Slide 1

Context and task effects on
English past-tense marking:
The case of bilinguals

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PHONOLOGICAL TYPOLOGIES PROJECT

SAN DIEGO STATE UNIVERSITY

Language Development, Disorders & Diversity

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Slide 2

Morphophonology

- Phonotactic constraints impact surface structure of morphemes, leading to allomorphy
  - 3rd-person singular *-s* as *play*[z], *eat*[-s] or *kiss*[-əz]
  - past-tense *-ed* as *tie*[-d], *joke*[-t] or *hat*[-əd]
- Relevance to study of child language
  - acquisition of allomorphy
  - impact of phonology on morpheme accuracy
  - impact of morphology on phonological accuracy

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Slide 3

Effect of phonological context on morphological accuracy

- **Preceding context** impacts overt marking of plural, 3rd-person singular (3s), and past tense (PT) morphemes: stem-final V > C
  (Ettlinger & Zapf, 2011; Marshall & van der Lely, 2007; Polite, 2011; Pruitt & Oetting, 2009; Song, Sundara, & Demuth, 2009)
  - *cooked* /kʊk/ → [kʊk] and *cooks* [kʊk], but
  - *played* /pleɪd/ → [pleɪd] and *plays* [pleɪz]

- Conflicting findings:
  - V = C for plural (Theodore, Demuth, & Shattuck-Hufnagel, 2011)
  - C > V for 3s in AAE, for plural and 3s in MAE (Barlow & Pruitt-Lord, 2014)

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Slide 4

Effect of phonological context on morphological accuracy

- Less attention has been paid to **following context**
- Utterance-final > utterance-medial for plural and 3s
  (Barlow & Pruitt-Lord, 2014; Song et al., 2009; Sundara, Demuth, & Kuhl, 2011; Theodore et al., 2011)
  - e.g., *plays* vs. *plays a* vs. *plays the*

- Conflicting findings:
  - Utterance-medial = -final for plural in MAE (Barlow & Pruitt-Lord, 2014) and when stressed V follows plural (Theodore, Demuth, & Shattuck-Hufnagel, 2015)
  - C = V for plural (Polite, 2011) and plural, 3s in AAE (B & P-L, 2014)
  - V > C for 3s in MAE (B & P-L, 2014)

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Why conflicting results?

- Variation across studies may be attributable to…
  - Complexity of morpheme
  - Child demographics (linguistic background, age, typical/clinical)
  - Task and analysis
  - Inclusion/exclusion of specific following contexts

Barlow & Pruitt-Lord, 2014; Marshall & van der Lely 2007; Paradis, 2005; Polite, 2009; Pruitt & Oetting, 2009; Song et al., 2009; Sundara et al., 2011; Theodore et al., 2011

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Motivation for current study

- No known study has evaluated the effects of following context for the regular past tense morpheme in English
- Few studies have considered effects of task on the overt marking of morphemes
- Need for continued typological study of the impact of phonology on morpheme marking across different English-speaking child populations

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Current

- Evaluate past-tense morpheme accuracy in another population of children: Spanish-English bilinguals
  - Spanish has restricted final consonant inventory (ð s, l r, n), and no final clusters
- Consider preceding *and* following contexts
- Evaluate effects of task on performance

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Participants

- 12 typically developing Spanish-English bilingual preschool children
  - 6 girls, 6 boys
- Parent/teacher report confirmed English input and output

Characteristics (n = 12)	Mean	SD
Age (months)	52.75	3.67
Maternal education (years)	10.6	1.65
English Heard (%)	45.45	24.23
English Spoken (%)	34.17	25.03
Overall Development – ASQ	272.08	19.48
Nonverbal IQ-Leiter	11.64	1.85
KG Readiness – Lollipop Test	58.33	9.03
Vocabulary – PPVT-III	86.67	12.28
Syntax Quotient - TOLD	86.17	12.28
MLUw	3.32	0.37
Percent Intelligibility	93.00	7.75

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Data

- Spontaneous language samples
- Video elicitation probe (Pruitt & Oetting, 2009)
- Past-tense probe from *Test of Early Grammatical Impairment* (TEGI; Rice & Wexler, 2001)

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Spontaneous language sample (LS)

- Collected using standard set of toys and pictures
- Transcribed using Systematic Analysis of Language Transcripts (SALT) software and guidelines (Miller & Iglesias, 2004)
- Average of 195.5 (SD = 84.83) complete and intelligible utterances per child
- Average intelligibility was 93% (SD = 7.75)
- Phonetically transcribed using narrow IPA notation

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Video Probe

"Here the girl is coloring a picture. She is coloring a picture. Now she is done coloring a picture. Tell me what she did."

Probe items
- 21 Items (14 Regular, 7 Irregular)
- Analyzed regulars according to stem-final consonant (C) and vowel (V) and following context
- Phonetically transcribed using narrow IPA notation

Adapted from Pruitt & Oetting (2009)   11

TEGI past-tense probe

"Here the boy is brushing. Now he is done. Tell me what he did."

