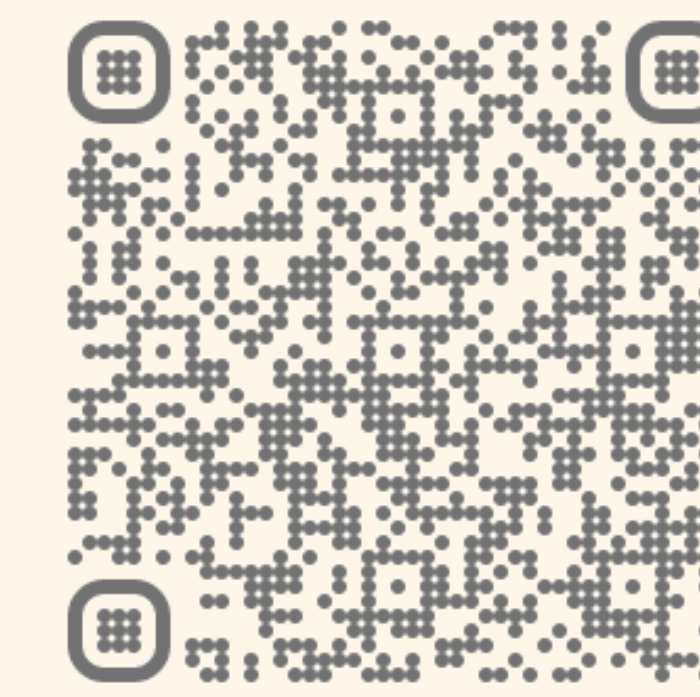


How the Visual World of Picture Books Supports Word Learning: A Multi-Methodological Approach

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INTRODUCTION

- Studies show picture book reading helps learning ¹
- We know a lot about how the linguistic world of picture books might help learning ^{2, 3}
- The goal of this study is to analyze aspects of the visual world of picture books that have been implicated in early word learning
- We analyze the visual world of picture books through two well-established methods of studying the role of the visuo-referential world of child-directed speech
 - I. Word-reference co-presence ^{4, 5}
 - II. The Human Simulation Paradigm ^{6, 7}

