Comparing heritage speaker p-stranding acceptability in Spanish, English, and code-switching

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- Languages vary when extracting determiner phrases (DPs) from prepositional phrases (PPs) (Law, 2006; Salles, 1995)
  - ✓ English; ✗ Spanish
  - Referred to as *preposition stranding* (or *p-stranding*)

ENGLISH P-STRANDING

(1) Chad doesn't know [DP **what friend**]$_i$ Kevin is traveling [PP **with t$_i$**].

SPANISH PIED-PIPING

(2)

Fernando	no	sabe	[PP **con**	[DP **qué**	**amiga**]]$_i$	Sergio	está	viajando	t$_i$.
Fernando	no	knows	with	what	friend	Sergio	is	traveling	

'Fernando doesn't know with what friend Sergio is traveling.'

PUZZLE

- This asymmetry creates a unique situation for Spanish-English bilinguals mix their languages
  - Is p-stranding available in code-switching?
  - In other words, is it possible to extract a Spanish DP out of an English PP? Or vice versa?

SPANISH-to-ENGLISH

(3) | *Fernando* | *no* | *sabe* | [DP ***qué*** | ***amiga***] | Kevin | is | traveling | [PP **with** t_i]. |
|---|---|---|---|---|---|---|---|---|
| Fernando | no | knows | what | friend | | | | |

'Fernando doesn't know what friend Kevin is traveling with.'

ENGLISH-to-SPANISH

(4) | Chad | doesn't | know | [DP **what** | **friend**] | *Sergio* | *está* | *viajando* | [PP ***con*** t_i]. |
|---|---|---|---|---|---|---|---|---|
| | | | | | Sergio | is | traveling | with |

'Chad doesn't know what friend Sergio is traveling with.'

P-STRANDING IN ENGLISH

- Wh-elements in English occupy a higher syntactic position
  - Generally considered to be the specifier of the Complementizer Phrase (Chomsky, 1986)

(5) $[_{DP}$ **What**$]$ did you buy t_i?

- If the wh-element is originally the complement of a PP, it can be extracted (Law, 2006; Salles, 1995)
  - Thus "stranding" the preposition in its lower position

(6) $[_{DP}$ **What money**$]$ did you buy it $[_{PP}$ **with** $t_i]$?

- P-stranding can also occur in embedded wh-contexts

(7) I don't know [DP **what friend**] you went shopping [PP **with t$_i$**].

- As well as in relative clauses

(8) Amy is [DP **the friend**] (that) I went shopping [PP **with t$_i$**].

P-STRANDING IN SPANISH

- Spanish traditionally disallows p-stranding altogether, requiring the preposition to be pied piped with the DP (Law, 2006)

(9) *	¿[DP **Qué**	**dinero**]	lo	compraste	[PP **con t$_i$**]?
	what	money	it	buy.2S	with

'What money did you buy it with?'

(10)	¿ [PP **Con**	[DP **qué**	**dinero**]]	lo	compraste	**t$_i$**?
	with	what	money	it	buy.2S	

'With what money did you buy it?'

P-STRANDING VARIATION

- How do we account for variation across languages?
- According to Law (2006), some languages are subject to a syntax-morphology-interface condition
  - "Elements that undergo suppletive rules must form a syntactic unit X° " (Law, 2006, p. 647)
  - Based on the suppletive forms like *del* 'of the' and *al* 'to the'; as well as other languages with such forms, like Portuguese, Italian, German, and French
  - Importantly the condition does not require suppletion of specific items
- All determiners incorporate into prepositions in Spanish (with or without suppletion)
- English, lacking any such suppletive forms, never incorporates

P-STRANDING IN HERITAGE SPEAKER SPANISH

- With Spanish, though, there is some variation
- Pascual y Cabo and Gómez Soler (2015) found that heritage speakers show variability when it comes to p-stranding
  - Sequential bilinguals reject p-stranding in Spanish: ✓ English; ✗ Spanish
  - Simultaneous bilinguals allow it in Spanish as well: ✓ English; ✓ Spanish
- Suggests that the construction has been extended from English for these individuals
  - It is "a domain of grammar vulnerable to crosslinguistic influence during the formative years" (Cabo y Pascual & Gómez Soler, 2015, p. 203)
- When looking at Spanish-English code-switching then, it seems likely that age of acquisition of English will also play a role

