The Impact of Codeswitching on Bilinguals' Novel Verb Learning

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Introduction

- Bilingual children are exposed to new words in both single-language and codeswitched (i.e., mixed-language) contexts. Rates of codeswitching in child-directed speech vary widely but can be as high as 15% (Bail et al., 2015), yet the consequences of codeswitching for word learning are poorly understood.
- Existing work on codeswitched input has focused on the correlation between codeswitching exposure and language growth (Byers-Heinlein, 2013; Hoff et al., 2012; Place & Hoff, 2011) and the few existing experimental word learning studies have examined noun learning only (Byers-Heinlein et al., 2021; Tsui et al., 2023; Blair & Morini, 2023).
- Language ability may modulate the impact of codeswitching on word learning, but data is limited (Kaushanskaya et al., 2022).
- Verb learning is generally more difficult than noun learning (Imai et al., 2008), for children of all language abilities.
- The contexts that support initial word-referent mapping may differ from those that support iterative word learning (Storkel, 2001; Kaushanskaya et al., 2022).

Intrasentential codeswitch: Language switch occurs *within a sentence*	**Intersentential codeswitch**: Language switch occurs *between sentences*
"Mira al cat! A cat es un animal."	"Look at the cat! Un gato es un animal."

Research Questions

- Do bilingual children learn novel verbs (**Experiment 1**) and nouns (**Experiment 2**) better in single-language or codeswitched learning contexts?
- Does language ability modulate the impact of codeswitching on novel word learning (**Experiments 1 & 2**)?

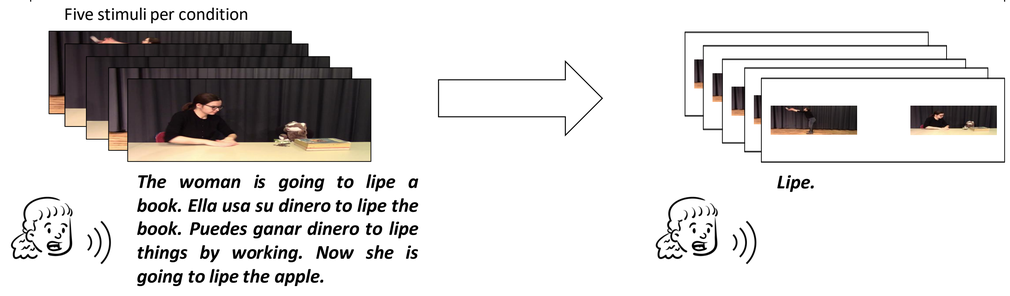
Participant Characteristics

	Experiment 1 (Verb learning)	**Experiment 2 (Noun learning; Recruitment ongoing)**
	Mean (SD)	**Mean (SD)**
Gender (Count)	13 girls, 12 boys	9 girls, 13 boys
Age at first session, years	5.01 (0.589)	5.10 (0.448)
Caregiver's total years of education	17.5 (4.20)	16.2 (4.21) *One missing*
Omnibus language ability[1]	102 (12.7) *Four < 85*	105 (10.8) *One < 85*
Spanish morphosyntax[1]	88.8 (16.7)	81.9 (14.3) *One missing*
Spanish semantics[1]	106 (11.4)	103 (14.4)
English morphosyntax[1]	96.2 (16.8)	97.9 (17.0)
English semantics[1]	96.0 (12.0)	99.9 (13.8)
Nonverbal intelligence[2]	105 (12.1)	101 (16.5)
Proportion Spanish language input[3]	0.533 (0.146)	0.510 (0.173)
Proportion Spanish language output[3]	0.516 (0.205)	0.472 (0.183)
Length of English Exposure	4.45 (1.35)	4.46 (1.19)
Language dominance (Count)	16 Spanish, 9 English	8 Spanish, 14 English

