# Socioeconomic Differences in Vocabulary, Syntax, and Process at Age Two: Assessment with Baby QUILS

Dani Levine[1], Rosalie Odean[2], Haley Weaver[1], Hannah Puttre[2], Emily Jackson[3], Rachael McCollum[3], Lauren Stites[1], Kathy Hirsh-Pasek[1], Roberta Michnick Golinkoff[2], Jill de Villiers[3], Aquiles Iglesias[2]

[1]Temple University, [2]University of Delaware, [3]Smith College

## INTRODUCTION

**Are there SES differences in two-year-olds' language skills on a newly developed tablet-based screener?**

- Early language skills: foundational for academic and social success (Pace et al., 2019).
- Large SES differences in language skills by age 3 (Dollaghan et al., 1999; Levine et al., in press).
- Prior to age 3, SES differences found in language production (Hart & Risley, 1995; Vasilyeva et al., 2008), however:
  - Children understand more than they produce (Golinkoff et al., 2013).
  - Production alone is poor predictor of language impairment (Ellis & Thal, 2008).
- Need to identify children *early* for risk of language impairment.
- Based on Quick Interactive Language Screener™ (QUILS™; Golinkoff et al., 2017) for ages 3-5, we designed a tablet-based language screener measuring 2-year-olds':
  - Vocabulary ⎤ Product: the language
  - Syntax     ⎦ children know
  - Process: how children learn new language items

## PARTICIPANTS

- 98 children were tested on Baby QUILS
  - $M_{age}$ = 29.8 months, SD = 2.9
  - 51 girls, 47 boys
  - 30 Low SES, 68 Mid SES
  - SES based on primary caregiver education
    Mid SES: ≥ Bachelor's Degree
    Low SES: < High School—Associate's Degree

## PROCEDURE

| | PRODUCT | PROCESS |
|---|---|---|
| VOCABULARY | NOUNS | |
| | ADJECTIVES | |
| | VERBS | NOUN LEARNING |
| | PREPOSITIONS | ADJECTIVE LEARNING |
| SYNTAX | WH-QUESTIONS | VERB LEARNING |
| | NEGATION | |
| | REVERSIBLE TRANSITIVES | |
| | REVERSIBLE PREPOSITIONS | |

