

Analyzing two methodological issues in heritage language research: consideration of code-switching attitudes and the binary treatment of *Likert* scale data

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Introduction / Background

Introduction

- In recent years, studies in experimental syntax have used code-switching (CS) as a tool to explore diverse syntactic phenomena that are otherwise opaque in monolingual data (González-Vilbazo & López, 2011; Parafita Couto et al., 2015).
- However, the use of CS as a tool poses empirical challenges because there is no established methodology (González-Vilbazo et al., 2013).
- In this study, we focus on two aspects regarding participant selection and data analysis: *attitudes towards CS* and *the validity of cut-off points in Likert scales*.

Language attitudes towards CS

- For the purpose of this study, we focused on participants' attitudes towards themselves and other bilinguals who code-switch.
- Language attitudes differ even among members of the same community or of similar backgrounds. CS has been stigmatized by monolingual and bilinguals alike (Montes-Alcalá, 2000).
- However, Toribio (2002) and Montes-Alcalá (2000) found that at least in terms of production, bilinguals with negative attitudes towards CS still produce the same type of CS sentences as bilinguals with positive attitudes.
- We nonetheless find a gap in the literature when it comes to participant's attitudes towards CS and their potential effects in more controlled experiments.
- Although there are many experimental procedures used in controlled CS experiments, we will focus on Acceptability Judgment Tasks (AJTs) due to their wide use.

Research Questions

- RQ1:** Is there an effect for participants' attitude towards CS on the ratings for code-switched sentences?
- RQ2:** Does this effect vary by CS structure?

Procedures and Findings

EXPERIMENT

Participants

- 50 early Spanish/English heritage speakers (HS)
18 males/32 females
Average age: 22.5 (Range 19-32)
- Nine participants were born in Mexico, three in Colombia, two in Venezuela and 1 in Costa Rica. The rest were born in the US. They had all lived in the US at least for 9 years.
- All participants acquired both English and Spanish before the age of 7 and grew up in bilingual households.
- Mean self-ratings of proficiency: Spanish = 4.28/5; English = 4.84/5

Experimental stimuli

Pro-drop stimuli (Sande, 2015)	CONDITION 1	CONDITION 2
	<i>No sé por qué</i> Lucía ate all those brownies. 'I don't know why Lucía ate all those brownies.'	<i>Me pregunto qué</i> discovered in his sister's diary. 'I wonder what discovered in his sister's diary.'
Pronoun stimuli (Koronkiewicz, 2014)	CONDITION 3	CONDITION 4
	The other day those girls <i>conocieron a nuestra abuela</i> . 'The other day those girls met our grandmother.'	They <i>compraron unas manzanas</i> . 'They bought some apples.'

Procedure

- Four blocks administered through Google Forms.
 - Linguistic background questionnaire
 - AJT containing CS sentences (N=43)
 - Monolingual AJTs in Spanish and English
 - Attitude questionnaire
 - What do you think when you hear someone else mix two languages in the same sentence?
 - What do you think when you mix two languages in the same sentence?

