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How do Spanish heritage speakers in the US assign gender to English nouns in Spanish-English code-switching? The effect of noun canonicity and codeswitcher type

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Abstract

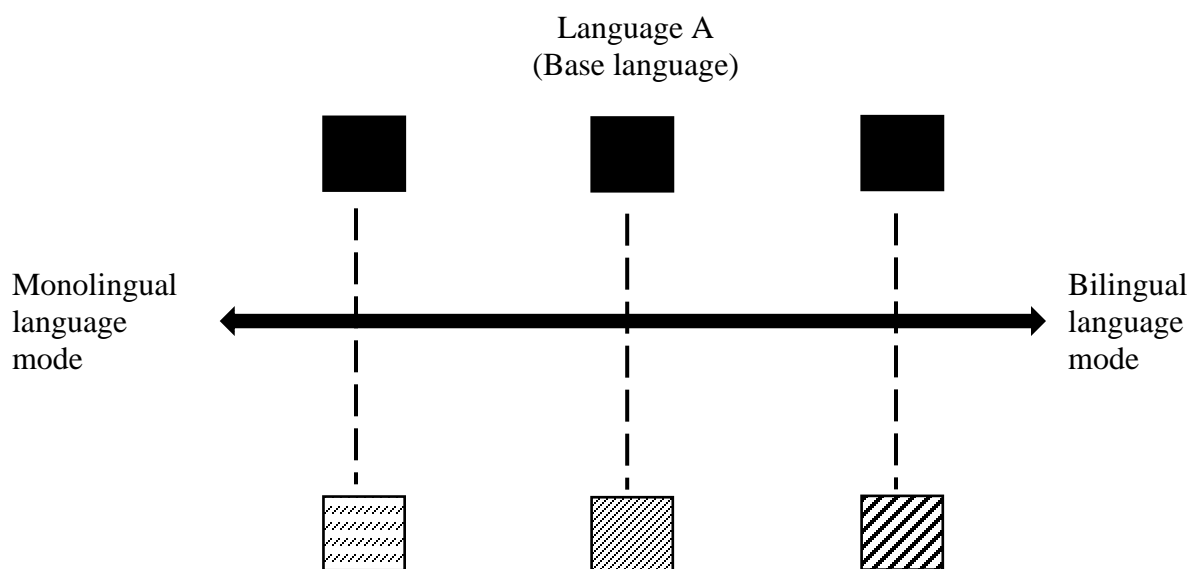
Previous studies have observed different gender assignment strategies for English nouns in Spanish-English code-switching (CS). However, these studies have not investigated the role of noun gender canonicity of the Spanish equivalent, they have only examined participants in bilingual speaker mode, and most studies have not explored the role of bilingual language experience. The current study compares gender assignment by heritage speakers of Spanish in a monolingual speaker mode and a bilingual speaker mode, considering the role of noun gender canonicity and CS experience. Results revealed a language mode effect, where participants used significantly more masculine determiners with the same feminine nouns in the CS session than those in the Spanish monolingual session where they used a feminine determiner. Further evidence of a language mode effect was found in the effect of noun canonicity and bilingual language experience. Noun canonicity was only significant in the Spanish monolingual session, where participants used significantly more masculine determiners with non-canonical nouns. Bilingual language experience was only significant in the CS session, where regular codeswitchers used more masculine default determiners than infrequent codeswitchers and non-codeswitchers, while in Spanish-only, all these groups behaved similarly.

Keywords: code-switching, gender assignment, noun canonicity, English-Spanish, bilingual mode

1. Introduction

Poplack (1980) defines CS as “the alternation of two languages within a single discourse, sentence or constituent” (pp. 583). As such, it is one communicative option for bilinguals. However, it is important to note that just because CS is an option for bilinguals, this does not mean that all bilinguals do indeed code-switch. Additionally, not all bilinguals who code-switch follow the same CS patterns and conventions (Beatty-Martínez, Valdés Kroff, & Dussias, 2018). Grosjean (2001) indicates that bilinguals have several speaker modes depending on the context. He suggests there is a continuum from a monolingual mode for one of the languages they speak to a monolingual mode for the other language, through a bilingual mode for interactions with other bilinguals, where the activation of both languages could vary depending on several factors. In this paper, we examine the speech of bilinguals across two different sessions: a monolingual Spanish session and a CS session to compare how the bilingual speaker mode may affect gender assignment.

