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ADVERB POSITION IN HERITAGE AND L2 SPANISH-ENGLISH CODE-SWITCHING

Bryan Koronkiewicz
University of Alabama

ABSTRACT. This study examines adverbs in intraclausal code-switching among late L2 Spanish bilinguals and heritage speakers of Spanish. Spanish allows adverbs pre-verbally and post-verbally, while English restricts adverbs to pre-verbal position. Previous research has shown that the language of the adverb predicts acceptability in code-switching contexts, with English adverbs allowed only pre-verbally and Spanish adverbs allowed in both positions. This study extends this work to L2 bilinguals, an understudied group in terms of code-switching acquisition. Using a written acceptability judgment task, 73 bilinguals rated code-switching stimuli involving verb-adverb switches, as well as monolingual versions of those sentences. Results showed that all groups preferred pre-verbal adverbs in English, regardless of whether the sentence was switched or completely in English. As for Spanish, participants accepted complement-type adverbs in either position, while specifier-type adverbs patterned like English, being accepted only preverbally. Crucially, there were no significant differences found between the heritage speakers and the two bilingual groups, which varied in terms of L2 Spanish proficiency. These findings suggest that the language of the adverb drives acceptability, and that all bilingual groups follow similar structural constraints. Thus, the acquisition context (heritage vs. L2) does not significantly impact adverb positioning in Spanish-English code-switching.

Keywords: code-switching; adverbs; late L2 acquisition; heritage bilingualism

RESUMEN. Este estudio examina los adverbios en el cambio de códigos intraclausales entre bilingües tardíos de español como segunda lengua (L2) y hablantes de herencia del español. El español permite los adverbios en posición preverbal y postverbal, mientras que el inglés los restringe a la posición preverbal. Investigaciones anteriores han demostrado que la lengua del adverbio predice la aceptabilidad en contextos de conmutación de códigos, permitiéndose los adverbios en inglés solo en posición preverbal y los adverbios en español en ambas posiciones. Este estudio amplía este trabajo a los bilingües de L2, un grupo poco estudiado en términos de adquisición de la conmutación de códigos. Mediante una tarea escrita de juicio de aceptabilidad, 73 bilingües evaluaron estímulos de conmutación de códigos que implicaban cambios entre verbo y adverbio, así como versiones monolingües de esas oraciones. Los resultados mostraron que todos los grupos prefirieron los adverbios preverbales en inglés, independientemente de si la oración contenía conmutación o era completamente en inglés. En cuanto al español, los participantes aceptaron los adverbios del tipo complemento en cualquiera de las posiciones, mientras que los adverbios del tipo especificador siguieron el patrón del inglés, siendo aceptados solo en posición preverbal. De forma crucial, no se encontraron diferencias significativas entre los hablantes de herencia y los dos grupos de bilingües, que variaban en cuanto al nivel de competencia en español como L2. Estos resultados sugieren que la lengua del adverbio determina la aceptabilidad y que todos los grupos bilingües siguen restricciones estructurales similares. Por tanto, el contexto de adquisición (herencia frente a L2) no influye de manera

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significativa en la colocación de los adverbios en la conmutación de códigos español-inglés.

Palabras clave: code-switching; adverbios; adquisición tardía de L2; bilingüismo de herencia.

1. Introduction

Although CS (CS) research is housed within a variety of theoretical approaches (see Parafita Couto et al., 2023 for a recent overview), one central thread that spans multiple frameworks is the syntax of language mixing, focusing on the structural points where speakers switch from one language to the next. Not all possible combinations are grammatical in CS, which has been noted in the literature for decades (Gumperz 1967; Timm 1975; Wentz 1977). Take, for instance, the restriction on pronouns, as exemplified by Timm (1975) in Spanish-English CS (1):

(1) * *Yo* went to the store.
I
'I went to the store.'

Although the surface-level order for a sentence like (1) is equivalent in Spanish and English, something about the interaction of the two grammars prohibits changing languages at that exact point. Data like (1) can provide a wealth of linguistic information; by systematically focusing on different switches occurring within a single clause—where the two syntactic systems directly interact—we can better understand how and why bilingual grammars implement such constraints.

Although the structural restrictions on CS have become a well-documented phenomenon, there is continued need for research regarding how and when such switching occurs. One area in need of research is regarding how the CS patterns of different types of bilinguals either align or diverge. In particular, the nature of late second language (L2) bilinguals' CS is relatively understudied.[1] These L2 bilinguals are often excluded, with the focus placed solely on individuals who acquired both languages early in life. If L2 bilinguals happen to be included, it is because they are subsumed under a broad "bilingual" category that does not differentiate speakers based on their acquisition background. As a result, there is limited data regarding L2 bilinguals' CS, making it hard to draw conclusions specific to that group.

Early bilinguals are regularly associated with CS data, as it is often seen to be a key feature of their bilingual linguistic system. This focus has been evident in the literature since Poplack's (1980: 615-616) seminal work, where she states:

> *It is also striking that [switches] … which occur within a single sentence, are the ones which require the most skill. They tend to be produced by the 'true' bilinguals in the sample: speakers who learned both languages in early childhood.*

[1] An exception to the general scarcity of research on use of CS by L2 bilinguals concerns its application in language classrooms. Many studies have examined how CS (often referred to as *translanguaging*) functions as a valuable resource for learners (Macaro 2005; García & Wei 2014). Nonetheless, given that such research takes a pedagogical perspective, it is not focused on the structural constraints on CS under analysis here.

There is an understood interconnectedness of the two languages attributed to early bilinguals that is not always attributed to L2 bilinguals. An early bilingual is seen as being able to *choose* to effortlessly switch between languages as a natural strategy to express ideas with their full linguistic repertoire and/or to align with linguistic norms in their bilingual communities.[2] L2 bilinguals, on the other hand, are not often seen with that same lens. CS is not considered part of their grammatical competence, but rather merely an artifact of the dynamic nature of language acquisition where they do not choose but *need* to switch their languages due to a lack of proficiency. Although it may be the case for Poplack's study that the L2 bilinguals were less likely to engage in CS within the same sentence, it would be a mistake to generalize that to all such bilinguals. Research has shown that L2 bilinguals' CS practices can reflect their evolving grammatical intuitions and, like other grammatical features that develop with continued proficiency, these practices can and do align with those of other bilinguals (Giancaspro 2015; Koronkiewicz 2018; Toribio 2001).

This paper investigates whether L2 bilinguals can acquire structural CS constraints like those observed in a specific group of early bilinguals: heritage speakers. While prior research has focused on a narrow set of syntactic structures, this study expands on that work by testing whether L2 Spanish bilinguals are sensitive to structural constraints on adverb placement—specifically, the distinction between complement-type and specifier-type adverbs—in Spanish-English CS. By comparing their acceptability judgments to those of heritage bilinguals, the study examines whether L2 bilinguals show similar patterns in this distinct syntactic context. The results indicate that L2 bilinguals (regardless of proficiency level) demonstrate the same intuitions regarding adverb placement as heritage speakers, with the language of the adverb determining which syntactic positions are available.

2. Background

2.1 Acquiring code-switching restrictions

CS is rule-governed and adheres to grammatical rules, the same way that monolingual clauses are constructed according to structural restrictions. For example, consider the sentences in (2) and (3).

(2) *Yo te puedo mandar un* text after class.
I you can send a
'I can send you a text after class.'

(3) * *Yo te* can send a text after class.
I you
'I can send you a text after class.'

[2] Here *choose* does not imply that it is always done consciously by the individual; the same way monolingual speakers often make different lexical or syntactic choices unconsciously to best express themselves to an interlocutor, so too can bilinguals make choices about which language to use when.

In (2), we see that switching from a Spanish determiner (*un* 'a') to an English noun (*text*) results in a perfectly grammatical sentence—a pattern widely attested in the CS literature (Denbaum & de Prada Pérez 2021; Fernández Fuertes et al. 2025; Parafita Couto & Stadthagen-González 2019). However, if we attempt the same sentence with the switch occurring between the Spanish clitic (*te* 'you') and the English verb (*can*), as in (3), most Spanish-English bilinguals would judge the construction as ungrammatical.