Analysis

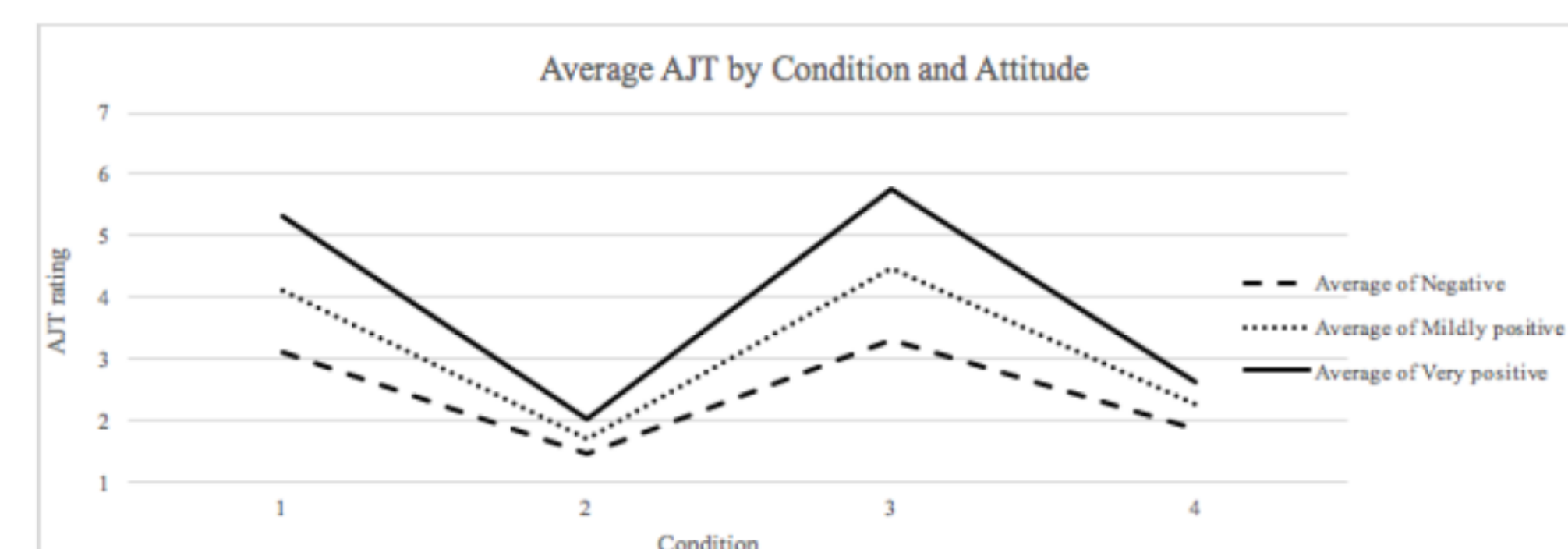
- A single 'Attitude Score' was calculated by averaging participants' responses to attitude questions.
- Participants were divided into three categories based on this score:
 - 1) 1-2.5 (Negative attitude, n = 16),
 - 2) 3.5-4 (Mildly positive attitude, n = 14)
 - 3) 4.5-5 (Very positive attitude, n = 17)

Results

- In general, participants gave higher ratings to Conditions 1 and 3 than they did to 2 and 4.

	Condition 1: Pro-drop overt subject	Condition 2: Pro-drop null subject	Condition 3: Pronouns Strong/Full DP	Condition 4: Pronouns Weak
Average AJT rating	4.2 (SD = 2.2)	1.7 (SD = 1.3)	4.5 (SD = 2.1)	2.3 (SD = 1.8)

- Results of a Linear Mixed Model revealed a significant Attitude*Condition interaction ($F(6, 140.15) = 5.48; p = .000$) such that:



- Condition 1: Very positive > Mildly Positive/Negative
- Condition 3: Very Positive > Mildly Positive > Negative
- Conditions 2 & 4: No group differences
- HSs with more positive attitudes used the whole scale; those with negative attitudes used the lower end across conditions.

FOLLOW-UP ANALYSIS

RQ3: Can we assume that participants that use only the low part of the scale reject all CS sentences since they rate everything below the midpoint of the scale, or do they distinguish between conditions?

- We conducted paired sample t-tests for each participant comparing the ratings between conditions.
- 42 of 50 paired sample t-tests yielded significant results, indicating that these participants distinguish between conditions.
- Of the remaining 8 HS, a series of two one-sided t-tests determined that only four treat the conditions alike.
- In spite of only giving ratings below the mid-point of the scale, the intuitions of the majority of these participants fall in line with those of the participants who used the whole range of the scale.

Conclusions

- We have provided evidence that attitudes towards CS have an effect on acceptability judgments, at least in structures that are assumed to be part of these bilinguals' I-language (i.e., Conditions 1 and 3).
- These results provide evidence that attitude is a variable that should be controlled for in future experiments on CS, as it might have a confounding effect on the data, thus rendering them unreliable.
- As for the validity of using cut-off points in AJTs, we argue that the use of *Likert* scale data in conjunction with individual-level analysis and measurement of variables such as attitude bring to light the nuanced nature of the bilingual phenomenon of code-switching.

References

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Limitations/Future Work

In continuing with this line of research it will be necessary to do at least three things:

- 1) Test CS attitudes using other syntactic structures. In our study, the CS structures involving pro-drop and pronouns yield similar findings, however, we might not find the same results with other syntactic structures.
- 2) Recruit more participants to have a larger sample that spans all different types of attitudes.
- 3) Incorporate a more fine-tuned analysis of attitude.

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