



# Contributions of the Home Environment to Early Disparities in Language Development

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in Collaboration with the PASS Network.

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## Introduction

- Phonetic discrimination is a process by which infants perceptually tune to discriminate phonemes of their native language(s), and lose the ability to discriminate phonemes of non-native languages, between 6 and 12 months of age<sup>1</sup>
- Large individual differences are present in this process at 9 months<sup>2</sup>, yet the source of these differences is undetermined
- Infants who undergo this process at an earlier age develop stronger language skills in later childhood<sup>3</sup>
- Environmental contexts (such as SES and child-directed language) have been shown to affect language development<sup>4</sup>, and could account for differences in phonetic discrimination<sup>5</sup>

## Hypotheses

- Socioeconomic disparities will account for individual differences in phonetic discrimination at 9 months, such that children from lower SES homes would have higher phonetic discrimination ratios (indicating continued discrimination of non-native phonemes)
- Disparities in quality of the home environment will account for individual differences in phonetic discrimination at 9 months, such that higher HOME scores would relate to lower phonetic discrimination ratios
- Phonetic discrimination score at 9 months will predict language ability at 15 months

## Discussion & Limitations

### Home environment, but not SES, is related to phonetic discrimination at 9 months

- SES may not be a sensitive enough measure to detect differences in this early skill
- We must examine proximal factors rather than broad measures like SES in order to understand disparities in development

### Children from linguistically richer homes at 15 months were more tuned to their native language at 9 months, regardless of general language ability

- A limitation of this study is that home environment was not assessed at the same time as phonetic discrimination
- However, we can hypothesize that home environment engenders earlier perceptual tuning rather than vice versa

### Implications for later language development

- Earlier findings about phonetic discrimination predicting later language were not replicated, though we found a trend ( $p=.09$ )
- Previous research has often used different methods of measuring language, which relied on potentially biased parental reports of vocabulary

## Methods

### Participants

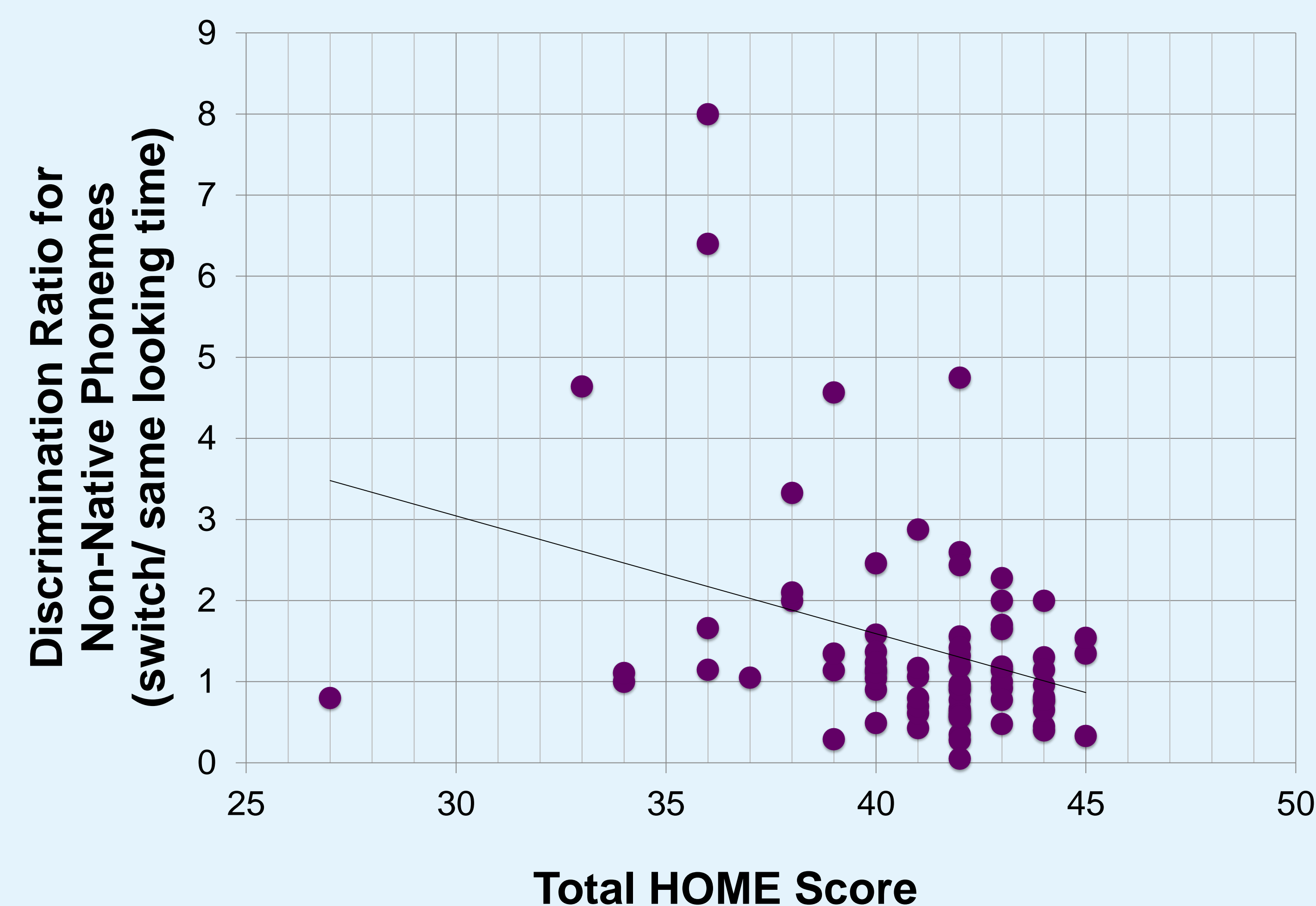
- 75 full-term monolingual infants (27 male)
- Recruited from a cohort of participants enrolled in a large longitudinal study

### Measures

- Phonetic discrimination:** non-native contrasts presented while looking-time (every 0.2 seconds) was recorded at 9 months
  - Habituation to one of the nonnative phonemes
  - Additional 14s of the habituated phoneme ("same" trial)
  - 14s of the novel phoneme ("switch" trial)
  - Ratios above 1.0 indicate preferential looking during the "switch" trial relative to the "same" trial
- Preschool Language Scale 4:** measure of expressive and receptive language, measured at 9 and 15 months
- Infant-Toddler HOME Inventory:** assessed the quality of child's home life and environment at 15 months
- Socioeconomic Status Questionnaire:** parent-report items on education, income, family size, administered at 15 months

## Results

### Phonetic discrimination scores were related to HOME scores but *not* SES



This correlation remained significant when controlling for expressive language at 9 months, rendering it less likely that children with better language skills at 9 months were simply engendering richer home environments at 15 months ( $\beta = -.32$ ,  $t = -2.99$ ,  $p = .005$ ).

## References

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