FRAMEWORK

- Adopting a generative approach to code-switching (Grimstad et al., 2018; MacSwan, 1999)
  - Constraints are due to the interaction of the two grammars in question, specifically when there is a mismatching of features
  - Mirrors exactly what happens in monolingual derivations (i.e., there is "no third grammar")

- Using this framework, specific predictions can be made about restrictions on p-stranding in code-switching

Research Questions:

Do heritage speakers of Spanish accept p-stranding in Spanish-English code-switching?

And if so, does age of onset of bilingualism play a role?

PREDICTIONS

- Combining the results from Pascual y Cabo and Gómez Soler (2015) with Law's (2006) analysis, the results should vary by group

- Simultaneous bilinguals: ✓ English; ✓ Spanish; ✓ Spanish-to-English; ✓ English-to-Spanish
  - P-stranding should be consistently acceptable in English, Spanish, and code-switching
  - If they allow p-stranding in English and Spanish, this would be evidence that they do not have D+P incorporation in either language, and as such the wh-element can be freely extracted regardless of the language context
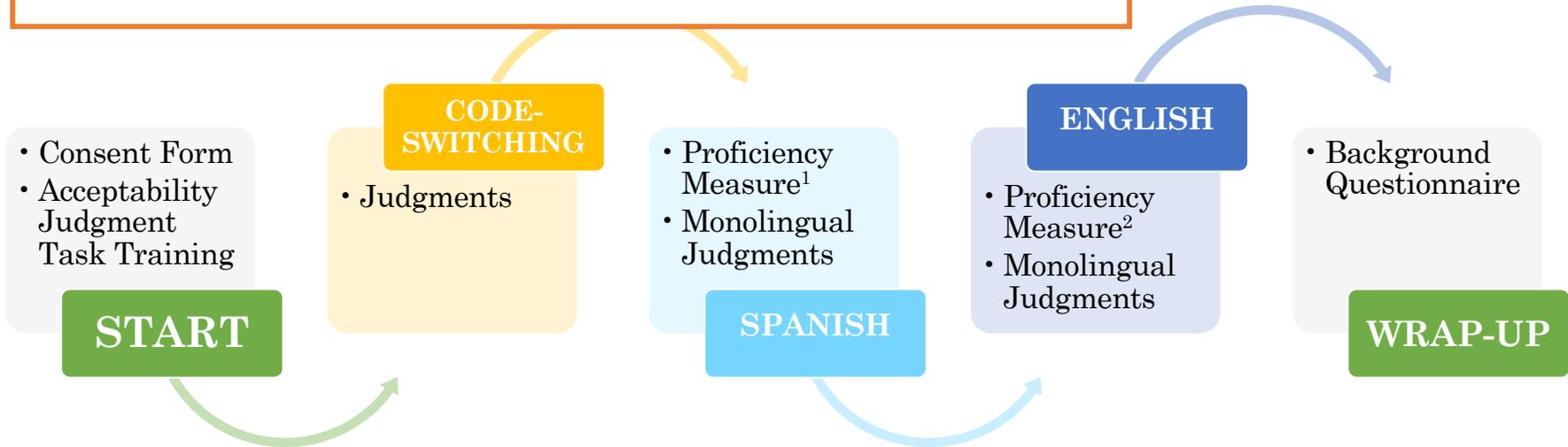
PREDICTIONS

- Sequential bilinguals: ✓ English; ✗ Spanish; ❓ English-to-Spanish; ❓ Spanish-to-English
  - If they allow p-stranding in English but not Spanish, this would be evidence that they have asymmetrical D+P incorporation, and as such the wh-element cannot always be freely extracted
  - Depends on which element(s) motivate(s) D+P incorporation (because recall that these elements will always be in distinct languages)
    - Determiner = ✓ English-to-Spanish; ✗ Spanish-to-English
    - Preposition = ✗ English-to-Spanish; ✓ Spanish-to-English
    - Both = ✗ Spanish-to-English; ✗ English-to-Spanish

That guy pidió un vaso de agua.