While structural constraints on intraclausal CS highlight its systematic nature, it is equally important to consider how bilinguals with different language acquisition backgrounds—particularly in terms of age and context—may exhibit distinct CS patterns. As a fundamentally bilingual phenomenon, CS is possible for any speaker of two or more languages; the potential to mix languages exists regardless of when or how those languages were acquired. However, L2 bilinguals are often overlooked in CS research, as their switching is frequently interpreted as a sign of linguistic deficiency. The prevailing assumption is that when such bilinguals do not know how to express something in their L2, they default to their L1—thus framing all their CS as compensatory. While it is true that beginners may rely on CS to fill gaps in L2 knowledge, not all CS by L2 bilinguals should be dismissed as such. Gardner-Chloros (2009), for instance, notes that they commonly use CS to navigate "communicative stumbling blocks," but notes that this is also a strategy employed by early bilinguals, indicating that this phenomenon cannot be reduced to issues of proficiency alone.

Not only should CS not be viewed as a marker of low proficiency in bilinguals, but it, in fact, has long been established in the literature as a practice associated with high linguistic competence. Poplack (1980: 615), for example, argued that intraclausal CS "is a verbal skill requiring a large degree of linguistic competence in more than one language, rather than a deficit arising from insufficient knowledge of one or the other." Nonetheless, while CS is widely recognized as a sign of high proficiency in early bilinguals, it remains unclear to what extent L2 bilinguals with advanced proficiency demonstrate the same skill. Just as L2 bilinguals can acquire the ability to style-shift according to sociolinguistic context (Tarone 1982, as cited in Ellis 1994), it is worth investigating whether they can also learn to code-switch within sentences in ways that are not only aligned with social norms, but also constrained by grammar. Although extensive research has examined how L2 bilinguals progress from rudimentary to advanced control of specific grammatical domains—such as verbal morphology or gender assignment—relatively little attention has been paid to how they might similarly develop the ability to code-switch in syntactically nuanced ways, mirroring the patterns observed in early bilinguals.

Toribio's (2001) study was one of the first to investigate how L2 bilinguals develop intuitions about CS, focusing on the Functional Head Constraint (FHC). The FHC, proposed by Belazi et al. (1994), suggests that in CS, functional heads and their complements must match in language features. In contrast, it argues that lexical heads and their complements can switch between languages. Toribio used an acceptability judgment task (AJT) to assess functional switches like those between an auxiliary verb and its participle (4a) or a complementizer and its clause (4b), which should be restricted according to the FHC framework.

(4) a. * *Los estudiantes han* elected a new representative.
the students have
'The students have elected a new representative.'

b. * The clinic does not treat students that *no tienen seguro médico.*
not have insurance medical
'The clinic does not treat students that don't have medical insurance.'

The findings showed that advanced L1-English L2-Spanish bilinguals were less likely to accept such functional switches. Beginners, on the other hand, tended to accept switches where direct translation between languages was possible. These results show that there is a learning process for L2 bilinguals when it comes to CS, wherein grammatical knowledge of when to switch between their two languages can be acquired with increased proficiency.

Giancaspro (2015) also investigated the CS of L2 bilinguals but focused on the Constraint-Free (CF) approach (MacSwan 2014), which differs from the FHC by suggesting that CS restrictions are based on inherent features of the languages involved rather than specific language features of the syntactic elements. The CF approach, aligned with contemporary Minimalist syntax, argues that CS grammaticality results from feature-checking. Such an approach addresses the ungrammaticality of a variety of switches, including those targeting auxiliary verbs (5a) and pronouns (5b), which were the structures tested in Giancaspro's study.

(5) a. * The boys had *pintado el cuadro.*
painted the picture
'The boys had painted the picture.'

b. * They *habían pintado el cuadro.*
had painted the picture
'They had painted the picture.'

The results showed that in an AJT, both L1-English L2-Spanish and heritage bilinguals' CS acceptability was consistent with the CF approach. In other words, like Toribio (2001), the findings show that is possible for L2 bilinguals to acquire parallel restrictions to bilinguals who acquired both languages early in life.

Koronkiewicz (2018) also explored L2 bilinguals' CS judgments to further gain insights into the development of their L2 linguistic systems. Like those previous studies, it examined the impact of proficiency on their CS intuitions but also added the dimension of bilingual language exposure. The central question was whether prior experience with Spanish-English CS influenced the acquisition of such restrictions, or weather increased proficiency alone was sufficient. In line with Giancaspro's study, the experiment included an AJT that looked at switches that align with the CF approach, including restrictions on auxiliary verb switches (6a) and pronoun switches (6b).

(6) a. * *Su hermano ha* trained at the gym every day.
his brother has
'His brother has trained at the gym every day.'

b. * He *pidió* *una* *cerveza.*
ordered a beer
'He ordered a beer.'

The results suggest that both factors are significant when it comes to L1-English L2-Spanish bilinguals' CS. L2 bilinguals with intermediate-to-advanced proficiency in Spanish, but no prior CS experience aligned closely with heritage bilinguals in their CS judgments. Importantly, though, those with low proficiency that did have prior experience with language mixing, also showed intuitions that aligned with the heritage bilinguals. It was only the L2 bilinguals with low Spanish proficiency and no experience with CS that showed significant divergence from the heritage bilingual judgments, generally accepting all switches regardless of the structure.

These studies show that L2 bilinguals can and do acquire structural restrictions on intraclausal CS. However, the structures included so far have been limited, with most evidence coming from auxiliary verb switches and pronoun switches. To continue this line of research, it is important to test whether this ability can be generalized more broadly to other syntactic structures. What happens when the two structures in their respective languages do not map on to one another word-for-word, but rather create a direct conflict? Yet to be studied is whether L2 bilinguals can acquire restrictions on CS where grammatical knowledge about word order differences is central to the structural constraint. To test this, the current study turns to adverb position, which differs between Spanish and English, where English requires preverbal position while Spanish allows for more flexible word order.

2.2. Adverb position in Spanish and English

Adverbs can appear in many different positions throughout a sentence, with at least four different options traditionally identified: sentence-initial, pre-verbal, post-verbal, and sentence-final. For example, consider the sentences in (7), with the English adverb *quickly* occupying those distinct positions, respectively.

(7) a. Quickly, she ate the pizza.

b. She quickly ate the pizza.

c. * She ate quickly the pizza.

d. She ate the pizza quickly.

As we can see, not all positions are grammatical for this adverb in English, as the post-verbal position is restricted (7c). Different languages vary regarding whether all these positions are available for adverbs, and within each of these languages it can also depend on the type of adverb in question. Although there is much that can be said about adverb position more broadly (Alexiadou 1997; Cinque 1999; Travis 1988), the current paper focuses exclusively on pre-verbal and post-verbal position, as that is where clear differences exist between Spanish and English.

Consider the Spanish sentences in (8), which mirror the English sentences in (7b) and (7c).

(8) a. Ella rápidamente comió la pizza.
she quickly ate the pizza
'She quickly ate the pizza.'

b. Ella comió rápidamente la pizza.
she ate quickly the pizza
'She quickly ate the pizza.'

Here we see that the restriction on post-verbal position does not apply for the adverb *rápidamente* 'quickly', as both are options for many Spanish speakers.[3] The fact that Spanish (and other languages) have post-verbal adverbs is often accounted for in the generative syntactic literature via a phenomenon referred to as *verb raising*. Various researchers have argued that the verb (V) and tense (T) determine adverb position (Camacho & Sánchez 2017; Pollock 1989; Suñer 1994; Zagona 2002). To have the adverb in post-verbal position, it is the verb that moves around it; that is, the verb moves from its base position to a higher position in the clause. This V-to-T movement is part of the language's inflectional system and is used to satisfy syntactic requirements and to mark distinctions in focus or emphasis. English is a non-raising language, meaning that such movement does not occur, as it maintains a fixed word order where the verb remains in its base position. Although not absolute, this distinction reflects the broader syntactic and morphological differences between Romance languages, which tend to be verb-raising, and Germanic languages, which tend to be non-raising.