### ADJECTIVES



*Which one is cold?*

### NEGATION
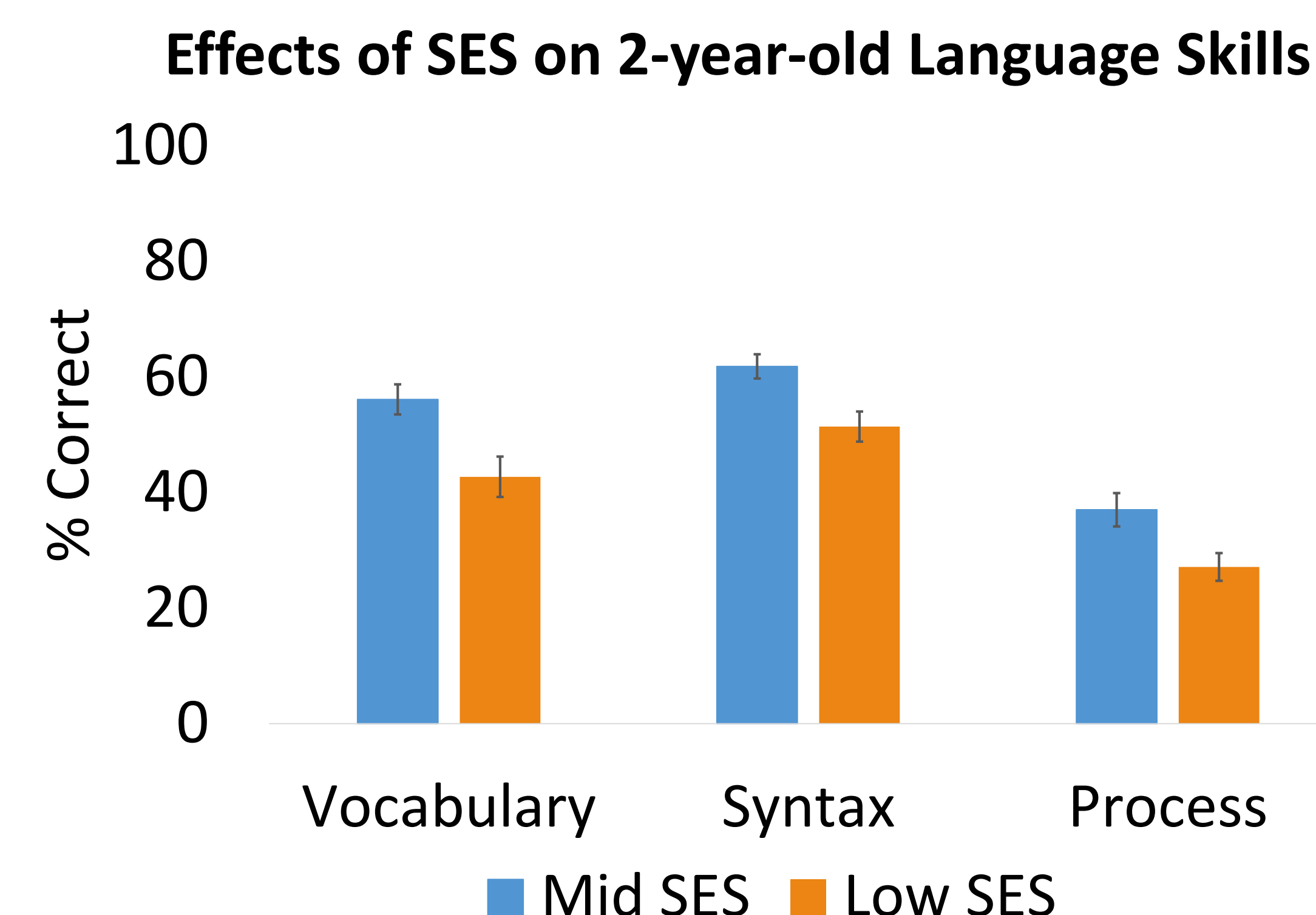


*Who is not eating the food?*

### NOUN LEARNING



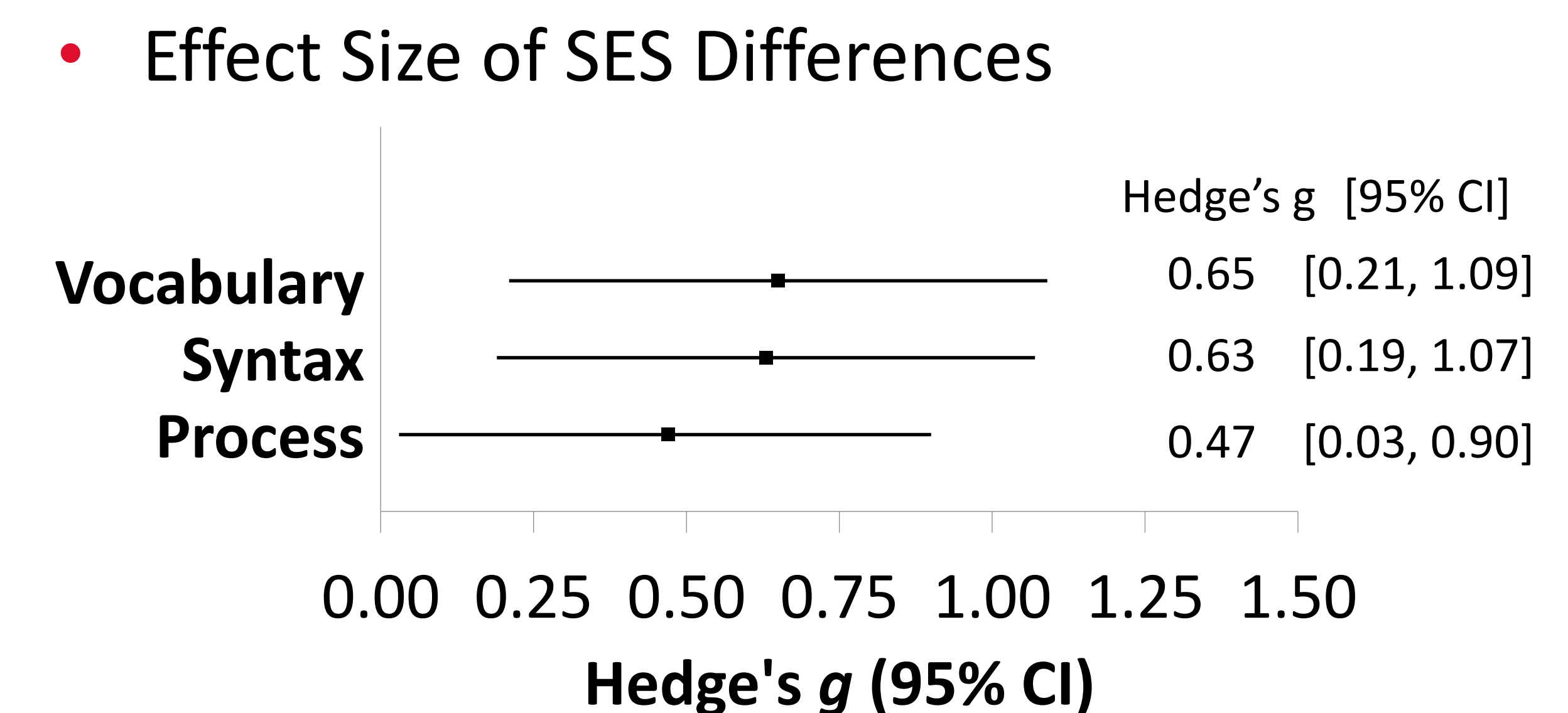*Can you find the tulp?*



*Can you find another tulp?*

## RESULTS

- MANCOVA with factors Gender, SES, and covariate age
  - No gender effects or interactions
  - SES differences on Vocabulary, Syntax, and Process ($p$s < .01)



**Effects of SES on 2-year-old Language Skills**

## RESULTS (CONT.)

- Effect Size of SES Differences



| | Hedge's g | [95% CI] |
|---|---|---|
| Vocabulary | 0.65 | [0.21, 1.09] |
| Syntax | 0.63 | [0.19, 1.07] |
| Process | 0.47 | [0.03, 0.90] |

**Hedge's g (95% CI)**

## DISCUSSION

- Magnitude of SES differences is smaller for 2-year-olds on Baby QUILS vs. 3- to 5-year-olds on QUILS™ for Vocabulary (Hedge's g = 1.06), Syntax (Hedge's g = 0.93), and Process (Hedge's g = 0.94) (Levine et al., in press).
  - Consistent with widening SES differences in language production from age 2 to 3 (Hart & Risley, 1995; Vasilyeva et al., 2008).
- Language interventions for children from low SES families may be more effective if they:
  - Begin earlier, when differences are smaller.
  - Consider language system as a whole.
- Baby QUILS could revolutionize early language assessment and inform interventions aiming to mitigate SES disparities.

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