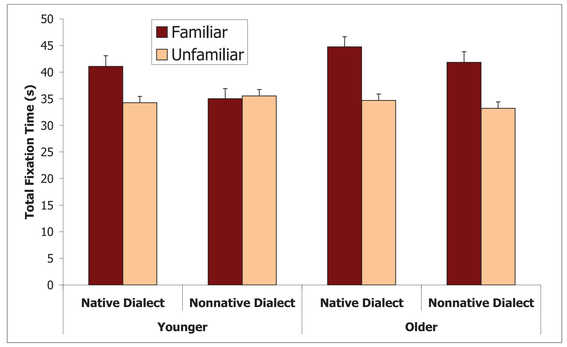
- All bisyllabic trochees.
- Stressed syllables used one of Connecticut Eng /ɪ ɛ ʊ æ ɑ ɔ/, which are realised differently in ...
- Jamaican Eng: /ɪ ɛ ʊ/ → /i e u/ and /æ ɑ ɔ/ → /ɑ/
- Familiar words > 50% in early toddler vocabularies (MacArthur CDI; Rescorla et al., 2001).
- Unfamiliar words < 2 per million word frequency (Kucera & Francis, 1967)
- Stimuli were produced by a female Connecticut English speaker, and a female Jamaican Mesolect English speaker from Montego Bay.

Procedure: Toddlers completed two tests (counterbalanced), one per dialect. In each test, randomized lists of familiar versus unfamiliar words, within a given dialect, were played from a loudspeaker only when the toddler fixated upon a coloured checkerboard. Four trials each of familiar and unfamiliar words were presented in alternation.

Results

The data were analysed using a 2 (Age) x (2) Dialect x (2) Familiarity ANOVA.

- There was an overall main effect of Familiarity, $F(1,38) = 5.27$, $p < .05$, indicating a listening preference for the familiar word lists.
- No other main effects or interactions were significant.



We also conducted separate ANOVAs for each age group to investigate the locus of the familiarity effect:

- Older Toddlers:
  - Main effect of Familiarity, $F(1,19) = 4.60$, $p < .05$.
- Younger Toddlers:
  - No main effect of Familiarity

It may also be enlightening to consider the data split by the Dialect factor:

- Native Dialect (Connecticut English)
  - Main effect of Familiarity, $F(1,38) = 5.34$, $p < .05$.
- Nonnative Dialect (Jamaican English)
  - No main effect of Familiarity

Summary:

While the familiarity effect was significant overall, the breakdown analyses show that it was reliable only when the comparison involved the native dialect or the older group of toddlers.

Conclusion

Although interpretation of these initial findings must be tentative, results appear to support the notions that:

- Young todders recognise words according to their physical details - their specific phonetic form.
- Older todders have overcome the problem of structural invariance, i.e., they recognise familiar words spoken even in a nonnative dialect.

What might explain this developmental progression? We argue that both phonetic and phonological levels need to be taken into account. Younger toddlers may have *over*specified phonetic knowledge and, at the same time, *under*specified phonological knowledge. Older toddlers, by contrast, have begun to develop more fully specified abstract phonological knowledge.

Perhaps the strongest contribution of this study is its introduction of the novel, ecologically valid approach of using natural dialect variation. We believe that this approach can contribute to ongoing debates of how children use phonetic details for the acquisition of native-language phonology.

Future Directions

Age can be seen as a proxy, here, for a variable of deeper linguistic interest: vocabulary size. Variation in expressive vocabularies of the two ages could have increased performance variability on the task. Future studies should categorize children according to vocabulary size, or language development, rather than age, *per se*.

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