What is interesting about Spanish is that it has been referred to as a hybrid language when it comes to verb raising (Ayoun 2005). Spanish can allow adverbs in both pre-verbal and post-verbal position; that is, it can optionally have verb raising or not. This sets it apart from other verb-raising languages, where the post-verbal position is required. For example, the French adverb *rapidement* 'quickly' has a fixed post-verbal position, showing how French verbs universally raise out of their base position. To account for this difference between Spanish and French, Camacho and Sánchez (2017) propose a hybrid model for Spanish. They argue that Spanish is still always a verb-raising language like French; however, the difference is that Spanish has a different parameter regarding the spell out of the verb. Unlike in French where the verb is raised and there are stricter rules for lexical insertion where the higher position is always spelled out, Spanish syntactically raises the verb out of its base position, satisfying the requirements that motivate that movement in the first place, while also allowing for the original (i.e., lower) copy of the verb to be spelled out by the phonological system.

[3] It should be noted that although both positions are attested, it is not the intention to suggest full optionality in Spanish for all speakers with adverbs such as *rápidamente* 'quickly'. As an anonymous reviewer observed, factors such as focus could be influencing the naturalness of one position over the other. For example, Camacho and Sánchez (2017) found a general preference for post-verbal placement in Peruvian Spanish, though pre-verbal placement was also possible. Our focus here is on structural possibility rather than gradient preferences.

Up until this point, we have discussed adverbs as one categorical group within a given language. However, the reality is that adverbs do not behave as one homogenous group, and we can subdivide adverbs into various categories that can also affect their distribution. This study adopts Alexiadou's (1997) proposal, categorizing adverbs broadly as either *complement-type* or *specifier-type*. The proposal highlights how adverbs can serve different syntactic roles and influence sentence structure in distinct ways, depending on whether they function as, as the names imply, complements or specifiers. Complement-type adverbs are thematically related to the verb and said to be generated within the complement domain of the verb. Specifier-type adverbs on the other hand are not thematically related to the verb and are base generated in the left periphery of the verb phrase.

Regarding syntactic distribution, for English, both complement-type adverbs, such as *carefully* or *completely*, and specifier-type adverbs, such as *always* and *frequently*, are allowed in pre-verbal position and restricted in post-verbal position (9-10).

(9) a. She carefully completed the assignment.

b. * She completed carefully the assignment.

(10) a. She always completed the assignment.

b. * She completed always the assignment.

However, with Spanish, there is a distinction between the two types. The complement-type adverbs *cuidadosamente* 'carefully' and *completely* 'completamente' are more flexible, as they can be in pre-verbal or post-verbal position (11), while the specifier-type adverbs *siempre* 'always' and *frecuentemente* 'frequently' are like English in that they only permit pre-verbal position (12).

(11) a. Ella cuidadosamente completó la tarea.
She carefully completed the task
'She carefully completed the task.'

b. Ella completó cuidadosamente la tarea.
She completed carefully the task
'She carefully completed the task.'

(12) a. Ella siempre completó la tarea.
She always completed the task
'She always completed the task.'

b. * Ella completó siempre la tarea.
She completed always the task
'She always completed the task.'

Despite the overview just provided, it is worth noting how challenging it is to pin down the exact nature of adverb placement in Spanish, as there are findings in the literature that

do not fit neatly within Alexiadou's (1997) proposal. While the framework distinguishes sharply between complement-type and specifier-type adverbs, Camacho and Sánchez's (2017) experimental data from Peruvian Spanish, for example, do not align fully with these predictions. They found that both types of adverbs display a degree of positional flexibility, with both pre-verbal and post-verbal orders often judged acceptable. These findings suggest that Spanish permits greater variability in adverb placement than Alexiadou's hierarchy would anticipate. On a similar note, Camacho and Kirova's (2018) results with heritage speakers of Spanish showed greater flexibility as well. The heritage speakers, for example, accepted both orders for both adverb types in affirmative clauses. Following the methodological recommendations of Ebert and Koronkiewicz (2018), this variability highlights the importance of incorporating monolingual judgments alongside CS data, as doing so provides the necessary baseline for determining whether unexpected CS patterns reflect genuine properties of bilingual grammars or, instead, broader variation already present in monolingual Spanish.

2.3. Adverbs in Spanish-English code-switching

There has been little work on the availability of different adverb position in CS. However, Koronkiewicz (2022) did investigate verb raising in Spanish-English CS, testing predictions about the positioning of adverbs in intraclausal switches. Early bilinguals completed an AJT that contained sentences with finite verb combined with either a pre-verbal or post-verbal adverb in the opposite languages. Monolingual sentence equivalents in Spanish and English were also included to compare adverb position in each language. The results indicated that participants showed the expected patterns in monolingual sentences, preferring non-raising verb structures in English and accepting both verb orders in Spanish. For CS, non-raising structures were always acceptable, but verb raising was variable. The findings show that adverb switching depends on the language of the adverb rather than the language of the verb. Specifically, Spanish complement-type adverbs were considered acceptable in either pre-verbal or post-verbal position, while Spanish specifier-type adverbs were more acceptable in pre-verbal position. English adverbs (regardless of type) were also preferred in pre-verbal position.

2.4. Framework

The current study adopts a generative approach to CS (Grimstad et al. 2018; MacSwan 1999, 2014), positing that language mixing is not constrained by a "third grammar" or any mediating mechanisms. Instead, intraclausal CS is governed by the same grammatical principles that apply to monolingual speech. Both a lexicalist approach and an exoskeletal approach fall within the generative Minimalist Program (Chomsky 1995), differing in whether syntactic structures are derived from features on lexical items (lexicalist) or independently of them (exoskeletal). Both approaches assume that mismatches between features of the two languages' grammars cause ungrammatical switches, paralleling what happens in monolingual derivations. For the current study, following Koronkiewicz (2022) for adverb position in Spanish-English CS, either approach predicts the same outcomes, with the language of the adverb dictating adverb placement in both monolingual and code-switched contexts.

2.5. Research questions

The current study seeks to investigate whether L2 bilinguals can acquire restrictions on adverb placement in Spanish-English CS. Given that proficiency is consistently identified as a crucial factor in research on L2 bilingualism—and has been shown to influence their CS patterns—this study will also examine its role. Thus, the following research questions emerge:

Research Question 1: Do L2 bilinguals exhibit the same acceptability ratings regarding adverb position in Spanish-English CS as heritage bilinguals?

Research Question 2: Does L2 proficiency impact acceptability ratings regarding adverb position in Spanish-English CS?

Given the participant backgrounds and previous CS findings, specific hypotheses can be made. First, the heritage speakers and high L2 proficiency bilinguals are expected to accept Spanish complement-type adverbs both before and after an English verb, but to accept English complement-type adverbs only when switched before a Spanish verb. Second, both groups are predicted to accept specifier-type adverbs—regardless of language—only when the switch occurs before a verb in the opposite language, not after. Finally, predictions for the low L2 proficiency bilinguals are less certain; however, if they follow a "direct translation" strategy, as observed in Toribio (2001), it is likely they will only accept adverbs in pre-verbal position, regardless of type, reflecting the expected word order in English.

3. Methods

3.1. Participants

A total of 105 Spanish-English bilinguals living in the US participated in the study, recruited from undergraduate Spanish courses at various universities. Participants were categorized based on the context in which they first acquired Spanish (i.e., familial or educational). The L2 group was further divided by proficiency, using scores from a commonly used, objective Spanish proficiency measure that targets Spanish vocabulary and grammar knowledge via a 50-item multiple-choice test (Montrul & Slabakova 2003). Participants scoring above the mean (28.8) were classified as high proficiency (n = 35), and those scoring below that were classified as low proficiency (n = 40). Furthermore, to reduce variability and maintain alignment with the study's focus, only participants who reported exposure to intraclausal CS were retained. This criterion led to the exclusion of 32 different participants, resulting in a final sample of 25 heritage speakers, 25 high-proficiency L2 speakers (*L2 High*), and 23 low-proficiency L2 speakers (*L2 Low*). Table 1 summarizes key language background information for each bilingual group.

