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 \([DP \text{what friend}]\), Kevin is traveling \([PP \text{with t}]\).

**SPANISH PIED-PIPING**

2. Fernando no sabe \([PP \text{con} [DP \text{qué amiga}]])\), Sergio está viajando \([t]\).

‘Fernando doesn’t know with what friend Sergio is traveling.’
• 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?

(3) Fernando no sabe [DP qué amiga] Kevin is traveling [PP with ti].

Fernando no knows what friend

‘Fernando doesn’t know what friend Kevin is traveling with.’

(4) Chad doesn’t know [DP what friend] Sergio está viajando [PP con ti].

Sergio is traveling with

‘Chad doesn’t know what friend Sergio is traveling with.’
• Wh-elements in English occupy a higher syntactic position
  • Generally considered to be the specifier of the Complementizer Phrase (Chomsky, 1986)

(5) \[ \text{DP} \text{What} \text{ did you buy } t_i? \]

• 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) \[ \text{DP} \text{What money} \text{ did you buy it } \text{[PP with } t_i]? \]
• P-stranding can also occur in embedded wh-contexts

(7) I don’t know [DP what friend] you went shopping [PP with ti].

• As well as in relative clauses

(8) Amy is [DP the friend] (that) I went shopping [PP with ti].
• 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]?
     what money it buy.2S with

     ‘What money did you buy it with?’

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

     ‘With what money did you buy it?’
• 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
• 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?
• 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
• **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.

### 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+ ($n = 11$)
• **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 \((n = 38)\)
(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.’

(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.’

(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.’

(14) Bill doesn’t know what woman Megan is arguing with.
Leticia is the girl that Gabe is going out with.

Lucy is the girl that Arturo is going out with.

Manuel doesn’t know what lady Megan is arguing with.
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).

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<th>Sequential</th>
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Average z-score by age of acquisition of English

Age of Acquisition of English

- English
- Spanish
- CS EN-to-SP
- CS SP-to-EN
• 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

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• 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
• 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
REFERENCES