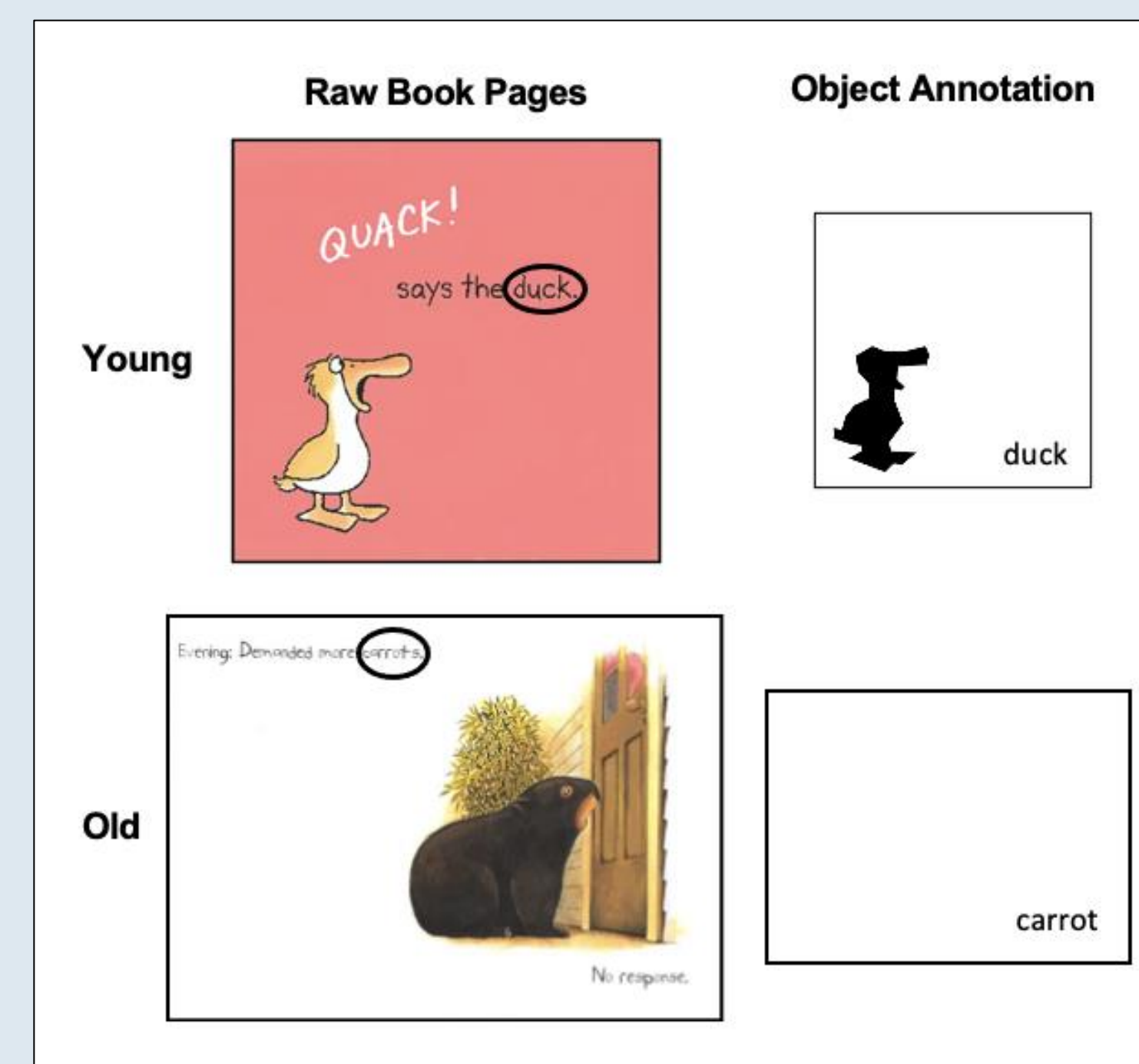
Research Objectives:

- To investigate the nature of visual referential transparency:
 - I. In picture books targeting younger and older children across two methods
 - II. For words varying in age-of-acquisition