Table 1. *Overall language background for all participants*

	Heritage *M (SD)*	Range	L2 High *M (SD)*	Range	L2 Low *M (SD)*	Range
Spanish						
AoA	1.2 (3.7)	0-18	11.0 (4.5)	0-16	10.8 (4.0)	5-20
Proficiency	33.1 (5.4)	18-41	34.8 (3.3)	30-41	22.3 (4.3)	12-26
Self-Rating						
Speaking	5.6 (0.7)	4-6	5.0 (1.3)	2-6	4.0 (1.1)	1-6
Listening	5.1 (0.9)	3-6	4.5 (1.2)	2-6	4.1 (0.9)	2-6
Reading	5.1 (1.0)	3-6	5.0 (1.0)	3-6	4.4 (1.0)	2-6
Writing	4.6 (1.2)	2-6	4.5 (1.2)	2-6	4.2 (1.3)	1-6
English						
AoA	3.4 (3.7)	0-16	0.4 (1.4)	0-5	0.2 (0.6)	0-2
Proficiency	37.2 (2.0)	32-40	38.6 (1.4)	34-40	37.7 (2.8)	27-40
Self-Rating						
Speaking	5.9 (0.3)	5-6	6 (0.0)	6-6	6 (0.0)	6-6
Listening	5.7 (0.5)	4-6	6 (0.0)	6-6	6 (0.2)	5-6
Reading	5.8 (0.6)	4-6	6 (0.0)	6-6	6 (0.0)	6-6
Writing	5.7 (0.6)	4-6	6 (0.2)	5-6	6 (0.0)	6-6
Dominance	23.4 (39.6)	-49 to 98	89.8 (31.5)	41 to 145	109.1 (23.2)	53 to 159

Note. The Spanish proficiency measure (Montrul & Slabakova 2003) was scored from 0 to 50, while for English (O'Neill et al. 1981) it was scored from 0 to 40. The remaining data was taken from the self-reported Bilingual Language Profile (BLP, Birdsong et al. 2012). The self-ratings for both languages were scored from 0 to 6, where 0 was labeled *not well at all* and 6 was labeled *very well*. The BLP was also used to calculate the language dominance score, which ranged from -218 to +218, where a positive score indicated more English dominance.

3.2. Stimuli

The stimuli designed for this study all focused on the position of the adverb in relation to the verb. For the CS stimuli (n = 32), this was always a finite verb switched with a pre-verbal (13) or post-verbal adverb (14), including *completely/completamente* and *carefully/cuidadosamente* for the complement-type adverbs and *always*/*siempre* and *frequently/frecuentemente* for the specifier-type adverbs. All sentences included an animate subject in the form of an individual proper (first) name which was chosen to match the language of the element that immediately followed it (i.e., the adverb or the verb). There was also always a direct object that completed each sentence (after both the adverb and verb, regardless of the order), the language of which always matched the element immediately preceding it. Comparison monolingual stimuli equivalents (n = 32) were tested as well, where everything was parallel to the CS stimuli, except that all elements were in one language or the other (15-16).

(13) a. Henry carefully *lee* *las* *instrucciones.*
reads the instructions
'Henry carefully reads the instructions.'

b. *Antonio cuidadosamente* reads the instructions.
Antonio carefully
'Antonio carefully reads the instructions.'

(14) a. Henry reads *cuidadosamente las instrucciones.*
carefully the instructions
'Henry reads carefully the instructions.'

b. *Antonio lee* carefully the instructions.
Antonio reads
'Antonio reads carefully the instructions.'

(15) a. Henry carefully reads the instructions.

b. Antonio cuidadosamente lee las instrucciones.
Antonio carefully reads the instructions
'Antonio carefully reads the instructions.'

(16) a. Henry reads carefully the instructions.

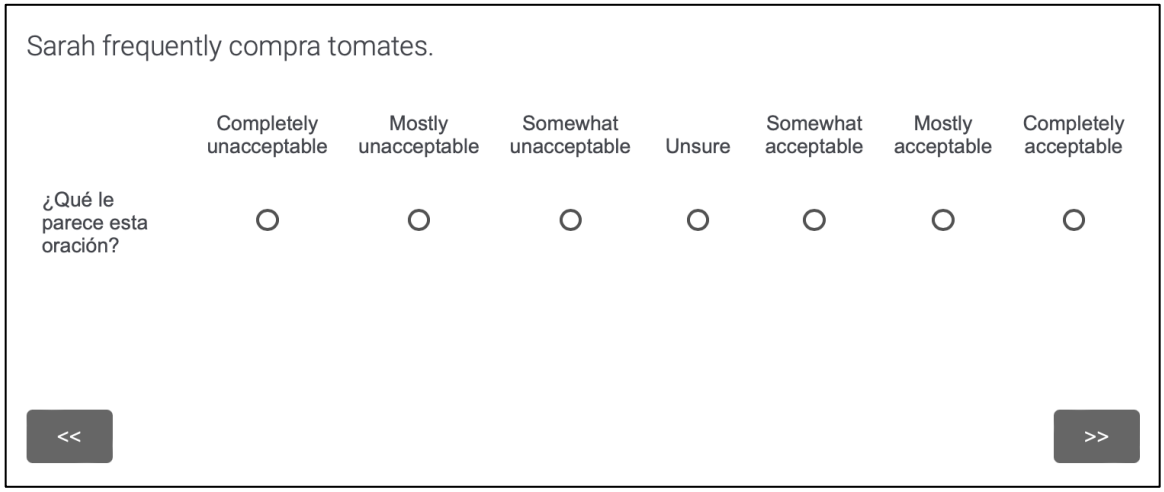
b. Antonio lee cuidadosamente las instrucciones.
Antonio reads carefully the instructions
'Antonio reads carefully the instructions.'

The study also included various distractor stimuli for both the CS (n = 100) and monolingual (n = 100) AJT blocks. These sentences targeted structures like the present perfect auxiliary verb *have/haber*, preposition stranding, and strong and weak pronouns.

3.3. Procedure

Participants completed a written AJT through the online survey platform Qualtrics, and the task followed the overall guidelines proposed by González-Vilbazo et al. (2013) for experimental studies on CS. Each stimulus was presented one at a time on the screen, accompanied by the question *¿Qué le parece esta oración? / How acceptable is this sentence?* and a 7-point Likert scale. When completing the monolingual portions of the AJT, participants were provided the question and labels entirely in either Spanish or English, and in the CS portion they saw the question in Spanish and the labels in English. See Figure 1 for an example of what participants were presented in the CS block.

Figure 1. *Sample AJT item*



Each participant completed the study in one session on their own time, in a location of their choosing. After consenting to participate, the session began with a training that provided participants with an overview of what an AJT is and included several practice judgments. This training also aimed to prime participants into a bilingual mindset, following the approach of González-Vilbazo et al. (2013), by using Spanish-English CS throughout the instructions (e.g., at clause boundaries or prepositional phrases). Participants then completed a full block of CS judgments, which were individually randomized for each participant. Next, they took the Spanish proficiency measure (Montrul & Slabakova 2003), followed by a block of randomized monolingual Spanish judgments. Afterward, participants completed the English proficiency measure (O'Neill et al. 1981) and a randomized block of monolingual English judgments. Finally, they filled out a background questionnaire that combined elements from the Bilingual Language Profile (Birdsong et al. 2012) and the questionnaire for Spanish-English bilingual speakers provided by the National Heritage Language Resource Center (Montrul 2012). Participants were compensated for their time either via extra credit in their undergraduate Spanish course or via a $15 Amazon.com eGift card.