Figure 1. *Language mode continuum (Adapted from Grosjean, 2001).*



Language B

As can be seen in Figure 1, Grosjean (2001) explored the activation of each language across different modes. Figure 1 represents that, in this continuum, one of the bilingual's languages is always active while the other one may be more or less active (as represented by the darkness of the boxes of Language B). In this paper, we examine the difference in gender assignment in Spanish heritage speakers (HSs) between their use in monolingual language mode vs. in bilingual language mode.¹

Several studies have examined gender assignment of English nouns in Spanish-English CS (Aaron, 2014; Beatty-Martínez & Dussias, 2017; Chaston, 1996; Clegg & Waltermire, 2009; Herring, Deuchar, Parafita Couto, & Quintanilla, 2010; Liceras, Fuertes, Perales, Pérez-Tattam, & Spradlin, 2008; Montes-Alcalá & Shin, 2011; Otheguy & Lapidus, 2003; Poplack, Pousada, & Sankoff, 1982; Smead, 2000; Valdés Kroff, 2016). A goal of these studies has been to observe what strategies Spanish-English bilingual speakers use when assigning gender in CS to nouns that do not have grammatical gender. Two of these strategies are the analogical criterion and the masculine default. The analogical criterion involves assigning the same gender as the Spanish equivalent in the case of Spanish-English CS (e.g., *la cookie* from *la galleta*). In contrast, the masculine default consists of assigning masculine gender regardless of the Spanish equivalent (e.g., *el cookie* from *la galleta*). To the best of our knowledge, no study has investigated gender assignment with the same participants in two different language sessions, comparing a monolingual mode with a bilingual mode, with the exception of Aaron (2014) and Clegg and

¹ In this study, heritage speaker refers to speakers who were either born in the US and grew up speaking Spanish with at least one parent or who were born in Latin America and moved to the US between the ages of 2 and 17 years of age. Of our participants, only one moved to the US when she was 17, all others moved by the time they were 11.

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Waltermire (2009), although they did not use the same nouns in Spanish as in CS. The first goal of the current study is to examine Spanish HS's gender assignment of English nouns in mixed DPs with Spanish determiners and compare it to gender assignment of monolingual Spanish DPs with the same nouns by the same individual, allowing us to isolate gender assignment that might be specific to CS versus gender assignment in general, where HSs have been reported to differ from monolinguals (Montrul, Foote, & Perpiñán, 2008). To facilitate the isolation of a bilingual mode effect, we compare gender assignment of the same exact noun in monolingual Spanish and in Spanish-English CS.

Spanish speakers make use of grammatical gender cues in order to assign gender to nouns. Previous studies have shown that in addition to relying on the final phoneme -o and -a, Spanish speakers also exploit other grammatical gender cues, such as the phonemic make up and syllable structure of the penultimate rhyme and final syllable (Eddington, 2002). Gender assignment in Spanish has been reported to be variable in Spanish-English bilinguals, and several studies have observed that noun gender transparency or canonicity, as in words where the ending is associated with feminine gender (i.e., -a in Spanish, Bull, 1965 (e.g., *casa*)) or with masculine gender (i.e., -o in Spanish, Bull, 1965 (e.g., *gato*)) plays an important role for Spanish HSs when assigning gender in monolingual Spanish utterances (Montrul et al., 2008). Since noun gender canonicity has been reported to have a large effect on gender assignment and agreement by HSs in monolingual Spanish, it is worthwhile to investigate the effect of noun canonicity on gender assignment of English nouns in Spanish-English CS. Therefore, a second goal of the present study is to examine the effect of noun canonicity in both monolingual Spanish and Spanish-English CS by the same group of bilinguals.

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Another variable that is important to consider when examining code-switched speech is the language experience of each bilingual. Previous research regarding gender assignment in CS by Spanish HSs largely does not offer information about CS practices of the participants examined. Beatty-Martínez and Dussias (2017), however, found significant differences between codeswitcher (CSer) and non-CSer groups with respect to their CS behavior. Therefore, a final goal of this study is to extend this research by investigating the role that CSer type plays in gender assignment to English nouns in Spanish-English CS. In order to further examine this variable, participants in this study were classified into three different groups: regular CSers, infrequent CSers, and non-CSers. This study is interested in examining two distinct aspects of CS practices: CS frequency and CS gender assignment patterns. The distinction here is important because past research has found that frequency of CS can at least to some extent explain different CS patterns (Beatty-Martínez & Dussias, 2019).