STUDY 1: Corpus Analysis of Picture Books

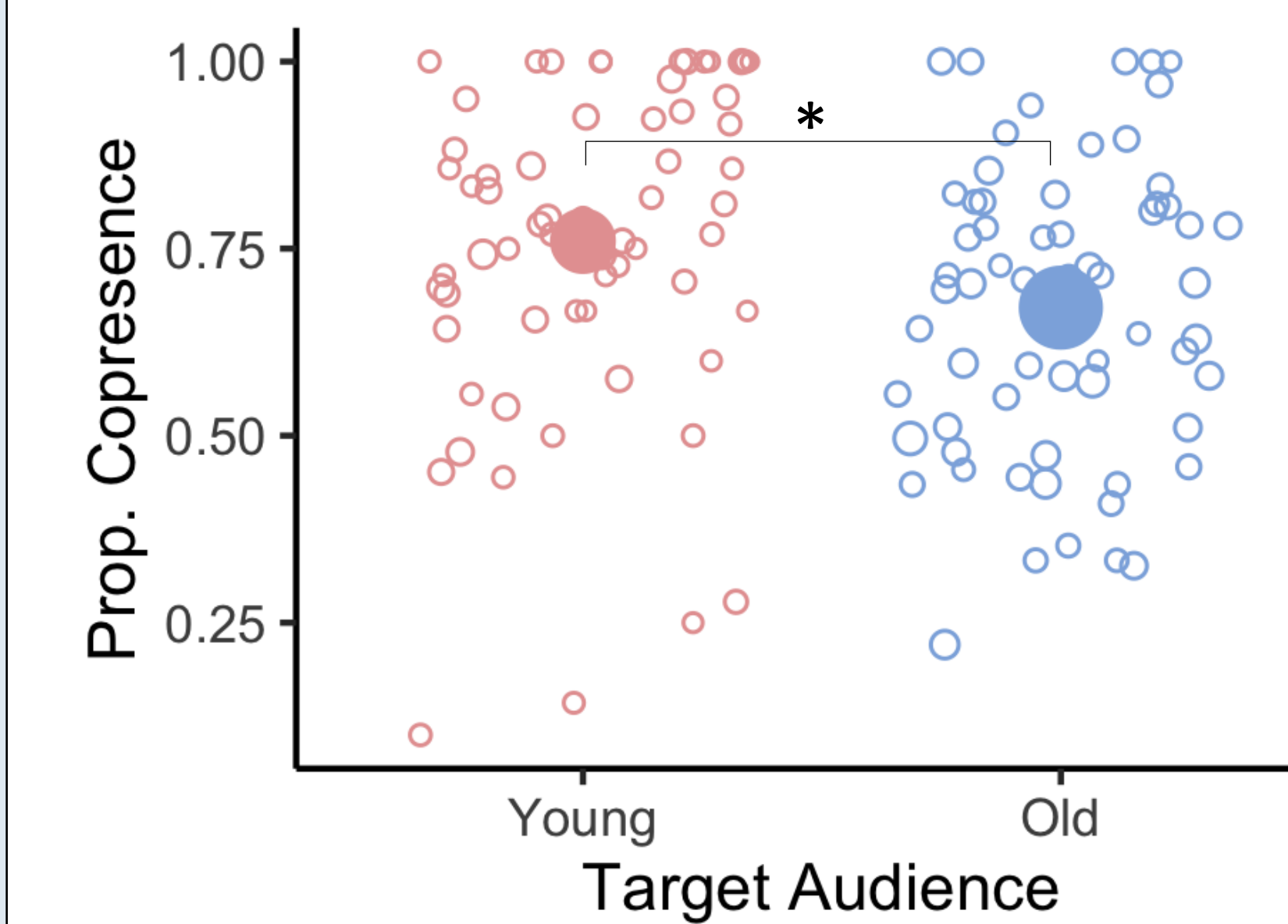
Method

- 64 young books (i.e., targeting 0-3-year-olds)
 - 1136 noun events
- 63 old books (i.e., targeting 4-8-year-olds)
 - 2250 noun events
- Metric: word-reference co-presence (book-level)

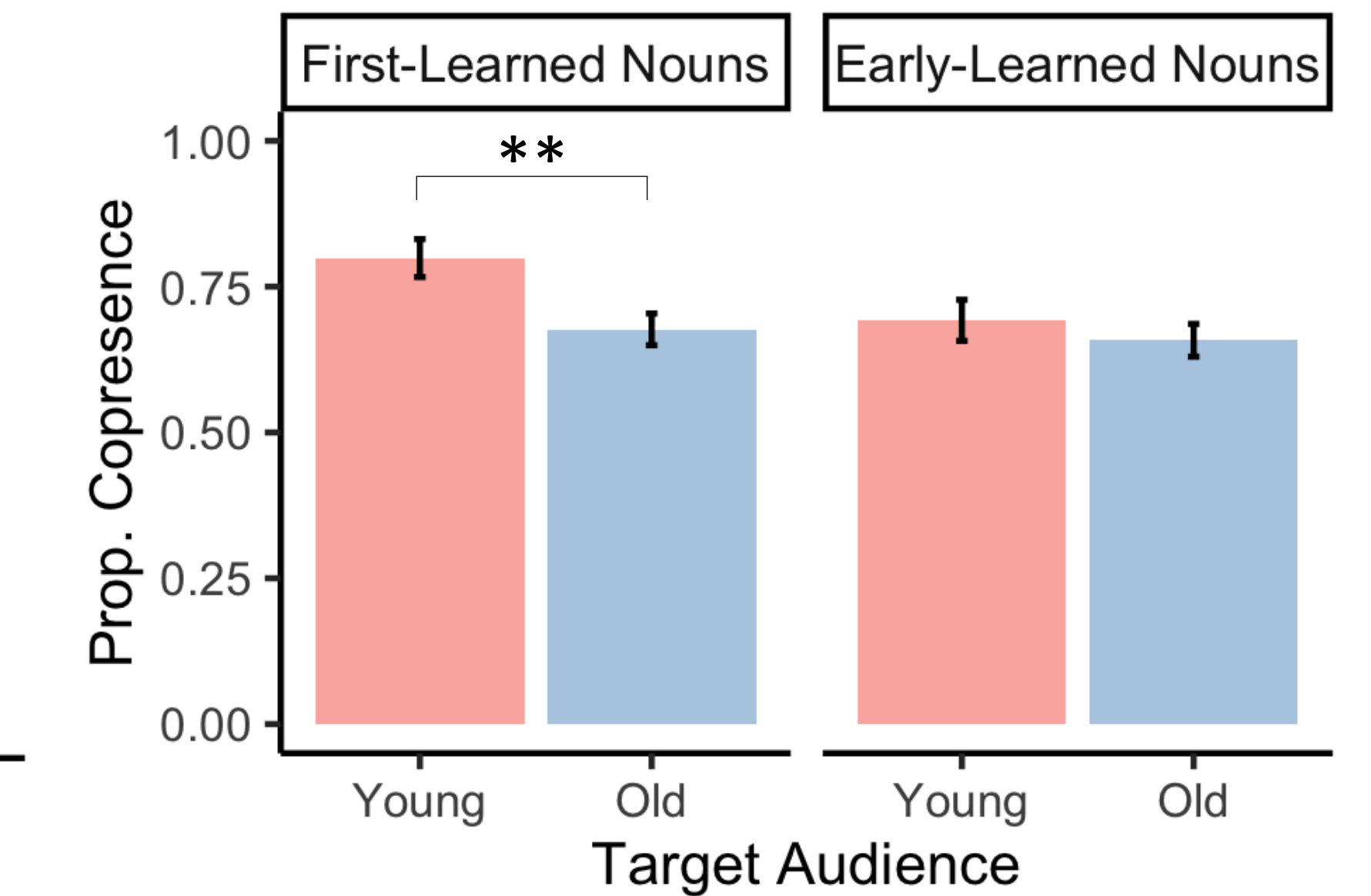


Results

(A) Mean co-presence across target audiences



(B) Mean co-presence across target audiences and ages of acquisition



- Higher co-presence in the younger books than the older books, $t(124) = 2.41, p < 0.05, d = 0.43$

- The target audience effect was driven by first-learned nouns, $t(117) = 2.88, p < 0.01, d = 0.52$

STUDY 2: Picture Book-Adapted Human Simulation Paradigm (HSP)