4. Results

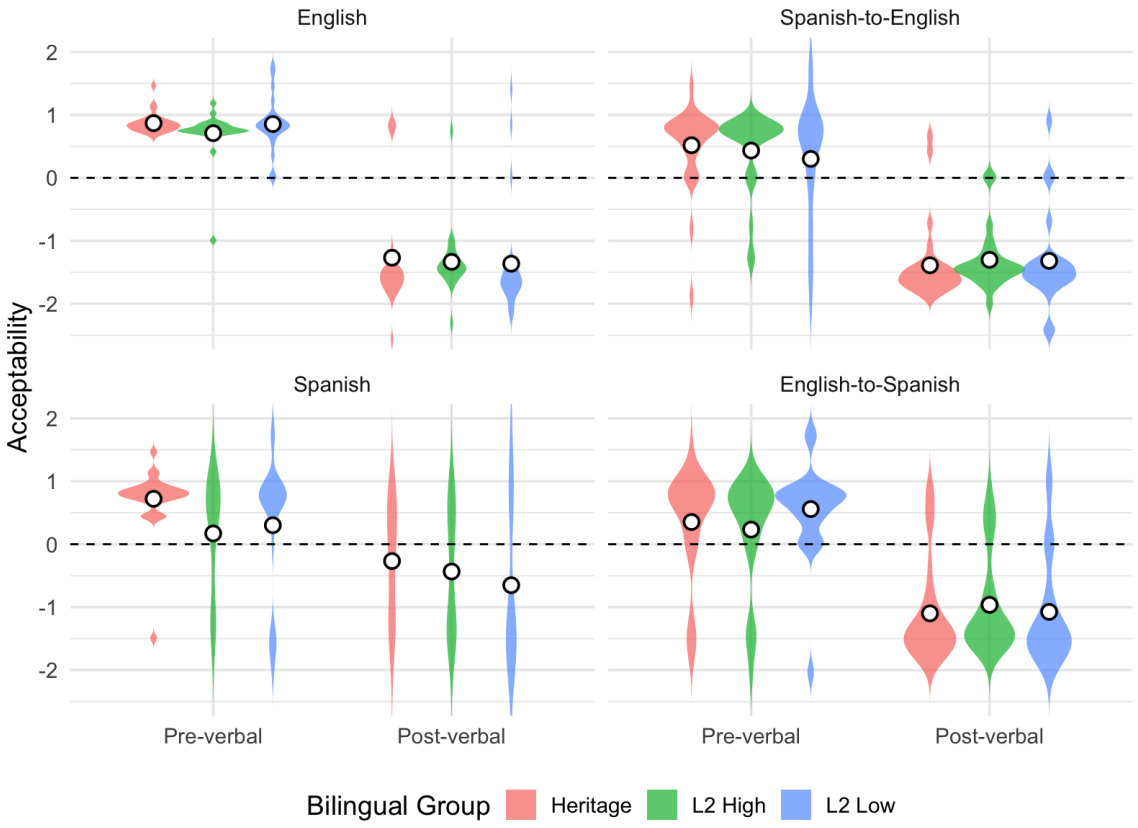
4.1. Specifier-type adverb results

The results for the specifier-type adverbs are presented in Figure 2, where violin plots display the distribution of z-scores for each bilingual group,[4] separated by condition and the language(s) of the verb/adverb in each stimulus (with the mean z-score indicated by the circles within each violin). Note that because the condition dictates whether the adverb appears before or after the verb, the Spanish adverbs in CS are included in the pre-verbal

[4] Given the nature of Likert scale ratings in an AJT, recommendations outlined by Schütze and Sprouse (2014) were followed, converting raw scores into z-scores to ensure comparability across participants.

Spanish-to-English sentences and the post-verbal English-to-Spanish sentences, with the inverse true for English adverbs in CS.

Figure 2. *Specifier-type adverb position acceptability by language(s)*



Focusing first on the monolingual stimuli, we see that all groups generally exhibited the expected distinction. In both English and Spanish, specifier-type adverbs were rated more acceptable in pre-verbal position compared to post-verbal position (see the Appendix for a full table reporting the means and standard deviations), the latter of which is typically considered ungrammatical in both languages. However, the difference between the two conditions in Spanish is not as large as for English; the Spanish post-verbal adverbs were rated lower than average, as exemplified by the negative z-scores, but much closer to the middle of the scale than in English. This outcome could suggest that this type of adverb use in Spanish may not have been completely ruled out by (some of) these bilinguals; nonetheless, from a descriptive perspective, there still seems to be a stronger preference for pre-verbal position in Spanish, as expected. Turning to CS, we see parallel results. Across the board, regardless of the language of the adverb, it was rejected when found switched after a verb of the opposite language, aligning with the predictions for all three groups.

A Bayesian linear mixed-effects model was fitted to predict z-scores based on the language(s), condition, bilingual group, and their interactions, with random intercepts for

participant and stimulus. The model revealed an effect of condition. Post-verbal adverbs were rated lower than pre-verbal ones, with a large effect size, $b = -1.88$, $SE = 0.27$, 95% credible interval [–2.35, –1.30], $d = -1.88$. Bayesian analysis provided decisive evidence for this effect, $BF_{10} = 2{,}210.07$, indicating a robust dispreference for post-verbal position across all groups and language contexts. There was no evidence that bilingual group or language(s) alone influenced ratings. All 95% credible intervals for these main effects included zero, and Bayes Factors supported the null ($BF_{10} < 1$), suggesting the data were more consistent with no effect. One interaction showed moderate evidence: condition × Spanish-only language context, $b = 0.86$, $SE = 0.38$, 95% CI [0.05, 1.54], $BF_{10} = 4.38$. This result suggests that the grammaticality effect may be slightly attenuated in the Spanish-only stimuli. A summary of these results is provided in Table 2.

Table 2. *Linear mixed-effects model results predicting specifier-type z-score*

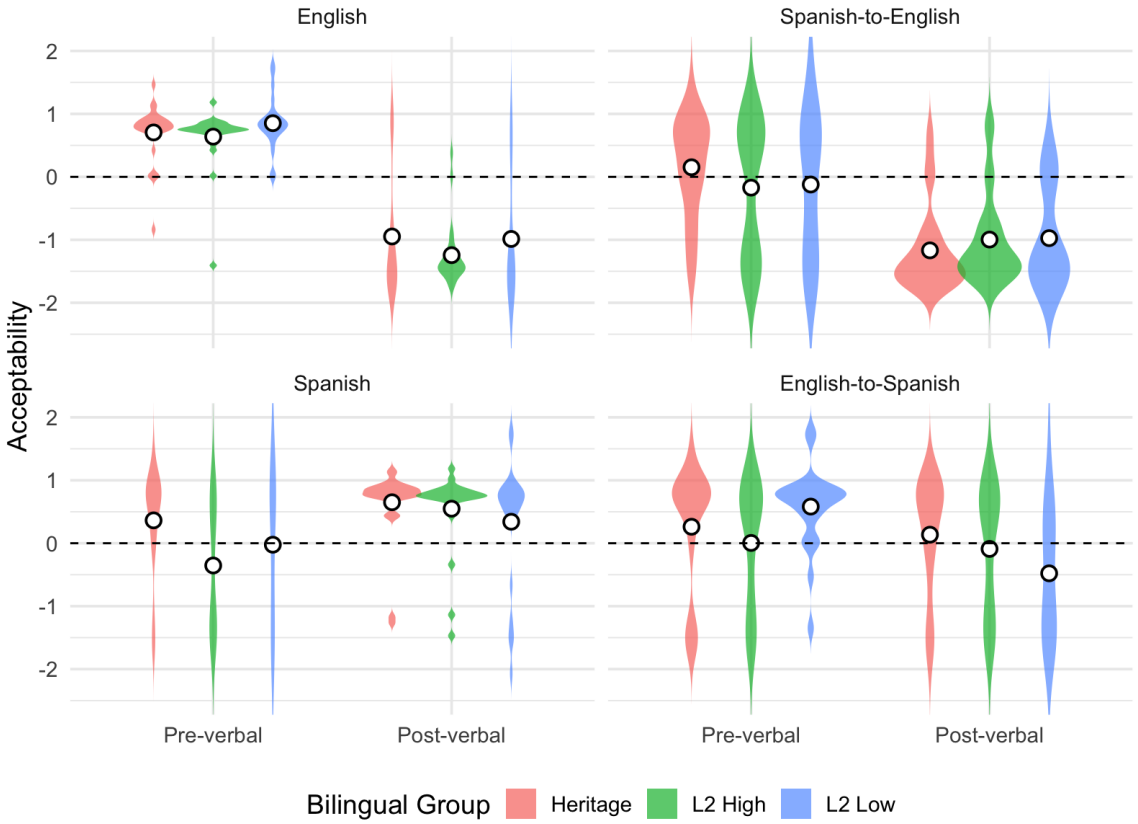
Predictor	Estimate (*b*)	SE	95% Credible Interval	Cohen's *d*	Bayes Factor (BF_{10})
Post-verbal	-1.88	0.27	[-2.35, -1.30]	-1.88	2,210.07
L2 High	-0.14	0.19	[-0.52, 0.24]	-0.14	0.26
L2 Low	0.01	0.19	[-0.37, 0.39]	0.01	0.19
Spanish	-0.01	0.27	[-0.50, 0.55]	-0.01	0.25
Sp-to-En	-0.22	0.27	[-0.73, 0.35]	-0.22	0.41
En-to-Sp	-0.35	0.27	[-0.84, 0.22]	-0.35	0.71
Condition × Spanish	0.86	0.38	[0.05, 1.54]	0.86	4.38
Condition × Sp-to-En	-0.01	0.37	[-0.79, 0.68]	-0.01	0.35
Condition × En-to-Sp	0.39	0.37	[-0.40, 1.08]	0.39	0.76

