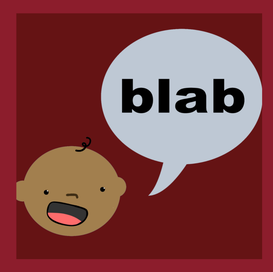
Validity of the MacArthur-Bates Communicative Development Inventory in Blind Children

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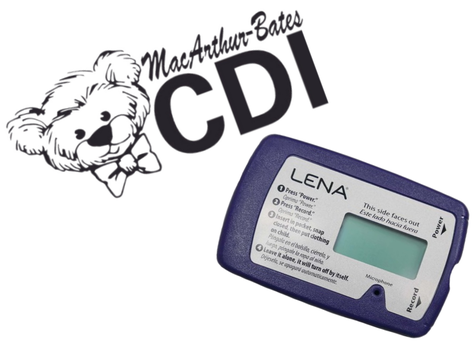
INTRODUCTION

Background

- Visual information supports early word learning and language development (Baldwin, 1991; Yurovsky et al., 2013; Weikum et al., 2007)
- Blind children still develop largely typical spoken language skills (Landau & Gleitman, 1985; Bedny et al., 2019)
- Visual demands of some traditional language assessments → parent report acts as a complementary measure (Fernald et al., 2008; Marchman & Dale, 2023)

The MacArthur-Bates Communicative Development Inventories (CDI)

- Widely used parent-report measure of early language development (Marchman & Dale, 2023; Fenson et al. 2007)
- Validated across languages and several clinical populations (Thal et al., 2007; Luyster et al., 2007; Galeote et al., 2016; Caselli et al., 2020)
- Limited evidence regarding validity in blind children (Campbell et al., 2025)



Research Question:
Do parent-reported productive vocabulary scores on the CDI correlate with measures of language production in home recordings of blind children?

METHODS

Participants

- **17 Blind children (18 recordings) 6.4–43.6 mo (M = 17.7 mo)**
- **13 Sighted children (14 recordings) 7.1–43.8 mo (M = 19.0 mo)**
- Matched on age, gender, maternal education, number of siblings

Parent-reported Vocabulary

- Parents completed the appropriate CDI for their child based on age
- Productive vocabulary scores were log-transformed (ln[CDI words produced + 1]) to account for distributional skew.

Naturalistic Language Production

- 16-hour LENA home recordings
- Selected regions were transcribed + hand-coded
- Avg. 60-70 minutes coded per child