Method

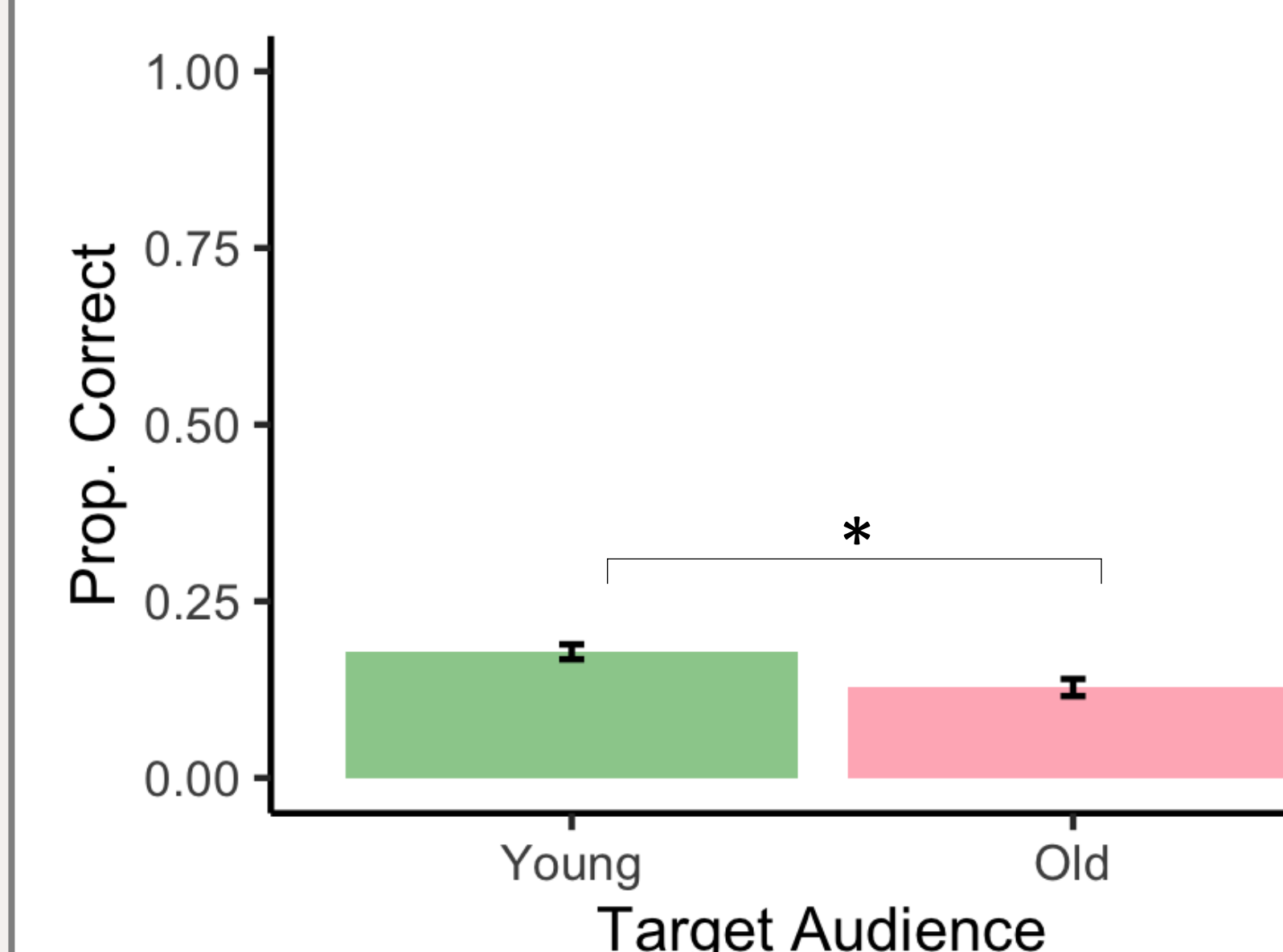
- 32 undergraduates
- Task: guess the noun best fitting the page
- Stimuli: 40 target nouns (e.g., bird, eye, boy)
 - All text removed from pages
- Example stimuli pages for the target 'eye'