Note. Reference groups are pre-verbal for condition, heritage for bilingual group, and English for language(s). Estimates represent differences from these baselines.

4.2. Complement-type adverb results

The results for the complement-type adverbs are presented in Figure 3. Again, violin plots display the distribution of z-scores for each bilingual group, separated by condition and the language(s) of the verb/adverb in each stimulus.

Figure 2. *Complement-type adverb position acceptability by language(s)*



Focusing again on the monolingual stimuli first, all groups showed the same expected pattern in English: complement-type adverbs were rated significantly more acceptable in pre-verbal than in post-verbal position. These results follow English grammaticality, as there was expected to be no difference between the specifier-type and complement-type adverbs. The Spanish data, however, is less straightforward. Only the heritage bilingual group followed the expected pattern, with mean ratings above zero for both positions—consistent with the expected grammaticality of complement-type adverbs in either position in Spanish. In contrast, both late L2 bilingual groups appear to, at least partially, reject the pre-verbal position, showing a preference for post-verbal Spanish adverbs (in a pattern that effectively reverses the distribution previously found for the specifier-type adverbs). Turning to CS conditions, we generally observe the expected distinction. English adverbs were rated less acceptable when switched into post-verbal position following a Spanish verb, compared to when they appeared in pre-verbal position. For Spanish adverbs, the difference between pre- and post-verbal positions was less pronounced, with both conditions receiving mid-range acceptability ratings. Additionally, it is important to note that, at least descriptively, the largest difference between the post-verbal and pre-verbal Spanish adverbs in CS was for the Low L2 group, who were more likely to reject post-verbal position for the complement-type, as predicted.

A separate Bayesian linear mixed-effects model was fitted to predict complement-type adverb z-scores based on the language(s), condition, bilingual group, and their interactions, with random intercepts for participant and stimulus. The model again revealed a significant

effect of condition. Post-verbal adverbs were rated lower than pre-verbal ones, with a large effect size, $b = -1.33$, $SE = 0.30$, 95% CI [–1.84, –0.68], $d = -1.33$. Bayesian analysis provided very strong evidence for this effect, $BF_{10} = 76.91$, indicating a consistent dispreference for post-verbal adverbs across all groups. There was no evidence that either bilingual group or language(s) alone influenced acceptability ratings. There was strong evidence for an interaction with the Spanish-only stimuli, $b = 1.52$, $SE = 0.42$, 95% CI [0.59, 2.27], $BF_{10} = 40.79$, and moderate evidence for an interaction with English-to-Spanish CS, $b = 1.07$, $SE = 0.41$, 95% CI [0.19, 1.80], $BF_{10} = 8.07$. These findings suggest a much weaker dispreference for post-verbal adverbs in these cases. A summary of these results is provided in Table 3.

Table 3. *Linear mixed-effects model results predicting complement-type z-score*

Predictor	Estimate (*b*)	SE	95% Credible Interval	Cohen's *d*	Bayes Factor (BF_{10})
Post-verbal	-1.33	0.3	[-1.84, -0.68]	-1.33	76.91
L2 High	-0.11	0.21	[-0.54, 0.30]	-0.11	0.26
L2 Low	0.14	0.21	[-0.28, 0.56]	0.14	0.27
Spanish	-0.41	0.29	[-0.95, 0.21]	-0.41	0.91
Sp-to-En	-0.14	0.3	[-0.69, 0.50]	-0.14	0.36
En-to-Sp	-0.21	0.3	[-0.76, 0.42]	-0.21	0.42
Condition × Spanish	1.52	0.42	[0.59, 2.27]	1.52	40.79
Condition × Sp-to-En	0.05	0.4	[-0.82, 0.77]	0.05	0.39
Condition × En-to-Sp	1.07	0.41	[0.19, 1.80]	1.07	8.07

Note. Reference groups are pre-verbal for condition, heritage for bilingual group, and English for language(s). Estimates represent differences from these baselines.

5. Discussion

5.1. Main findings

Although this study focuses on CS, it is essential to first establish how each language behaves independently in terms of its grammatical patterns. Without this baseline, it becomes difficult to determine whether observed (un)grammaticality stems from the switch itself (Ebert & Koronkiewicz 2018). As expected, both heritage and L2 bilinguals showed no differences in their judgments of complement-type versus specifier-type adverb placement in English, consistently preferring pre-verbal position. In Spanish, however, the results were less consistent with expectations: all groups rated post-verbal specifier-type adverbs slightly higher than anticipated and pre-verbal complement-type adverbs slightly lower than anticipated. Even so, the overall pattern remains broadly consistent with predictions, as the effect of condition was substantially stronger for complement-type adverbs than for specifier-type adverbs in Spanish.

These findings suggest that all three bilingual groups—despite differences in language acquisition age/context and proficiency level—demonstrate an awareness of the grammatical constraints governing adverb placement in each language. Notably, all groups showed greater consistency in their judgments of English adverb placement compared to Spanish. This pattern is unsurprising, given that all participants were more dominant in English. As the less dominant language, Spanish may be more vulnerable to variability, particularly among bilinguals immersed in an English-speaking environment, as was likely

the case for these participants residing in the US. Such conditions can contribute to less stable or consistent judgments regarding syntactic patterns in the less dominant language, as has been noted throughout the literature with both heritage speakers (Montrul 2008; Polinsky 2011) and L2 bilinguals (Montrul & Slabakova 2003; White 2003).

At the same time, it is important to note that variability in Spanish adverb placement is not unique to these bilingual speakers. Previous studies with both monolinguals and heritage speakers have reported similar patterns of flexibility, particularly for specifier-type adverbs. As mentioned previously, Camacho and Sánchez (2017), for instance, found that both complement-type and specifier-type adverbs could surface in pre- and post-verbal positions in monolingual Peruvian Spanish. Likewise, Camacho and Kirova (2018) observed that heritage speakers displayed greater tolerance for both orders, even in contexts where a stricter framework such as Alexiadou's would not predict them. In this light, the results of the present study align with prior findings in suggesting that Spanish adverb placement exhibits more flexibility than traditionally assumed.

In the case of CS, the results were consistent with expected patterns, as the acceptability aligned with the language of the adverb. There was once again a distinction between complement-type and specifier-type adverbs, but only in Spanish. Spanish complement-type adverbs were found to be the only ones to be (somewhat) acceptable in post-verbal position, as Spanish specifier-type adverbs and English adverbs of either type were rated notably lower. These findings first provide yet further evidence that the structure of CS is not arbitrary, as bilinguals have specific intuitions about when it is possible to switch or not. Furthermore, it supports the previous findings of Koronkiewicz (2022) that suggest that it is indeed the language of the adverb that dictates the availability of a specific position relative to the verb.

