



INTRODUCTION

SLI in English-speaking children

- Delayed onset and significantly protracted growth of finiteness markers

•*He runs, He walked, He ran, He is running, They are running, He is happy*

Extended Optional Infinitive (EOI) Account (Rice et al., 1995)

- Variability is the byproduct of immature knowledge

Phonotactics (Leonard et al., 2007; Marshall & van der Lely, 2006)

- Explains past tense variability in SLI

Neighborhood Density

- Number of words that differ by one sound (Dense vs. Sparse)
- Correlated with age of acquisition (Garlock et al., 2003)
- Index the phonological quality of lexical representations (Storkel, 2002)
- Explains third person singular variability in typical development (Hoover, 2009)

Research Questions

- (1) Is neighborhood density a source of 3rd person singular variability for SLI? (Study 1)
- (2) Will increased exposure show neighborhood effects in learning for SLI? (Study 2)

STUDY 1: PRODUCTION

Participants

- 20 children ages 4;0 – 6;1 with SLI
- EOI profile (TEGI; Rice & Wexler, 2001; spontaneous language sample)
- Normal hearing
- Normal nonverbal intelligence (Reynolds & Kamphaus, 2003)

Stimuli

- 30 early acquired verbs
 - 15 dense (M = 15 neighbors)
 - 15 sparse (M = 7 neighbors)
 - Storkel & Hoover (2010); $t(28) = 4.41, p < .001$
 - Phonotactic probability, word frequency, syllable structure, age-of-acquisition, argument structure, final allomorph created by 3rd person singular allomorph balanced
- Sentences featuring 3rd person singular constructed around verbs for two tasks

1. Sentence Imitation: Children repeated 30 sentences

- 15 **DENSE**: The woman **KICKS** the ball
KICK: 21 neighbors
- 15 **SPARSE**: The woman **MOVES** the ball
MOVE: 5 neighbors

2. Spontaneous Elicitation: Children generated 30 sentences

- 15 scripts with a **DENSE** verb
- 15 scripts with a **SPARSE** verb

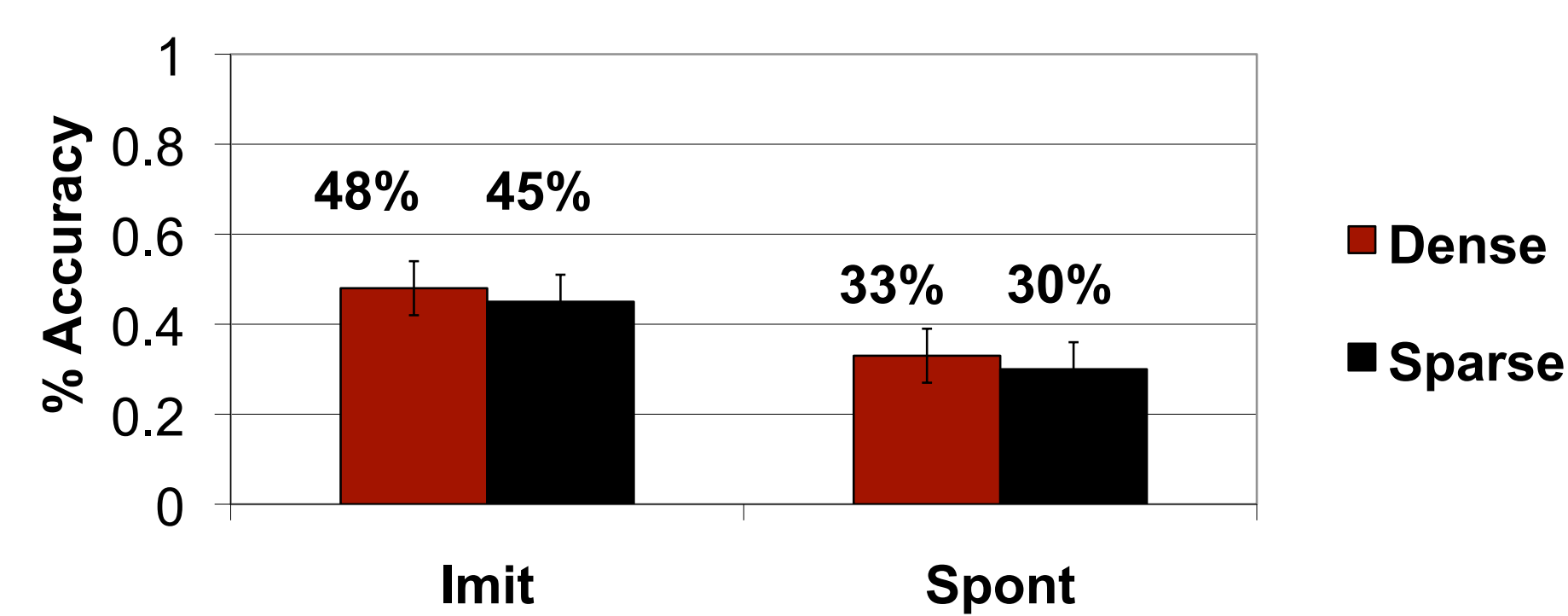
“Here is a woman and this is a ball. The woman’s job is to **KICK** the ball. Now you tell me what the woman does every day at her job. Every day she _____”



Dependent Variable: Third person singular % accuracy

Independent Variable: Neighborhood density (dense vs. sparse)

Analysis: 2 Density x 2 Task ANOVA



Primary Result

- Neighborhood density was not a source of variability for SLI
- Main effect of task only, $F(1, 19) = 5.64, p < .05, \eta_p^2 = .23$

Counter to:

- Typical development (Hoover, 2009)
- Phonotactics (Leonard et al., 2007; Marshall & van der Lely, 2006)