The present study examines 32 Spanish HSs' gender assignment of Spanish nouns in monolingual language mode compared to gender assignment of English nouns in Spanish-English bilingual language mode. Comparing the same individuals and the same nouns in two separate language modes serves as appropriate benchmarks to observe whether the grammars of the two languages are converging due to contact or whether they remain separate (Torres Cacoullos & Travis, 2015). We aim to observe whether there is a difference between Spanish HSs' gender assignment in each of these language modes with attention to the effect of noun canonicity and bilingual language experience.

2. Review of the Literature

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This section discusses previous research on gender assignment in Spanish, both monolingual and bilingual, as well as gender assignment to English nouns in CS.

2.1. Gender in monolingual and HS Spanish

In contrast to English, Spanish has grammatical gender, which is different from biological gender (as in English). Grammatical gender is arbitrary, but it can coincide with natural gender (White, Valenzuela, Kozłowska–Macgregor, & Leung, 2004). In Spanish, all nouns have either masculine or feminine gender and any determiners or adjectives that accompany nouns are obligatorily marked for gender of the head noun (Lew-Williams & Fernald, 2007; White et al., 2004).

Spanish nouns have distinct endings, e.g., –o, which is usually masculine, and –a, which is feminine most of the time. However, there are several nouns that end in –a that are masculine and there are some nouns that end in –o that are feminine (White et al., 2004). Bull (1965) presents frequencies of feminine and masculine gender with various endings included in the current study presented in Table 1 and Table 2.

Table 1. *Frequency of feminine gender for relevant noun endings from Bull (1965).*

Noun ending	Frequency Feminine
-ción	100%
-a	98.9%
-d	97%

Table 2. *Frequency of masculine gender for relevant noun endings from Bull (1965).*

Noun ending	Frequency Masculine
-o	99.7%
-r	99.2%
-l	96.6%

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-n (except “-ción”)	96.3%
-s (except “-sis”)	92.7%
-j	91.6%
-e	89.2%

In Table 1 above, all the relevant feminine endings have high frequencies of occurring with feminine nouns. For the masculine endings, the highest frequencies of occurrence with masculine nouns include –o, –r, –l, and –n. Another important aspect of morphological gender in Spanish is canonicity. Canonical nouns end in –o (masculine) or –a (feminine) while all others are considered non-canonical. Canonicity has been shown to influence accuracy when identifying gender agreement in Spanish HSs (Montrul et al., 2008).

Spanish HSs sometimes have different patterns of gender assignment compared to monolinguals. HSs are consistently reported to be significantly less accurate with gender agreement and slower at identifying gender compared to more balanced bilinguals (Montrul, De La Fuente, & Foote, 2014; van Osch, Hulk, Sleeman, & van Suchtelen, 2014). This is expected as HSs tend to have less Spanish input and the quality of that input is different from that of monolinguals. For example, van Osch et al. (2014) proposed that quality of input played a role in gender agreement accuracy for their HSs of Spanish in the Netherlands because the HS’ gender agreement patterned very similarly to that of first-generation immigrants.

HSs’ gender assignment patterns are particularly different from that of monolinguals with feminine nouns, where they resort to the masculine default (Alarcón, 2011; van Osch et al., 2014). It is not surprising that HSs overgeneralize the masculine determiner given that their Spanish input is variable and occurs in restricted environments (Montrul, 2012). However, it is also important to note that even for monolingual speakers, there are large distributional asymmetries in that masculine gender has default status (Beatty-Martínez & Dussias, 2019). Of particular interest to

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our study, HSs have been found to be less accurate with non-canonical nouns than with canonical nouns in written comprehension and production as well as oral production and other experimental tasks (Alarcón, 2011; Montrul et al., 2008; Montrul, De La Fuente, Davidson, and Foote, 2013; Montrul et al., 2014; van Osch et al., 2014).

As can be seen, it is common for Spanish HSs to show gender assignment patterns different from that of Spanish monolinguals. This is exemplified by gender agreement accuracy, especially with non-canonical nouns and feminine nouns. As will be seen in the following section, the masculine default is also one of the strategies described in previous research in CS. Thus, in our paper we compare the use of the masculine default in HSs both in monolingual language mode and in bilingual language mode with the same nouns elicited in both.

2.2. Code-switching and Gender Assignment of Mixed DPs

In the discussion of CS in the literature, much attention has been given to individual factors, such as proficiency in both languages, and societal factors, such as the community of speech (Bullock & Toribio, 2009). Within this latter aspect, an important aspect of CS is that it is molded by community norms (Torres Cacoullos & Travis, 2015). Valdés-Kroff (2016, p. 284) asserts that “bilingual codeswitchers are driven to follow community-driven production patterns.” Aaron (2014, p. 18) also acknowledges the importance of the conventions of the local community.