Crucially, no statistically significant differences were found between the bilingual groups in their acceptability ratings. This absence of group effects suggests that both heritage speakers and late L2 bilinguals adhere to similar syntactic constraints when evaluating adverb placement in both monolingual and code-switched contexts. Thus, in response to Research Questions 1 and 2, the answer is affirmative and negative, respectively: L2 bilinguals demonstrated patterns of acceptability judgments comparable to those of heritage speakers regardless of proficiency level. This outcome only partially supports our original hypotheses, as we had anticipated differences based on proficiency, specifically expecting that lower-proficiency L2 bilinguals might diverge by rating post-verbal Spanish complement-type adverbs lower—imposing English rather than Spanish grammatical norms. Instead, these findings suggest that late L2 bilinguals, regardless of proficiency, have not only acquired the relevant monolingual grammatical constraints for adverb placement in their L2 but also the constraints governing adverb placement in code-switched structures.

5.2. Theoretical implications

The current findings provide important information regarding the role of language dominance in L2 bilingual CS. When it comes to L1 transfer, the results here suggest that L2 bilinguals do not simply rely on the syntactic structures of adverb position in their dominant language when switching between languages. If that were the case, these bilinguals should have shown consistent adherence to English word order for pre-verbal adverbs in all contexts. The same way that their monolingual L2 Spanish showed that they

permitted post-verbal complement-type adverbs, their CS allowed this as well when switching from English-to-Spanish. This suggests that, despite the presence of two languages in the same utterance, bilinguals do not seem to prioritize the syntax of one specific language, but rather the grammatical information from both systems is relevant. This finding is in line with any number of CS studies that work within the CF approach.

The fact that both heritage speakers and L2 bilinguals demonstrated parallel patterns in their syntactic preferences underscores the stability of these constraints across different types of bilinguals. Heritage bilinguals, who often have variable exposure to formal education in their first language, and L2 bilinguals, who acquire the additional language in an academic setting, both exhibited similar adherence to the grammatical structures of each language. This finding continues to challenge the notion that the context or timing of language acquisition alone significantly affects linguistic outcomes when it comes to CS. It is worth noting, though, that the participants included here all indicated at least some exposure to CS in their day-to-day lives. Although we can only postulate, if comparison L2 groups with no exposure were to be included, it is possible that they would not have aligned regarding the acceptability ratings.

This study contributes more broadly to the field of Second Language Acquisition by demonstrating that the acquisition of structural constraints on CS can and should be investigated in tandem with other grammatical features commonly studied in the field (e.g., the subjunctive mood, gender agreement, etc.). Just as understanding the nuances of these grammatical features helps illuminate the late acquisition of an L2, so too does investigating the grammatical limitations on CS offer critical insights into bilingual competence. The results from this study highlight that bilinguals—regardless of whether they are heritage speakers or L2 bilinguals—internalize the grammatical rules governing CS in a manner comparable to how they acquire the rules of each language independently. This suggests that CS should not be viewed as an isolated linguistic phenomenon but rather as an integral part of bilingual grammatical knowledge. Understanding these dynamics can deepen our theoretical understanding of bilingualism and open new avenues for exploring how multiple grammatical systems coexist and influence one another within a single speaker during the acquisition process.

5.3. Limitations and future research

There are a few limitations inherent to the current study given its methodological choices. First, although this study was able to show similarity regarding adverb placement in CS for early and L2 bilinguals, it only tested four specific lexical pairs. Given the known idiosyncrasy of adverbs—as Alexiadou (1997: 4) puts it, "the conglomeration of words that has been lumped together under this label is too heterogeneous to come together as a single category"—future research should target more varied adverbs to ensure that these patterns are consistent. Additionally, this study focused on a language pair that has considerable overlap regarding adverb position, as both permit preverbal position. It would be valuable to gain data from additional language pairs to maximize the syntactic differences. For example, a study with French-English bilinguals would present a more direct conflict, as one language requires preverbal position and the other requires postverbal position. Finally, this study only relied on one method of data collection, acceptability judgments. Data regarding production, either in semi-spontaneous speech or via elicited responses would

help provide a more holistic understanding of how the CS patterns between these two groups align or diverge when it comes to adverb position.

6. Conclusion

The findings of this study offer important insights into the structural constraints governing CS and their acquisition across different types of bilinguals. The alignment between heritage speakers and L2 bilinguals in their acceptability judgments of adverb placement underscores the robustness of these syntactic patterns, regardless of acquisition background. These results help continue to challenge the traditional view that late L2 bilinguals do not internalize the grammatical nuances of CS, instead highlighting that both groups acquire these constraints in ways that parallel their acquisition of monolingual grammar.

Bryan Koronkiewicz
Department of Modern Languages & Classics
Barefield College of Arts & Sciences
The University of Alabama
400 McCorvey Dr, Tuscaloosa, AL 35487-0246, United States
bjkoronkiewicz@ua.edu
ORCID: 0000-0003-2585-0258

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Appendix

Complete list of AJT stimuli

	English block	Spanish block	CS block Spanish-to-English	English-to-Spanish
Target	Henry carefully reads instructions.	Antonio cuidadosamente lee las instrucciones.	Antonio cuidadosamente reads instructions.	Henry carefully lee las instrucciones.
	Henry reads carefully instructions.	Antonio lee cuidadosamente las instrucciones.	Antonio lee carefully instructions.	Henry reads cuidadosamente las instrucciones.
	Nate completely understands the homework.	José completamente entiende la tarea.	José completamente understands the homework.	Nate completely entiende la tarea.
	Nate understands completely the homework.	José entiende completamente la tarea.	José entiende completely the homework.	Nate understands completamente la tarea.
	Hannah speaks always English.	Juana habla siempre español.	Juana habla always English.	Hannah speaks siempre español.
	Hannah always speaks English.	Juana siempre habla español.	Juana siempre speaks English.	Hannah always habla español.
	Sarah buys frequently tomatoes.	Margarita compra frecuentemente tomates.	Margarita compra frequently tomatoes.	Sarah buys frecuentemente tomates.
	Sarah frequently buys tomatoes.	Margarita frecuentemente compra tomates.	Margarita frecuentemente buys tomatoes.	Sarah frequently compra tomates.
Distractor (present perfect)	The students have paid attention to the professor today.	Los estudiantes han prestado atención al profesor hoy.	Los estudiantes han paid attention to the professor today.	The students have prestado atención al profesor hoy.
			Los estudiantes have paid attention to the professor today.	The students han prestado atención al profesor hoy.
	Her friends have bought new shoes recently.	Sus amigas han comprado zapatos nuevos recientemente.	Sus amigas han bought new shoes recently.	Her friends have comprado zapatos nuevos recientemente.
			Sus amigas have bought new shoes recently.	Her friends han comprado zapatos nuevos recientemente.
	His brothers have eaten pizza every day.	Sus hermanos han comido pizza todos los días.	Sus hermanos han eaten pizza every day.	His brothers have comido pizza todos los días.