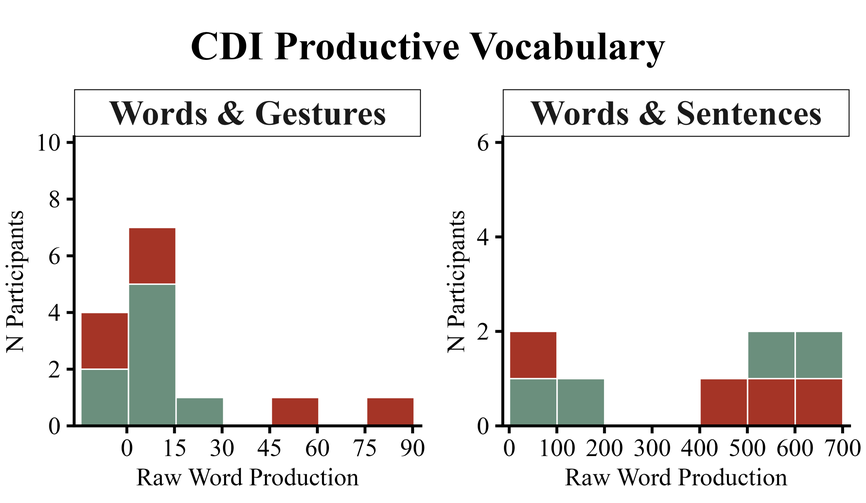
Total Minutes Coded

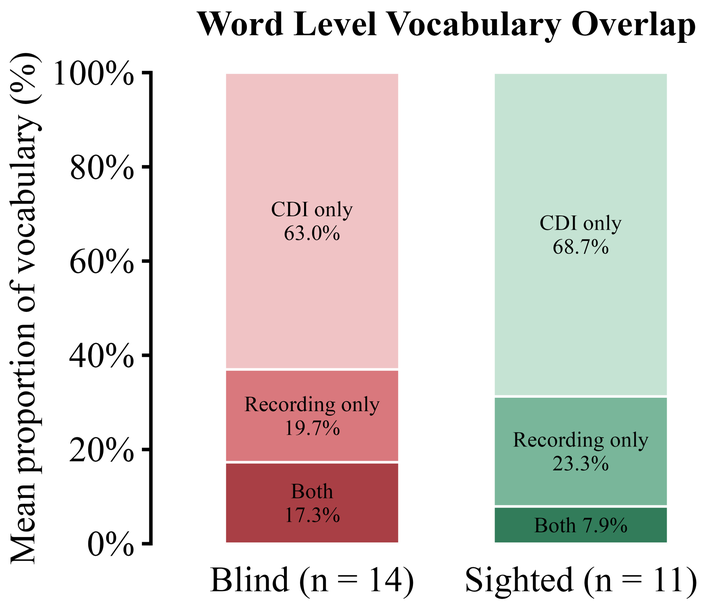
Blind	Sighted
1,350 min	1,010 min

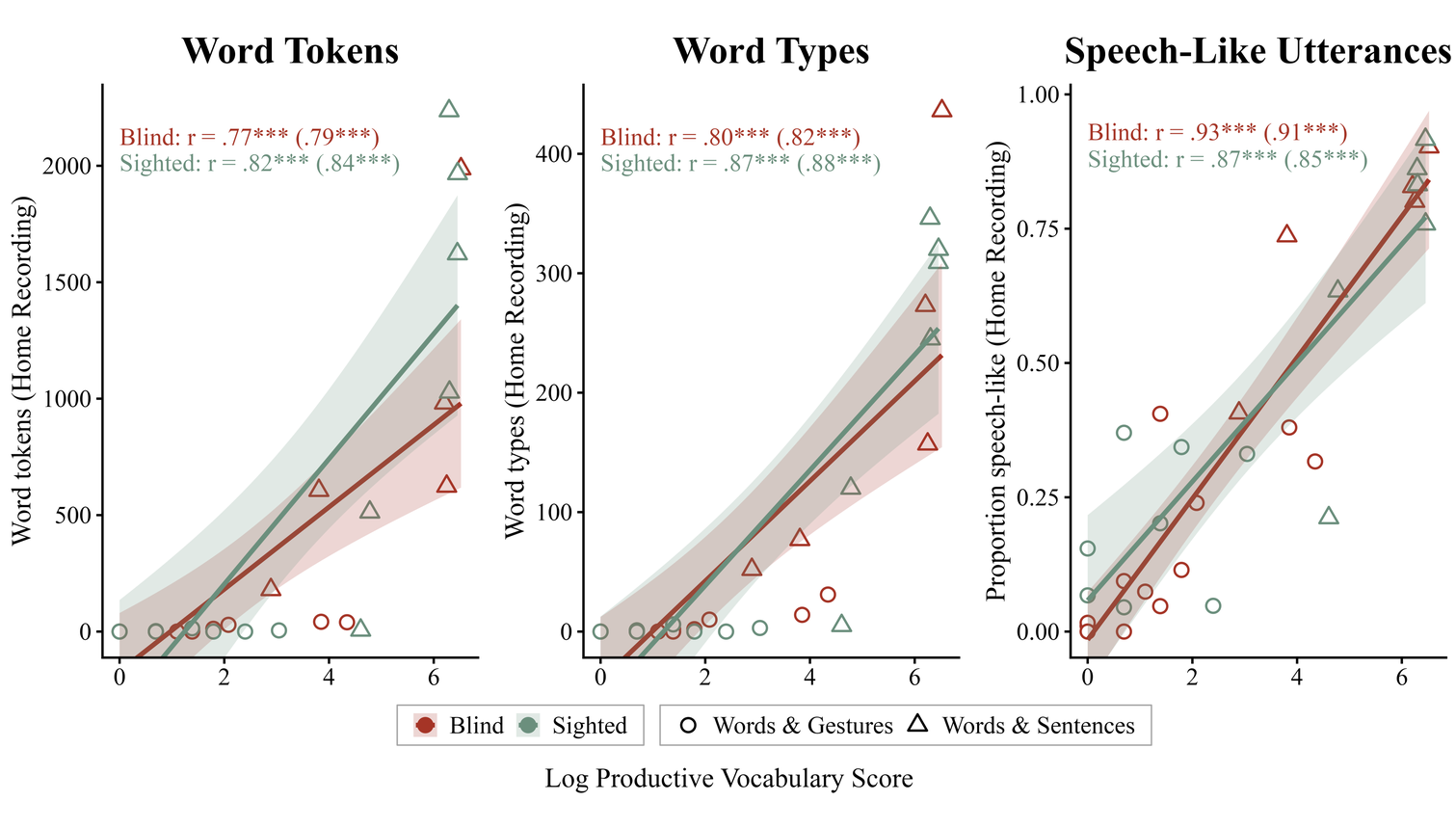
Do children with larger parent-reported productive vocabularies also produce...

- More words overall (word tokens)?
- More distinct words (word types)?
- A greater proportion of speech-like utterances (babble, single words, and multi-word speech)?

RESULTS







- Strong positive correlations between CDI productive vocabulary and naturalistic word tokens, word types, and speech-like utterances in both groups
  - Maintained after excluding children with zero reported and recorded word production
- Within-child vocabulary overlap was limited → most unique word types appeared only on the CDI (blind: 63.0%; sighted: 68.7%)

DISCUSSION & FUTURE WORK

- Current correlations in blind children comparable to those previously reported between CDI scores and observed language production for sighted children ($r \approx .75$) (Bates et al., 1988; Beeghly et al., 1989)
- Findings in line with prior work on vocabulary composition similarities in blind and sighted children with matched vocabulary size (Campbell et al., 2024)
- Small & uneven sample size limits precision
- Future work → extend validation to additional CDI measures (morphology, utterance length) using naturalistic language samples

CONCLUSIONS

- Strong positive correlations across groups → comparable parental reporting of productive vocabulary in blind and sighted children
- Extends CDI validation research to blind children, supporting its use as a valid measure of early productive vocabulary

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