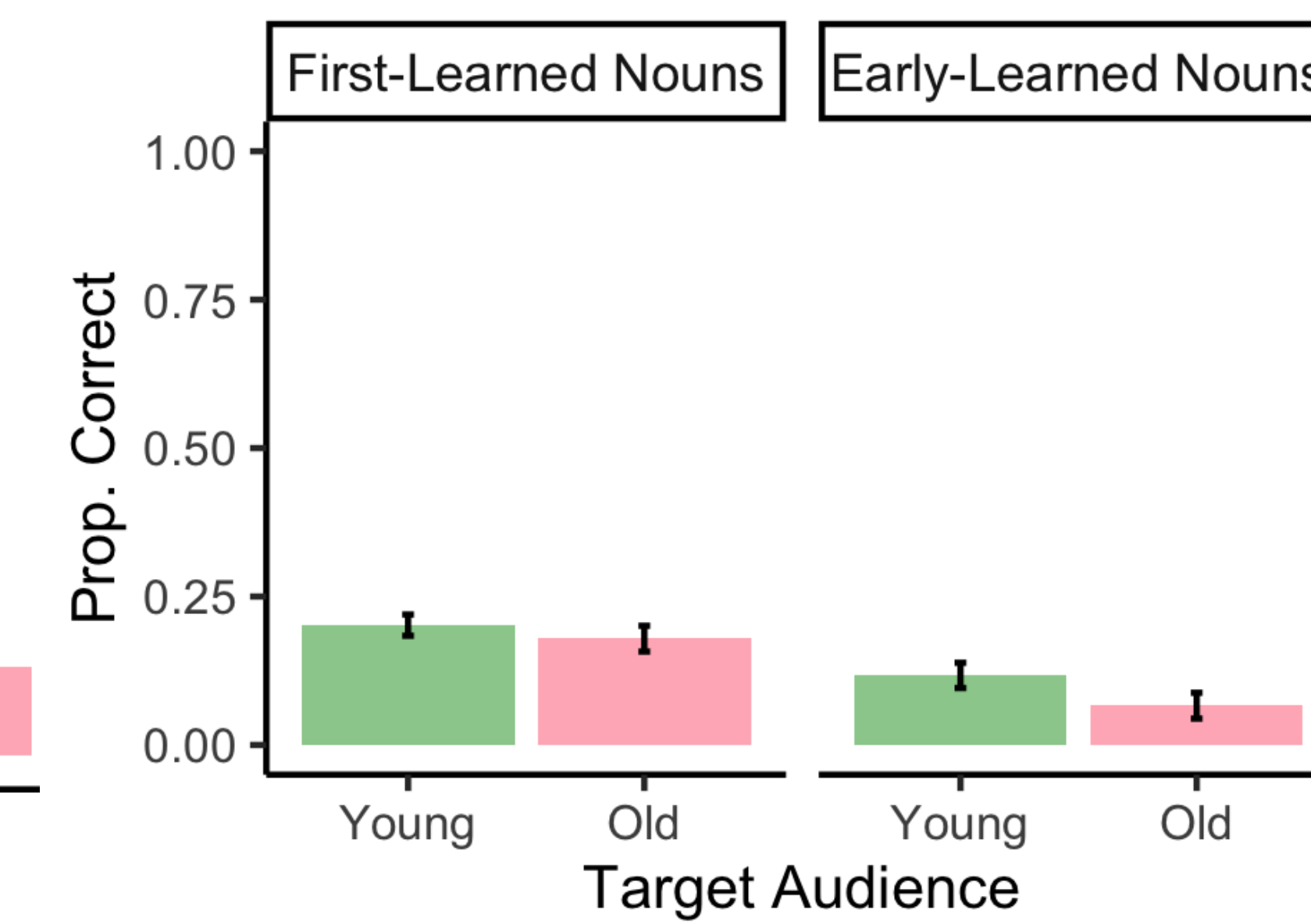
- For each noun, four stimuli were created:
 - 2 instances from books targeting 0-5-year-olds ("Young" Books)
 - 2 instances from books targeting 3-8-year-olds ("Old" Books)
- Metric: HSP accuracy (participant-level)

Results

(C) Mean identification performance across target audiences



(D) Mean identification performance across target audiences and ages of acquisition



- Higher accuracy for young books than the old books, $t(31) = 2.13, p < 0.01$
- Noun type did not explain target age effects, p 's > 0.10

DISCUSSION

- Picture books are regarded as an invaluable tool for learning ¹
- Our multi-method approach highlights how picture books' visual input is coarsely tuned to young learners
- Results suggest that metrics can shape conclusions about referential transparency trends
- This work therefore advances our understanding of
 - The visual world of picture books
 - How picture books could support early word learning

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