			Sus hermanos have eaten pizza every day.	His brothers han comido pizza todos los días.
	Your neighbors have visited that restaurant several times.	Tus vecinos han visitado ese restaurante varias veces.	Tus vecinos han visited that restaurant several times.	Your neighbors have visitado ese restaurante varias veces.
			Tus vecinos have visited that restaurant several times.	Your neighbors han visitado ese restaurante varias veces.
Distractor (misc.)	He has a red big balloon.	David y Diego han ya pedido cinco dólares.	A veces va a la tienda and forgets what he was looking for.	Sometimes he'll go to the store y olvida lo que estaba buscando.
	Who did you think that is fishing?	José Miguel tiene ningún cuchillo.	Ella se esconde when he calls her.	She hides cuando él la llama.
	The man ate a tuna delicious sandwich.	Ellos han siempre tenido muchas actividades diferentes.	Le diremos if we see him.	We'll tell him si lo vemos.
	Who did she say that speaks Spanish?	La gente visita el museo nunca.	Todos van a mojarse if it rains today.	Everyone will get wet si llueve hoy.
	The earthquake destroyed the ancient beautiful city.	Ellos les han brevemente dado una oportunidad de salir.	Vamos a escuchar un sonido if someone rings the doorbell.	We'll hear a sound si alguien toca el timbre.
	What did you believe that has not died yet?	El mapa cuesta nada.	Voy a salir if I feel sick.	I will leave si me siento mal.
Distractor (preposition stranding)	Emma doesn't know what guy Jen is eating with.	Araceli no sabe qué hombre Rosario está comiendo con.	Araceli no sabe qué hombre Jen is eating with.	Emma doesn't know what guy Rosario está comiendo con.
	Dave is the coach that Rob practices with.	Carlos es el entrenador que Miguel practica con.	Carlos es el entrenador that Rob practices with.	Dave is the coach que Miguel practica con.
	Chad doesn't know what friend Kevin is traveling with.	Fernando no sabe qué amiga Sergio está viajando con.	Fernando no sabe qué amiga Kevin is traveling with.	Chad doesn't know what friend Sergio está viajando con.
	Zoey doesn't know what classmate Josh is studying with.	Francisca no sabe qué compañero de clase Octavio está estudiando con.	Francisca no sabe qué compañero de clase Josh is studying with.	Zoey doesn't know what classmate Octavio está estudiando con.

	Logan is the boy that Ashley lives with.	Javier es el chico que Alejandra vive con.	Javier es el chico that Ashley lives with.	Logan is the boy que Alejandra vive con.
	Lucy is the girl that Gabe is going out with.	Leticia es la chica que Arturo está saliendo con.	Leticia es la chica that Gabe is going out with.	Lucy is the girl que Arturo está saliendo con.
	Bill doesn't know what woman Megan is arguing with.	Manuel no sabe qué señora Megan está discutiendo con.	Manuel no sabe qué señora Megan is arguing with.	Bill doesn't know what woman Ximena está discutiendo con.
	Sally is the lady that Amy works with.	Yolanda es la mujer que Beatriz trabaja con.	Yolanda es la mujer that Amy works with.	Sally is the lady que Beatriz trabaja con.
Distractor (pronouns and lexical DPs)	Yesterday they bought some peaches.	Ayer ellos compraron unos duraznos.	Ayer ellos bought some peaches.	Yesterday they compraron unos duraznos.
	Yesterday those guys bought some peaches.	Ayer esos hombres compraron unos duraznos.	Ayer esos hombres bought some peaches.	Yesterday those guys compraron unos duraznos.
	Yesterday you and them bought some peaches.	Ayer tú y ellos compraron unos duraznos.	Ayer tú y ellos bought some peaches.	Yesterday you and them compraron unos duraznos.
	Five minutes ago they started to dance.	Hace cinco minutos ellos empezaron a bailar.	Hace cinco minutos ellos started to dance.	Five minutes ago they empezaron a bailar.
	Five minutes ago those guys started to dance.	Hace cinco minutos esos hombres empezaron a bailar.	Hace cinco minutos esos hombres started to dance.	Five minutes ago those guys empezaron a bailar.
	Five minutes ago you and them started to dance.	Hace cinco minutos tú y ellos empezaron a bailar.	Hace cinco minutos tú y ellos started to dance.	Five minutes ago you and them empezaron a bailar.
	A minute ago he ordered a beer.	Hace un minuto él pidió una cerveza.	Hace un minuto él ordered a beer.	A minute ago he pidió una cerveza.
	A minute ago that guy ordered a beer.	Hace un minuto ese hombre pidió una cerveza.	Hace un minuto ese hombre ordered a beer.	A minute ago that guy pidió una cerveza.
	A minute ago you and him ordered a beer.	Hace un minuto tú y él pidieron una cerveza.	Hace un minuto tú y él ordered a beer.	A minute ago you and him pidieron una cerveza.
	Last week he met our grandmother.	La semana pasada él conoció a nuestra abuela.	La semana pasada él met our grandmother.	Last week he conoció a nuestra abuela.
	Last week that guy met our grandmother.	La semana pasada ese hombre conoció a nuestra abuela.	La semana pasada ese hombre met our grandmother.	Last week that guy conoció a nuestra abuela.

	Last week you and him met our grandmother.	La semana pasada tú y él conocieron a nuestra abuela.	La semana pasada tú y él met our grandmother.	Last week you and him conocieron a nuestra abuela.
	My friend drinks more wine than he every night.	Mi amigo bebe más vino que él todas las noches.	Mi amigo bebe más vino que he every night.	My friend drinks more wine than él todas las noches.
	My friend drinks more wine than him every night.		Mi amigo bebe más vino que him every night.	
	My friend drinks more wine than that guy every night.	Mi amigo bebe más vino que ese hombre todas las noches.	Mi amigo bebe más vino que that guy every night.	My friend drinks more wine than ese hombre todas las noches.
	Our employees read more books them every month.	Nuestros empleados leen más libros que ellos cada mes.	Nuestros empleados leen más libros que them every month.	Our employees read more books ellos cada mes.
	Our employees read more books than they every month.		Nuestros empleados leen más libros que they every month.	
	Our employees read more books than those guys every month.	Nuestros empleados leen más libros que esos hombres cada mes.	Nuestros empleados leen más libros que those guys every month.	Our employees read more books than esos hombres cada mes.
	His sister eats more eggs than he every morning.	Su hermana come más huevos que él cada mañana.	Su hermana come más huevos que he every morning.	His sister eats more eggs than él cada mañana.
	His sister eats more eggs than him every morning.		Su hermana come más huevos que him every morning.	
	His sister eats more eggs than that guy every morning.	Su hermana come más huevos que ese hombre cada mañana.	Su hermana come más huevos que that guy every morning.	His sister eats more eggs than ese hombre cada mañana.
	Your colleagues work more hours than them every week.	Sus colegas trabajan más horas que ellos cada semana.	Sus colegas trabajan más horas que them every week.	Your colleagues work more hours than ellos cada semana.
	Your colleagues work more hours than they every week.		Sus colegas trabajan más horas que they every week.	
	Your colleagues work more hours than those guys every week.	Sus colegas trabajan más horas que esos hombres cada semana.	Sus colegas trabajan más horas que those guys every week.	Your colleagues work more hours than esos hombres cada semana.

Specifier-type adverb z-scores

	Heritage		L2 High		L2 Low	
	Pre-verbal	Post-verbal	Pre-verbal	Post-verbal	Pre-verbal	Post-verbal
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*
English	0.87 (0.16)	-1.27 (0.92)	0.71 (0.40)	-1.33 (0.53)	0.85 (0.42)	-1.36 (0.89)
Sp-to-Eng	0.52 (0.65)	-1.39 (0.61)	0.43 (0.67)	-1.30 (0.49)	0.30 (0.97)	-1.32 (0.75)
Spanish	0.72 (0.50)	-0.27 (0.93)	0.17 (0.91)	-0.43 (0.98)	0.30 (1.09)	-0.65 (1.26)
En-to-Sp	0.35 (0.86)	-1.10 (0.81)	0.23 (0.90)	-0.96 (0.79)	0.56 (0.72)	-1.07 (0.87)

Complement-type adverb z-scores

	Heritage		L2 High		L2 Low	
	Pre-verbal	Post-verbal	Pre-verbal	Post-verbal	Pre-verbal	Post-verbal
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*
English	0.71 (0.45)	-0.95 (0.99)	0.64 (0.49)	-1.24 (0.50)	0.85 (0.42)	-0.99 (1.01)
Sp-to-Eng	0.15 (0.81)	-1.17 (0.68)	-0.17 (1.05)	-1.00 (0.73)	-0.12 (1.14)	-0.97 (0.80)
Spanish	0.36 (0.85)	0.65 (0.56)	-0.35 (1.01)	0.55 (0.65)	-0.02 (1.23)	0.34 (1.01)
Eng-to-Sp	0.26 (1.00)	0.14 (0.94)	0.00 (0.99)	-0.09 (1.00)	0.58 (0.65)	-0.48 (1.06)