TEGI items
- 18 items (10 Regular, 8 Irregular)
- Analyzed regulars according to stem-final C and V and following context
- Phonetically transcribed using narrow IPA notation
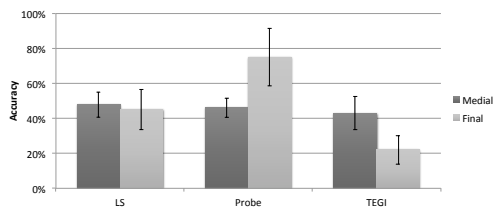
Adapted from Rice & Wexler (2001)   12

Analysis

- 218 forms analyzed in total based on SALT transcripts and phonetically transcribed forms
- Each regular verb form analyzed for accuracy on past-tense morpheme according to context:
  - preceding C or V
  - following C or V (for utterance-medial forms)
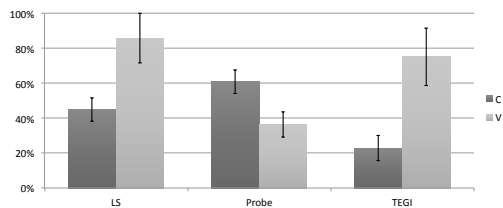
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Results
Overall accuracy: 44%

ME Task: $F_{(2, 212)}$ = 3.19, $p < .05$
Task x Position: $F_{(2, 212)}$ = 2.42, $p = .09$
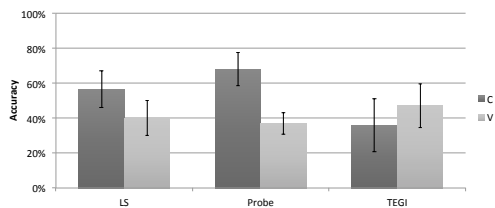
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Results:
Preceding context (e.g., *played* vs. *cooked*)

ME Context: $F_{(1, 197)}$ = 5.42, $p < .05$
Context x task: $F_{(2, 197)}$ = 9.86, $p < .05$

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Results:
Following context (e.g., *played a* vs. *played the*)

$p > .05$

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Summary

Preceding Context		Following Context	
LS	V > C	LS	C = V
Probe	C > V *	Probe	C = V
TEGI	V > C	TEGI	C = V

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Task item comparison

Lang Sample		Probe		TEGI	
bounced	stopped	bounced	chewed	brushed	(lifted)
bumped	touched	brushed	dried	jumped	(painted)
crashed	used	picked	fried	kicked	(planted)
dropped	washed	popped	glued	picked	
finished	cleaned	colored	played	cleaned	
fixed	happened	opened	showed	climbed	
helped	pulled	poured	tied	tied	
parked	turned				
popped	played		*stem-final segment:*		
pushed	tried		obstruent	sonorant	vowel

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Influence of Spanish?

- Recall, Spanish has a reduced inventory of coda consonants and no coda clusters
- Thus, we'd expect an even stronger effect of phonological context on accuracy, favoring preceding vowels

| Preceding Context		Following Context	
LS	V > C	LS	C = V
Probe	C > V *	Probe	C = V
TEGI	V > C	TEGI	C = V

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Implications

- Task can impact performance on morpheme accuracy, and even may obscure the role of phonology
- This may explain (in part) conflicting results across studies
- Following context may favor a consonant, contrary to prior findings
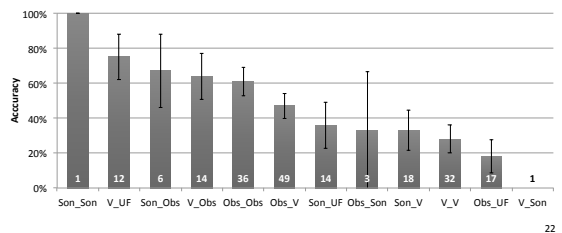- Conflicting results also may be due to need to consider global context

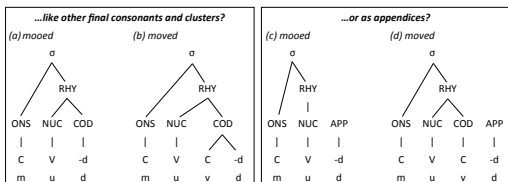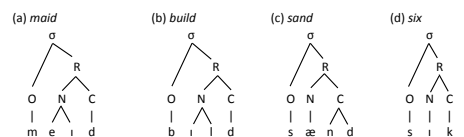| Preceding Context		Following Context	
LS	V > C	LS	C = V
Probe	C > V *	Probe	C = V
TEGI	V > C	TEGI	C = V

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Follow-up analysis of global context

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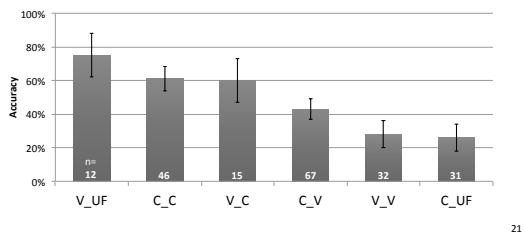
Follow-up analysis of global sonority context

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How are segmental morphemes syllabified?

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How are final consonants syllabified??

Booij, 1995; Dell, 1995; Ewen & van der Hulst, 2001; Selkirk, 1982; Wiltshire, 2006

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Future directions

- Evaluate global context
- Consider role of sonority and nature of syllabification of final consonants and clusters (mono- and bi-morphemic)
- Identify appropriate task(s) for manipulating these different contexts

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Thank you!

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