	Completely unacceptable	Mostly unacceptable	Somewhat unacceptable	Unsure	Somewhat acceptable	Mostly acceptable	Completely acceptable
¿Qué le parece esta oración?	○	○	○	○	○	○	○

START

- Consent Form
- Acceptability Judgment Task Training

CODE-SWITCHING

- Judgments

SPANISH

- Proficiency Measure[1]
- Monolingual Judgments

ENGLISH

- Proficiency Measure[2]
- Monolingual Judgments

WRAP-UP

- Background Questionnaire

[1] Modified Spanish cloze test (Montrul & Slabakova, 2003)

[2] Modified English cloze test (O'Neill, Cornelius, & Washburn, 1981)

PARTICIPANTS

- Heritage speakers of Spanish ($N = 24$)
  - 19-49 years old ($M = 23.2$)
  - Born in the US ($n = 20$) or arrived at a young age ($M = 4.8$ years)
    - Slightly English dominant ($M = $ -26.1 out of ±218) based on the Bilingual Language Profile (Birdsong, Gertken, & Amengual, 2012)
    - Advanced English proficiency and intermediate/advanced Spanish proficiency
    - Learned both languages from a young age
      - Simultaneous bilinguals reported learning both languages from birth to before age 5 ($n = 13$)
      - Sequential bilinguals learned English later at age 5+ ($n = 11$)

STIMULI

- Target stimuli with p-stranding (N = 32)
  - Half embedded wh- p-stranding and half relative clause p-stranding
    - Code-switched target sentences (n = 16)
    - Monolingual target equivalents for Spanish (n = 8)
    - Monolingual target equivalents for English (n = 8)
- Filler stimuli with various other types of constructions (and switches) (N = 169)
  - Targeted adverb order, auxiliary verbs, pronouns, and so on
    - Code-switched filler sentences (n = 89)
    - Monolingual Spanish filler sentences (n = 42)
    - Monolingual English filler sentences (n = 38)

SPANISH-to-ENGLISH EMBEDDED WH-

(11)   *Manuel*   *no*   *sabe*   **qué**   **señora**   Megan   is   arguing   **with**.
　　　　Manuel　　no　　knows　what　　woman

'Manuel doesn't know what woman Megan is arguing with.'

ENGLISH-to-SPANISH EMBEDDED WH-

(12)   Bill   doesn't   know   **what**   **woman**   *Ximena*   *está*   *discutiendo*   **con**.
　　　　　　　　　　　　　　　　　　　　　　Ximena　　is　　arguing　　　with

'Bill doesn't know what woman Ximena is arguing with.'

SPANISH EMBEDDED WH-

(13)   *Manuel*   *no*   *sabe*   **qué**   **señora**   *Ximena*   *está*   *discutiendo*   **con**.
　　　　Manuel　　no　　knows　what　　lady　　Ximena　　is　　arguing　　　with

'Manuel doesn't know what lady Megan is arguing with.'

ENGLISH EMBEDDED WH-

(14)   Bill   doesn't   know   **what**   **woman**   Megan   is   arguing   **with**.

(15) *Leticia* *es* **la** **chica** that Gabe is going out **with**.
Leticia is the girl

'Leticia is the girl that Gabe is going out with.'

(16) Lucy is **the** **girl** *que* *Arturo* *está* *saliendo* **con**.
that Arturo is going-out with

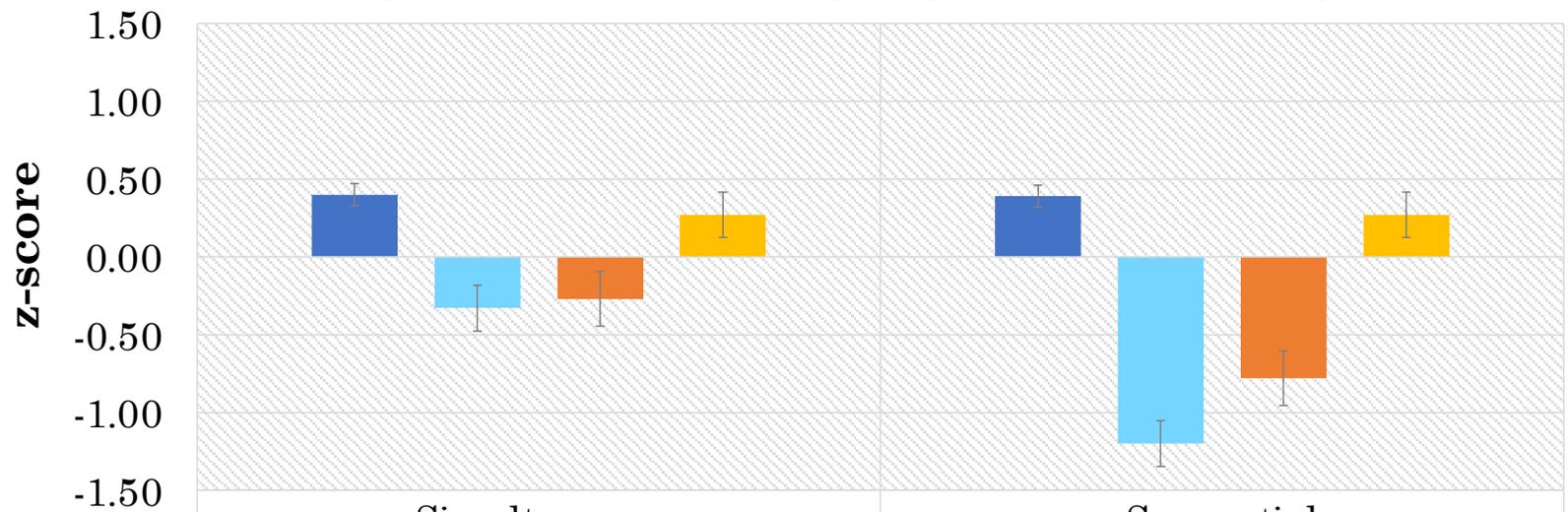'Lucy is the girl that Arturo is going out with.'

(17) *Leticia* *es* **la** **chica** *que* *Arturo* *está* *saliendo* **con**.
Leticia is the girl that Arturo is going-out with

'Manuel doesn't know what lady Megan is arguing with.'

(28) Lucy is **the** **girl** that Gabe is going out **with**.

# Average z-score by language(s) and bilingual type

	Simultaneous	Sequential
■ English	0.40	0.39
■ Spanish	-0.33	-1.20
■ English-to-Spanish	-0.27	-0.78
■ Spanish-to-English	0.27	0.27

Two-way ANOVA testing the effect of language(s) and bilingual type on z-score revealed an interaction, $F(3,375) = 7.777$, $p < .001$
Post hoc analysis: (i) simultaneous bilinguals overall more accepting of p-stranding than sequential bilinguals, regardless of language; (ii) parallelism between language of the preposition (i.e., English = Spanish-to-English, Spanish = English-to-Spanish)

Average z-score by age of acquisition of English
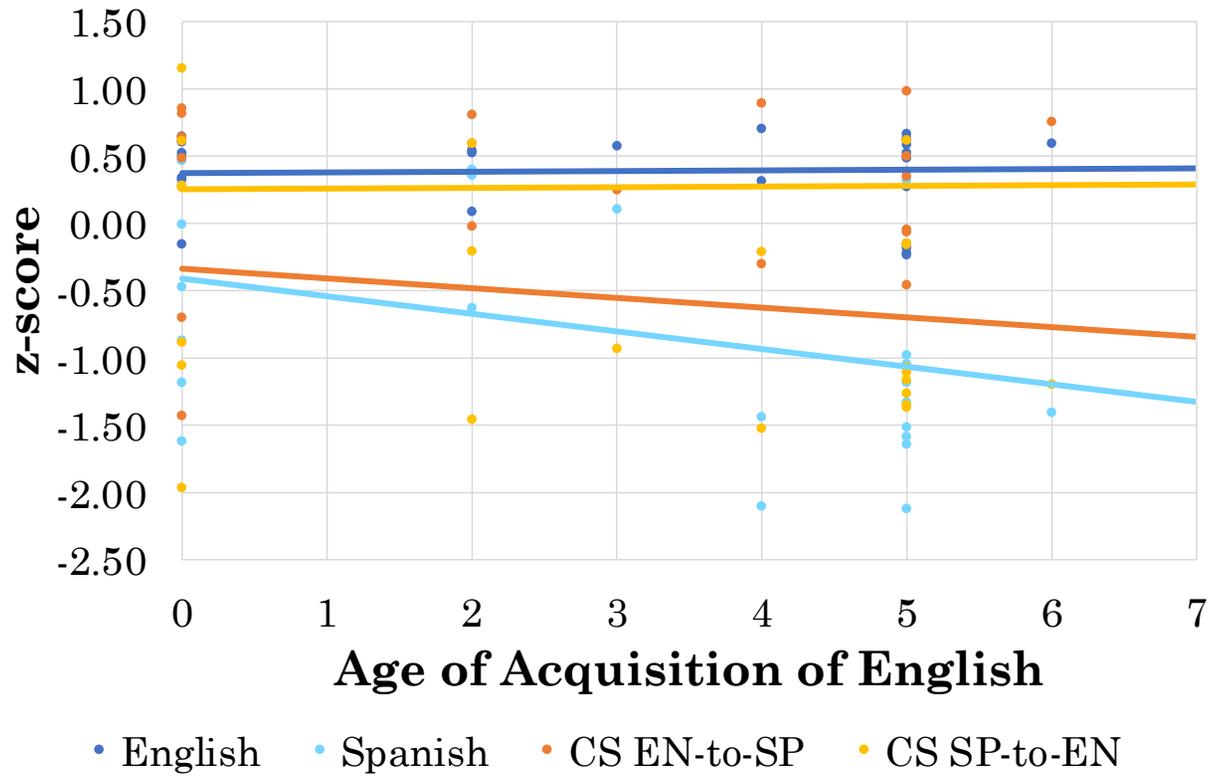
RESULTS SUMMARY

- Results pattern as predicted
- Simultaneous bilinguals: ✓ English; ✓ Spanish; ✓ English-to-Spanish; ✓ Spanish-to-English
  - Generally accepted across the board, with a slight preference for p-stranding in English and Spanish-to-English
- Sequential bilinguals: ✓ English; ✗ Spanish; ✗ English-to-Spanish; ✓ Spanish-to-English
  - Strong rejection of p-stranding in Spanish and English-to-Spanish
- There is a parallelism between the monolingual and code-switching in that the results align depending on the language of the preposition

LIMITATIONS

- Limited lexical items (i.e., only *with/con*)
  - Known idiosyncratic variation with p-stranding depending on the particular preposition (Biber et al., 1999)

- Perceptive nature of acceptability judgment task data
  - Unclear if production data would show the same patterns

- Other possible variables regarding the heterogeneity of the participant group
  - Only investigated age of acquisition of English

CONCLUSION

- Clear first step toward understanding p-stranding availability in Spanish-English code-switching
  - Suggests no D+P incorporation in simultaneous bilinguals' grammars = free extraction
  - Suggests sequential bilinguals have D+P incorporation in Spanish, which also presents itself in switched contexts sometimes
    - Specifically, it seems the preposition and not the determiner dictates incorporation, and as such the language of the preposition dictates whether there is p-stranding or not

- This data helps us better understand the syntactic underpinnings of D+P incorporation / p-stranding in a way that is opaque for monolingual data

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¡Gracias!

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