STUDY 2: TREATMENT

Participants

- 6 children ages 4;0 – 5;6 from Study 1

Stimuli

- 12 early acquired verbs
 - 6 dense (M = 13 neighbors)
 - 6 sparse (M = 6 neighbors)
 - $t(10) = 2.51, p < .05$
 - Selected and balanced following Study 1 procedures

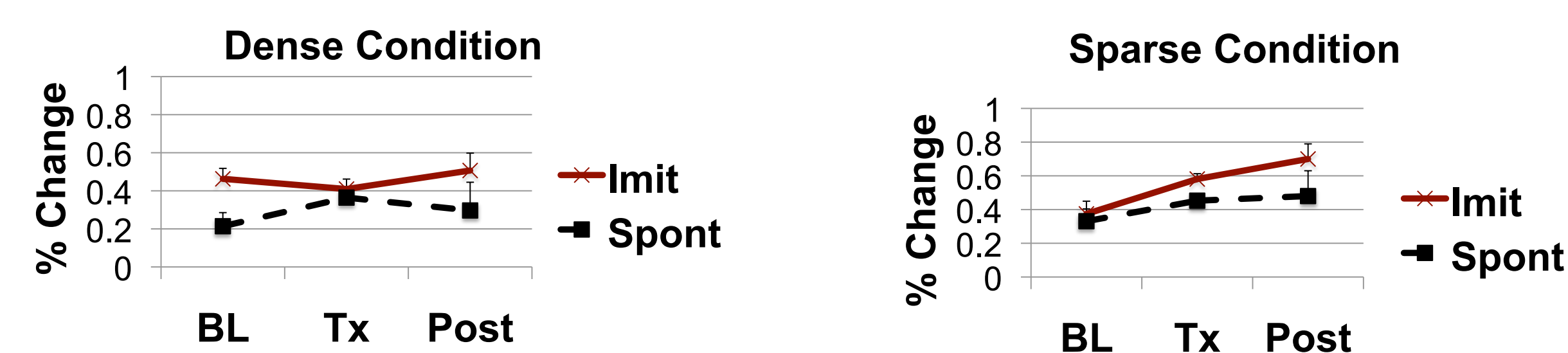
General Treatment Procedures

- Single-subject experimental treatment design
- Assignment to **DENSE** or **SPARSE** treatment condition
- No treatment baseline with repeated administration of Study 1 tasks
- 12 sessions of treatment
 - 72 exposures to third person singular with **DENSE** or **SPARSE** verbs
 - 864 total exposures across all 12 sessions
 - Auditory input, direct imitation and spontaneously elicited productions
- Post-treatment test using Study 1 tasks

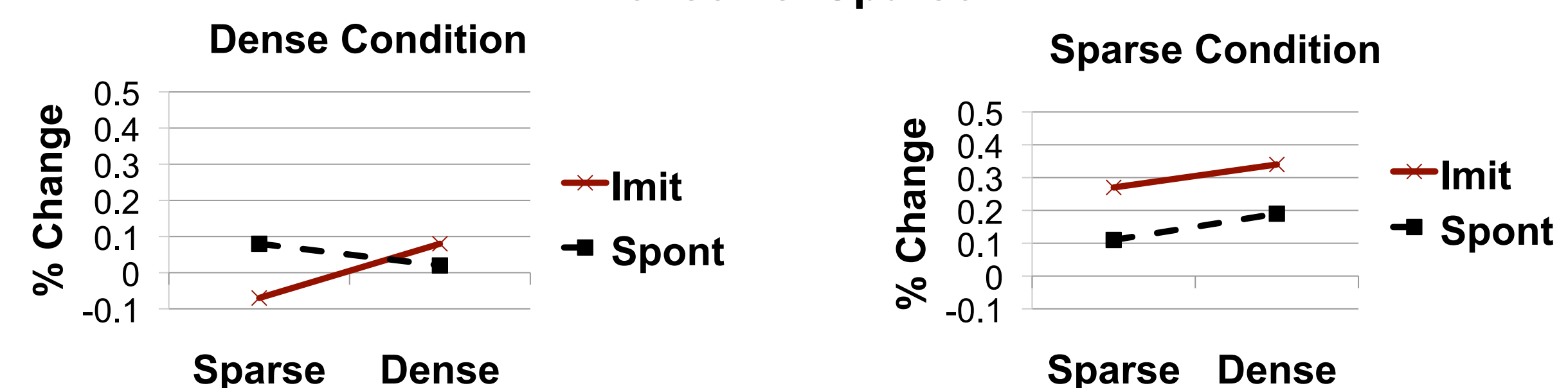
Dependent Variable

- Third person singular accuracy change for Study 1 Verbs

Third Person Singular % Change
All Verbs



Third Person Singular % Change
Dense vs. Sparse



DISCUSSION

Integrated Conclusions

- Limited exposure was insufficient to activate neighborhood effects (Study 1)
 - Immature knowledge for finiteness may overpower potential for effects
- Children with SLI are sensitive to neighborhood effects (Study 2)
 - Neighborhood effects may be delayed/emergent requiring repeated exposure
- Repeated exposure to sparse verbs showed:

- Greater overall third person singular change
- Pattern of post-treatment neighborhood effects mirroring typical development (Hoover, 2009)
- Recognition advantage for sparse verbs reduced variability in finiteness over time
- Emerging representation of sparse verbs more amenable to change

Limitations

- Neighborhood effects interact with phonotactics (Hoover et al., 2010)
- Large exposure discrepancy between Study 1 & Study 2
- Difference in paradigm for Study 1 vs. Study 2
- Generalizability to entire finiteness system is limited

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For more information please contact:

Jill Hoover

jillhoov@indiana.edu

http://www.indiana.edu/~sndlrng/hoover.html