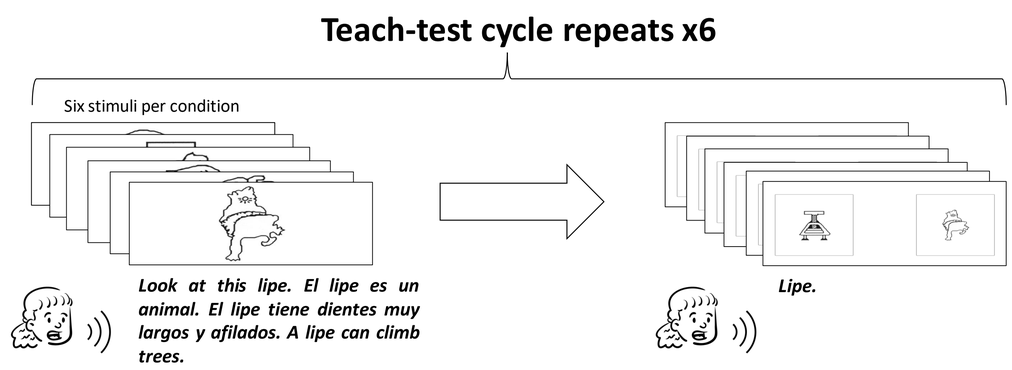
[1]Standard scores derived from the Bilingual English-Spanish Assessment
[2]Standard score derived from the Matrices subtest of the Kaufman Brief Intelligence Test, Second Edition
[3]Calculated as a proportion of all language input and output, as reported by caregivers on the Bilingual Input-Output Survey
[4]Determined through a five-factor scheme considering proportion input, proportion output, language-specific morphosyntax, language-specific semantics, and parent report
Note: Four children participated in both experiments; Two participated in Experiment 1 first and two participated in Experiment 2 first

Experimental Task

Experiment 1

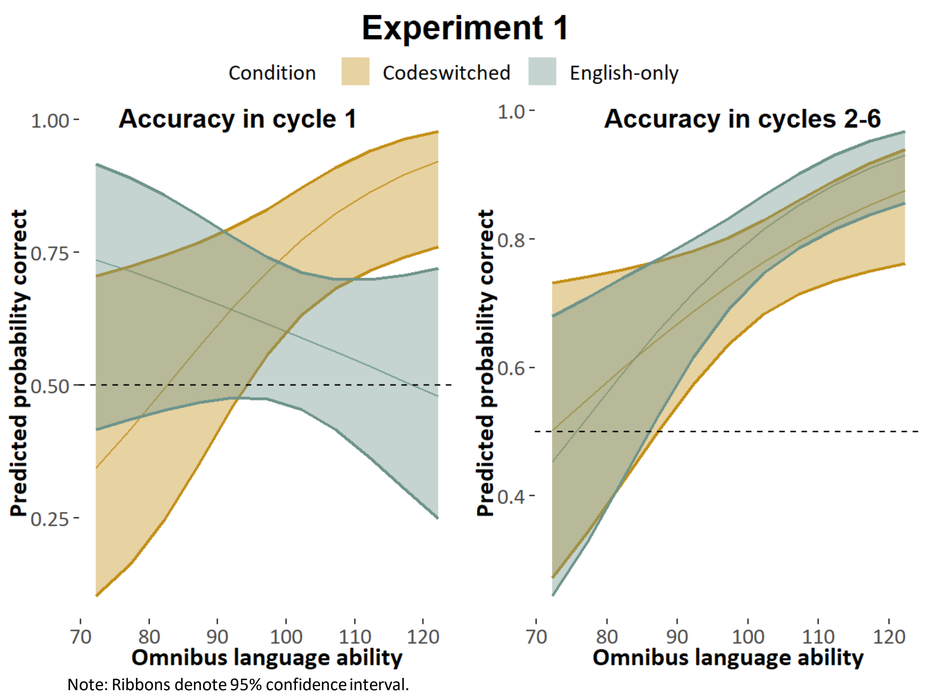


Experiment 2



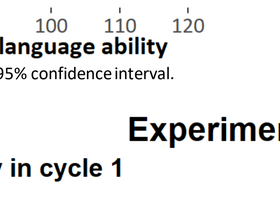
Results

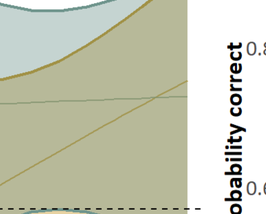
We analyzed data at the item level via mixed-effects logistic regression models in R with the lme4 package. We ran four models total, always regressing accuracy (0 vs 1) on condition (codeswitched or English-only), omnibus language ability (continuous), their interaction, and length of English exposure (continuous, included to statistically control for differences in language dominance between the two samples). We used a "Keep it Maximal" approach, including by-subject and by-item random intercepts and slopes as the models allowed.



Discussion

- Codeswitching did not disrupt children's verb (**Experiment 1**) or noun (**Experiment 2**) learning, with the caveat that data collection for **Experiment 2** is ongoing.
- The relationship between codeswitched input and language ability is unclear and may only matter for fast-mapping of verbs.
- Next steps:
  - How do *type* & *direction* of codeswitch and prior exposure to codeswitched input moderate learning?
  - How do caregivers *naturally* integrate codeswitching into word learning opportunities?





Acknowledgements & References

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Scan here for full references: