Differences in p-stranding in the code-switching of simultaneous and sequential heritage speakers of Spanish

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Introduction

Languages vary when extracting determiner phrases (DPs) from prepositional phrases (PPs) (Law, 2006; Salles, 1995)

- ✓ ENGLISH, ✗ SPANISH
- English allows for such extraction, referred to as *preposition stranding* (or *p-stranding*)
- Spanish traditionally does not, as the preposition is pied-piped with the DP

(1) a. Chad doesn't know [$_{DP}$ **what friend**]$_i$ Kevin is traveling [$_{PP}$ **with** $\mathbf{t}_i$].

b. Fernando no sabe [$_{PP}$ **con** [$_{DP}$ **qué amiga**]]$_i$ Sergio está viajando $\mathbf{t}_i$.
Fernando not knows with what friend Sergio is traveling
'Fernando doesn't know with what friend Sergio is traveling.'

c. */? Fernando no sabe [$_{DP}$ **qué amiga**]$_i$ Sergio está viajando [$_{PP}$ **con** $\mathbf{t}_i$].
Fernando not knows what friend Sergio is traveling with
'Fernando doesn't know what friend Sergio is traveling with.'

Puzzle

This asymmetry between languages like Spanish and English creates a potential conflict:

- What happens when a Spanish-English bilingual uses both their languages in the same sentence? Is p-stranding still available?

Yet to be tested experimentally is the availability of p-stranding in intrasentential code-switching (CS)

Essentially, the question is:

- Is it possible to extract a Spanish DP out of an English PP? Or vice versa?

(2) a. *Fernando no sabe* [$_{DP}$ ***qué amiga***]$_i$ Kevin is traveling [$_{PP}$ **with** $\mathbf{t}_i$].
Fernando not knows what friend
'Fernando doesn't know what friend Kevin is traveling with.'

b. Chad doesn't know [$_{DP}$ **what friend**]$_i$ *Sergio está viajando* [$_{PP}$ ***con*** $\mathbf{t}_i$].
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)

If the wh-element is originally the complement of a PP, it can be extracted, "stranding" the preposition in its lower position

- Can occur in matrix wh-questions, embedded wh-questions, and relative clauses (Law, 2006; Salles, 1995)
- At the same time, English allows pied-piping to be used prescriptively and/or in formal discourse (Biber et al., 1999)

(3) a. $[_{DP}$ **What**$]_i$ did you buy $\mathbf{t}_i$?

b. $[_{DP}$ **What money**$]_i$ did you buy it $[_{PP}$ **with** $\mathbf{t}_i]$?

c. I don't know $[_{DP}$ **what friend**$]_i$ you went shopping $[_{PP}$ **with** $\mathbf{t}_i]$.

d. Amy is the friend $[_{DP}$ **who**$]_i$ I went shopping $[_{PP}$ **with** $\mathbf{t}_i]$.

e. $[_{PP}$ **With** $[_{DP}$ **what money**$]]_i$ did you buy it $\mathbf{t}_i$?

P-stranding in Spanish

Like English, wh-elements in Spanish occupy a higher syntactic position (i.e., SpecCP)

- However, they cannot be extracted from a PP, instead requiring the preposition to be pied-piped with the DP (Law, 2006)
- True for matrix wh-questions, embedded wh-questions, and relative clauses

(4) a. ¿[$_{PP}$ **Con** [$_{DP}$ **qué dinero**]]$_i$ lo compraste **t**$_i$?
with what money it bought.2s
'With what money did you buy it?

b. No sé [$_{PP}$ **con** [$_{DP}$ **qué amiga**]]$_i$ fuiste de compras **t**$_i$.
not know with what friend went.2s of purchases
'I don't know with which friend you went shopping.'

c. Amy es la amiga [$_{PP}$ **con** [$_{DP}$ **quien**]]$_i$ fui de compras **t**$_i$.
Amy is the friend with who(m) went.2s of purchases
'Amy is the friend with whom I went shopping.'

Crosslinguistic variation

How do we account for varying p-stranding acceptability 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^{o} " (Law, 2006, p. 647)
- Based on Spanish suppletive forms like ***del*** 'of the' (i.e., ***de + el***) and ***al*** 'to the' (i.e., ***a + el***)
  - Other languages with such forms: Portuguese, Italian, German, French, and so on
- Importantly, the condition does not require suppletion of specific items to apply (i.e., it is all or nothing)

Crosslinguistic variation

Under this analysis:

- English determiners, lacking any suppletive forms, never incorporate and remain as separate syntactic units
  - $[_{PP}\ [_{P}\ \textbf{of}]\ [_{DP}\ [_{D}\ \textbf{the}]\ [_{NP}\ \text{north}]]]$
  - $[_{PP}\ [_{P}\ \textbf{with}]\ [_{DP}\ [_{D}\ \textbf{the}]\ [_{NP}\ \text{wind}]]]$
- Spanish determiners incorporate into prepositions (with or without suppletion) and form one syntactic unit
  - $[_{PP}\ [_{P}\ \textbf{\textit{de}}]\ [_{DP}\ [_{D}\ \textbf{\textit{el}}]\ [_{NP}\ \textit{norte}] \rightarrow [_{PP}\ [_{P+D}\ \textbf{\textit{del}}_{\textbf{i}}]\ [_{DP}\ [_{D}\ \textbf{t}_{\textbf{i}}]\ [_{NP}\ \textit{norte}]]]$
  - $[_{PP}\ [_{P}\ \textbf{\textit{con}}]\ [_{DP}\ [_{D}\ \textbf{\textit{el}}]\ [_{NP}\ \textit{viento}] \rightarrow [_{PP}\ [_{P+D}\ \textbf{\textit{con el}}_{\textbf{i}}]\ [_{DP}\ [_{D}\ \textbf{t}_{\textbf{i}}]\ [_{NP}\ \textit{viento}]]]$

This is why in Spanish then, the only option is to move the entire PP; whereas English, can extract the wh-element

Heritage speaker bilingualism

General differences between the grammars of Spanish and English have been discussed

- But bilinguals are not just "two monolinguals in one"

Heritage grammars known to differ from monolingual grammars (e.g., Silva-Corvalán, 1994; Montrul, 2008; among many others)

Research regarding US heritage speakers of Spanish has noted variation in a wide-array of linguistic structures

- Definite articles (Montrul & Ionin, 2010), focus (Hoot, 2017), *gustar* (de Prada & Pascual y Cabo, 2011), causatives (Zyzik, 2014), and more
- P-stranding has been shown to vary as well

P-stranding in heritage Spanish

Depiante and Thompson (2013)

- 1 experimental judgment task with p-stranding in Spanish matrix wh-questions, embedded wh-questions, and relative clauses (n = 36)
  - Prepositions included: ***a*** 'to', ***con*** 'with', ***de*** 'of', ***en*** 'in', ***por*** 'for', ***sobre*** 'about'
- 1 heritage speaker experimental group
  - US bilinguals (n = 28) learned Spanish and English from a young age
- 1 Spanish-dominant control group
  - Spanish native speakers (n = 21) primarily from Cuba (≤ 2 years in the US)
- In all three contexts, the heritage speakers found p-stranding more acceptable than the comparison group
  - Perhaps there is no grammatical asymmetry between Spanish and English for heritage speakers for p-stranding

P-stranding in heritage Spanish

Pascual y Cabo and Gómez Soler (2015)

- 3 experimental tasks targeting matrix wh-questions, embedded wh-, and relative clauses with ***con*** 'with' and ***en*** 'in'
  - Judgment task with p-stranding in Spanish sentences (n = 30)
  - Judgment task with pied-piping in Spanish sentences (n = 30)
  - Production task with "dehydrated" Spanish sentences (n = 10)
- 2 heritage speaker experimental groups
  - US simultaneous bilinguals (n = 21) learned Spanish and English from birth
  - US early sequential bilinguals (n = 12) learned English after being first exposed to Spanish
- 1 Spanish-dominant control group
  - Spanish native speakers (n = 11) from Mexico (until at least age 16)

P-stranding in heritage Spanish

Pascual y Cabo and Gómez Soler (2015) found a group distinction

- Simultaneous bilinguals allow p-stranding in Spanish: ✓ SPAN
- Sequential bilinguals reject p-stranding in Spanish: ✗ SPAN

Suggests that the construction has been extended from English for some but not all heritage speakers

- It is "a domain of grammar vulnerable to crosslinguistic influence during the formative years" (Pascual y Cabo & Gómez Soler, 2015, p. 203)

When looking at Spanish-English CS then, there is a potential conflict for some but not all

- Age of onset of English likely to play a critical role

P-stranding in heritage Spanish

How do we reconcile these findings with Law's (2006) analysis?

- First, important to note that results are a tendency, not an absolute
  - Pied-piping is still the preferred option for all
- Although they permit p-stranding in Spanish, we cannot say that simultaneous bilinguals lack D-to-P incorporation altogether (as evidenced by their use of suppletive forms like ***del*** and ***al***)
- Instead, unlike sequential bilinguals who always have D-to-P incorporation, simultaneous bilinguals only incorporate sometimes

Framework

Generative approach to CS (Grimstad et al., 2018; MacSwan, 1999)

- Constraints are due to the interaction of the two grammars in question, specifically when there is a mismatch of features
- Mirrors exactly what happens in monolingual derivations (i.e., "no third grammar")

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

- Similar work using such an approach has targeted pronouns (González-Vilbazo & Koronkiewicz, 2016; Koronkiewicz, 2014), wh-questions (Ebert, 2014), pro-drop (Sande, 2018), sluicing (González-Vilbazo & Ramos, 2018), and more

Research Questions:

Do US heritage speakers of Spanish accept p-stranding in Spanish-English CS?

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

Predictions

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

Simultaneous bilinguals: ✓ ENG, ✓ SPAN, ✓ SPAN-to-ENG, ✓ ENG-to-SPAN

- P-stranding should be consistently acceptable in English, Spanish, and CS (in either direction)
- If they allow p-stranding in English and Spanish, this would be evidence that they do not have D-to-P incorporation all the time in their Spanish, and as such the wh-element can be freely extracted regardless of the language context

Predictions

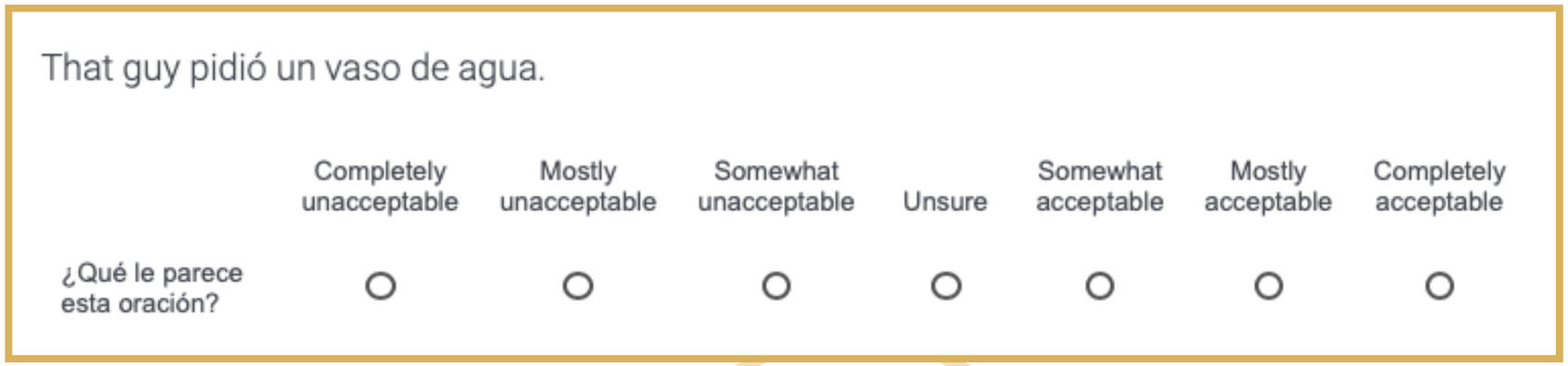
Sequential bilinguals: ✓ ENG, ✗ SPAN, ? ENG-to-SPAN, ? SPAN-to-ENG

- If they allow p-stranding in English but not Spanish, this would be evidence that they have consistent asymmetrical D-to-P incorporation, and as such the wh-element cannot aways be freely extracted
- Depends on which element(s) motivate(s) D-to-P incorporation (as these elements will always be in distinct languages when switched)
  - Determiner = ✓ ENG-to-SPAN, ✗ SPAN-to-ENG
  - Preposition = ✗ ENG-to-SPAN, ✓ SPAN-to-ENG
  - Both = ✗ ENG-to-SPAN, ✗ SPAN-to-ENG

Hypotheses:

Simultaneous bilinguals will accept p-stranding in monolingual Spanish, monolingual English, and both CS contexts (i.e., Spanish-to-English and English-to-Spanish)

Early sequential bilinguals will reject p-stranding in monolingual Spanish, but accept it in monolingual English, and at least some (if not all) CS contexts will be rejected



START

- Consent Form
- Acceptability Judgment Task
- T...

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

US heritage speakers of Spanish ($N = 29$)

- Participants removed from the dataset ($n = 5$) for either not being a self-reported code-switcher and/or for indicating a negative attitude toward CS (Badiola et al., 2018)

Remaining participants ($n = 24$)

- 19-49 years old ($M = 23.2$)
- Born in the US ($n = 20$) or arrived at a young age ($M = 4.8$ years)
- Learned both languages from a young age
  - Simultaneous heritage speakers who reported learning both languages from birth to before age 5 ($n = 13$)
  - Sequential heritage speakers who learned English later at age 5+ ($n = 11$)

Stimuli

Target stimuli with p-stranding ($N = 32$)

- Half embedded wh-questions and half relative clauses
  - CS 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
  - CS filler sentences ($n = 89$)
  - Monolingual Spanish filler sentences ($n = 42$)
  - Monolingual English filler sentences ($n = 38$)

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

b. Manuel no sabe **qué señora** Ximena está discutiendo **con**.
Manuel not knows what lady Ximena is arguing with
'Manuel doesn't know what lady Ximena is arguing with.'

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

d. *Manuel no sabe* ***qué señora*** Megan is arguing **with**.
Manuel not knows what lady
'Manuel doesn't know what woman Megan is arguing with.'

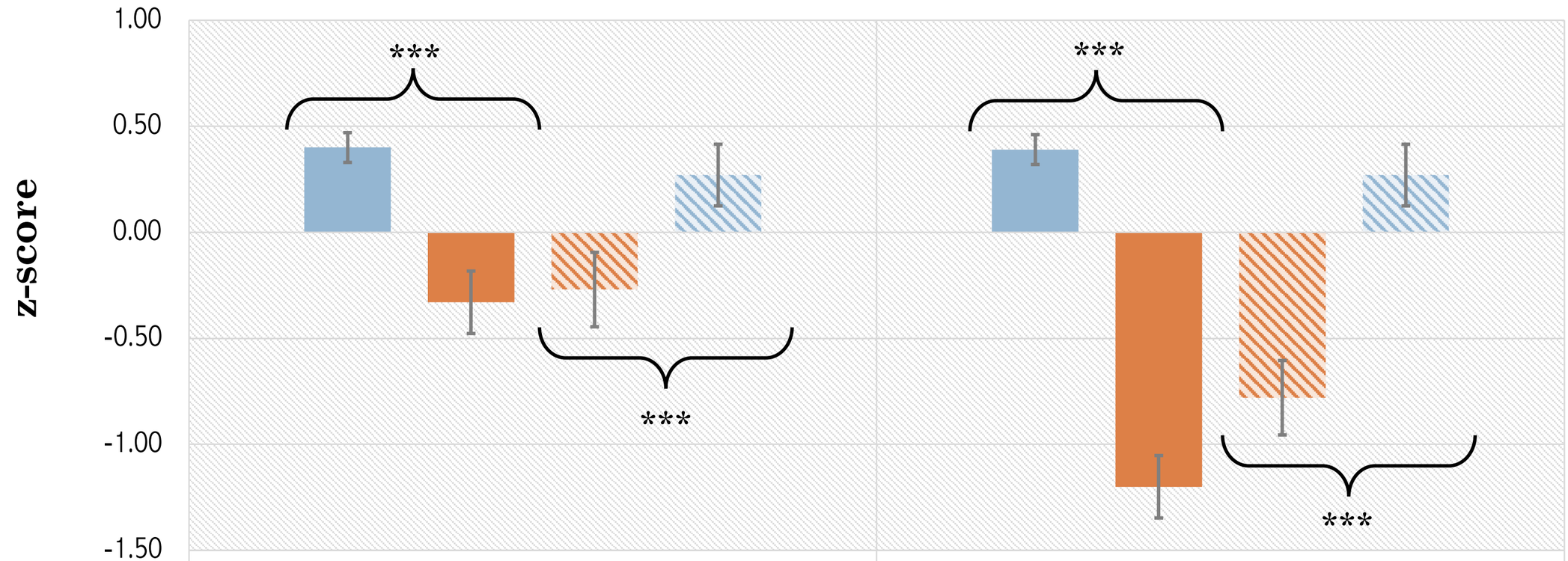
(6) a. Lucy is **the girl** that Gabe is going out **with**.

b. Leticia es **la chica** que Arturo está saliendo **con**.
Leticia is the girl that Arturo is going-out with
'Leticia is the girl that Arturo is going out with.'

c. 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.'

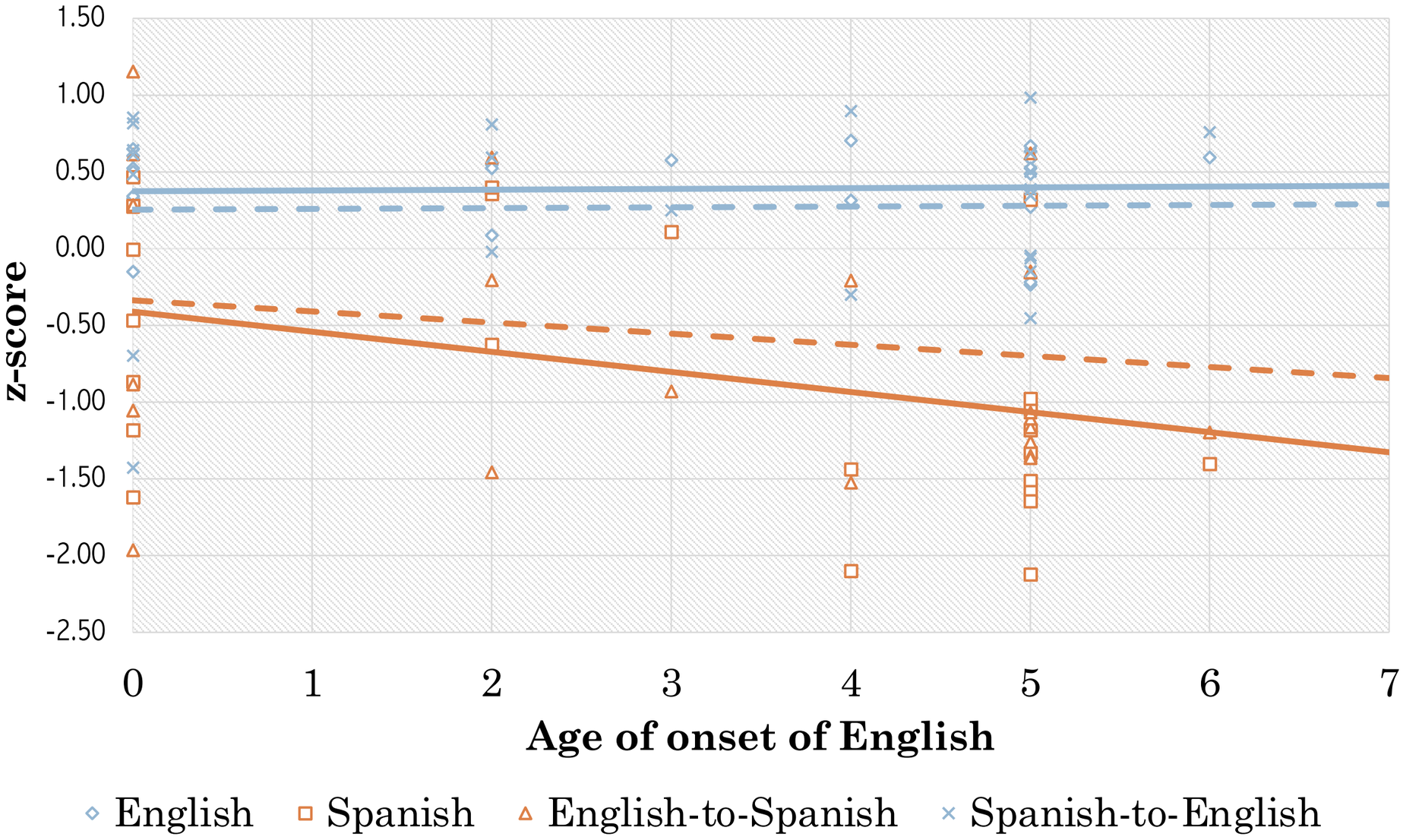
d. *Leticia es* ***la chica*** that Gabe is going out **with**.
Leticia is the girl
'Leticia is the girl that Gabe is going out **with**.'

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

Average z-score by age of onset of English



Results summary

Results pattern as predicted by bilingual group

Simultaneous: ✓ ENG, ✓ SPAN, ✓ ENG-to-SPAN, ✓ SPAN-to-ENG

- Generally accepted across the board, with a slight preference for p-stranding in English and Spanish-to-English

Sequential: ✓ ENG, ✗ SPAN, ✗ ENG-to-SPAN, ✓ SPAN-to-ENG

- Strong rejection of p-stranding in Spanish and English-to-Spanish
- English prepositions permit p-stranding, and Spanish prepositions block it, regardless of the language(s) of the sentence

There is a parallelism between the monolingual and CS in that the results align depending on the language of the preposition

Hypotheses:

✓ Simultaneous bilinguals will accept p-stranding in monolingual Spanish, monolingual English, and both CS contexts (i.e., Spanish-to-English and English-to-Spanish)

✓ Sequential bilinguals will reject p-stranding in monolingual Spanish, but accept it in monolingual English, and at least some (if not all) CS contexts will be rejected

Limitations

5

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 onset of English

discussion

Lingering questions

5

What is the status of pied-piping?

- Testing the availability of it in CS could help tease apart differences between simultaneous and sequential bilinguals
- More generally, although it is possible in both languages, it's not entirely clear why it is an option in English without incorporation forcing it
  - Understanding this could help clarify how simultaneous bilinguals use both as well

What about reduplication?

- Can bilinguals have the best of both worlds, combining pied-piping and p-stranding, similar to Icelandic (Jónsson, 2008)?
- *Manuel no sabe* ***con*** *qué señora* Megan is arguing **with**
  'Manuel doesn't know **with** what lady Megan is arguing **with**'

discussion

Conclusion

First step to understanding p-stranding in Spanish-English CS

- Optional D-to-P incorporation in simultaneous bilinguals' grammars = free extraction
- Sequential bilinguals have consistent D-to-P incorporation in Spanish, which also presents itself in switched contexts
  - Specifically, it seems the properties of the preposition and not the determiner dictate 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 both D-to-P incorporation and p-stranding

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¡Gracias!

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