In Spanish-English CS, a “mixed DP”, or a switch of languages between a determiner and a noun in a DP has been attested (Pfaff, 1979; Poplack, 1980). Since Spanish has both feminine and masculine grammatical gender, there are three possible combinations for mixed DPs that consist of the following: English determiner + Spanish noun (e.g., the casa), masculine Spanish determiner + English noun (e.g., el house), and feminine Spanish determiner + English noun (e.g., la house). Two strategies identified in the previous literature of relevance to this paper are the

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masculine default and analogical criterion. With the masculine default, the masculine determiner is used regardless of the gender of the Spanish equivalent of the English noun (e.g., *el* house). In contrast, when implementing the analogical strategy, the determiner that matches the Spanish equivalent is used (e.g., *la* house). Both strategies predict the use of the masculine determiner with masculine Spanish equivalents (*el* book).

Several previous studies examining gender assignment in CS and another language lacking grammatical gender have found evidence of the masculine default strategy (Aaron, 2014; Chaston, 1996; Clegg & Waltermire, 2009; Montes-Alcalá & Shin, 2011; Otheguy & Lapidus, 2003). All these studies have investigated bilinguals living in bilingual communities in the US that have contact between the two languages. Thus, these Spanish bilingual speakers had experience communicating with other bilinguals and, thus, presumably with CS. All these studies report on data from corpus of spontaneous speech (Aaron, 2014; Valdés-Kroff, 2016) or from sociolinguistic interviews (Clegg & Waltermire, 2009; Montes-Alcalá & Shin, 2011; Otheguy & Lapidus, 2003) and find evidence of the use of a masculine default for English noun switches. Aaron's (2014) results, for instance, showed a strong preference for masculine gender in CS: 42% of English-origin nouns were assigned masculine gender while only 7% were feminine (the remaining 51% was unmarked for gender), in contrast with Spanish monolingual mode where only 28% of Spanish nouns were assigned masculine gender. Importantly, 40 out of the 42 codeswitched DPs were assigned masculine gender. Valdés Kroff's (2016) results also robustly support the masculine default. Of all the mixed DPs in the corpus, 93.7% were masculine. Clegg and Waltermire (2009) reported that 94% ($n = 165$) of the nouns with no biological gender were used with a masculine marker. Montes-Alcalá and Shin's (2011) results showed that speakers either assigned masculine gender (49.3%) or no gender (bare nouns) (45.7%) with feminine gender only occurring 4.8% of

This article is under copyright and John Benjamins Publishing Company (<https://doi.org/10.1075/lab>) should be contacted for permission to re-use or reprint this material in any form. the time. Lastly, Otheguy and Lapidus (2003) reported that 87% of English-origin nouns were produced with a masculine determiner.

In contrast to the above studies that examined speakers that were members of a bilingual community and, thus, had experience with CS, Liceras et al. (2008) examined native Spanish speakers in Spain who were learning English in an institutional setting. These speakers grew up in a monolingual community, and thus, it is important to note the different language experience background. Not surprisingly, their results were different from those of the studies mentioned above examining bilinguals living in bilingual communities. Liceras et al. (2008) elicited data using a CS test in which participants rated mixed DPs on how good they sounded using a 5-point Likert scale. Results showed that participants significantly preferred matching DPs (i.e., the analogical criterion). The different results from Liceras et al. (2008) versus findings from studies of bilinguals in a language contact situation support the idea that bilingual language experience is an important variable in terms of gender assignment strategies in CS. Few studies have examined this variable. One study that does address this variable is Beatty-Martínez and Dussias (2017), who examined two groups: non-CSers and CSers. Their results showed a preference for masculine determiners in mixed DPs in English-Spanish CS, and importantly, they also found a main effect for group in that CSers were more likely to CS than non-CSers. The present study aims to further examine this variable of bilingual language experience and its effect on gender assignment strategies to English nouns by including participants of varying levels of bilingual language experience: regular CSers, infrequent CSers, and non-CSers.

Lastly, the different strategies used (analogical criterion vs. masculine default) have also been used to establish the integration of an English-origin noun as a borrowing or an instance of CS, as in the Nonce Borrowing Hypothesis (Sankoff, Poplack & Vanniarajan, 1990). Sankoff et

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al. (1990) propose that to determine whether a single other language word is an established loanword or a nonce borrowing, measures of adaptation from conditioning factors should be used rather than measures of frequency or diffusion. They examined case assignment of English-origin nouns in Tamil-English bilinguals. In an extension of this practice to Spanish, Aaron (2014) and Clegg and Waltermire (2009) claimed that those nouns which show feminine marking are closer to the borrowing side of the continuum while those exhibiting the masculine default are closer to the CS side. To put together all these pieces, our project examines gender assignment comparing the same nouns in two language modes by Spanish-English bilinguals, taking into account conditioning factors, such as gender of the determiner and noun canonicity, as well as external factors, such as CSer type.

3. The Present Paper

3.1. Research Questions and Hypotheses

The present study is guided by the following research questions:

1. Is there a language mode or CS effect? How does individual participants' gender assignment compare in a Spanish session to a CS session?

Previous research has largely reported the use of a masculine default in Spanish-English CS (e.g., Aaron, 2014; Beatty-Martínez & Dussias, 2017; Valdés Kroff, 2016). Given the evidence for the use of a masculine default determiner with English single noun switches in previous research, we anticipate that participants will assign gender differently to Spanish nouns in the Spanish-only session than to English nouns in the Spanish-English CS session, such that they will show more

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consistent agreement with feminine nouns in the Spanish-only session, while they will use the masculine determiner with English nouns whose equivalents are feminine in Spanish in the CS session. Crucially, we elicited the same nouns in the Spanish-only and the CS session to be able to tease apart whether the use of the masculine default in CS is tied to lack of knowledge of the gender of the Spanish equivalent or a separate CS strategy. We anticipate that Spanish HSs in our study will use the masculine default in CS with nouns with which they used a feminine determiner in the Spanish-only condition.

2. What is the effect of noun canonicity on gender assignment of monolingual Spanish nouns and English nouns in Spanish-English CS?

In previous research, Spanish HSs have been more consistent in their gender assignment patterns with canonical nouns. Thus, we anticipate replicating this result in our data. With respect to gender assignment to English nouns in the CS condition, if Spanish HSs are CS and using an English noun, which lacks grammatical gender, participants are expected to use the default determiner (masculine), irrespective of noun canonicity.

3. Is there an effect of experience with CS? Does type of CSer influence gender assignment?

Beatty Martínez and Dussias (2017) found that experience with CS affects processing of CS forms. Thus, we anticipate differences in terms of gender assignment to English nouns in Spanish-English CS according to CSer type. Since the use of a masculine default seems to be the norm in CS communities, regular CSers are expected to use a masculine default strategy more consistently. In contrast, non-CSers may approach the task differently and interpret the English noun as a borrowing, in which case, agreement with the Spanish equivalent may be used more, as proposed in the Nonce Borrowing Hypothesis (Sankoff et al., 1990) and supported in previous research (e.g.,

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Aaron, 2014; Clegg & Waltermire, 2009). Since infrequent CSers are exposed to CS community norms, it is possible that they pattern similarly to regular CSers, using the masculine default strategy, but it is expected that this would happen to a lesser extent.

3.2 Participants

A total of thirty-two Spanish HSs completed the study (25= female). They were all students at a large university in the US. The participants were between the ages of 18-26 (average age=20). A total of 18 were born in the US while 14 were born outside the continental US in the following countries/territories: Argentina (N=1), Cuba (N=2), Chile (N=1), Colombia (N=2), Guatemala (N=1), Nicaragua (N=1), Peru (N=3), and Puerto Rico (N=2). Of the participants who were not born in the continental US, they arrived in the US at the following ages: 2-5 years (N=3), 6-10 years (N=7), and 11-17 years (N=2). Participants were grouped according to their proficiency level, as determined by an independent measure of proficiency: 16 advanced (M = 43.13, SD = 2.6), 14 intermediate (M = 35.64, SD = 2.69), and 2 low (M = 26, SD = 0). Of relevance to this study is their CS experience. In the language background questionnaire, participants read a definition supported with examples of what CS is and what it is not. Then, they were asked to report on their CS frequency. Twenty-one of the participants reported regularly using CS, whereas seven responded that they occasionally code-switch. Lastly, four participants posited that they never engage in CS.² All participants had spoken Spanish since birth with their families. Most had explicit instruction of Spanish grammar at some point in their lives, ranging from beginning during

² Participants' self-reported CS use was compared to the number of mixed NPs produced in the story retelling task. The following averages of the number of mixed NPs produced during the story retelling in the CS session were calculated: Regular CSers (M = 1.4, SD = 1.5), Infrequent CSers (M = 1.3, SD = 1.9), Non-CSers (M = 0, SD = 0). In addition, mixing proportion was also calculated by dividing the number of mixed NPs by the total number of NPs (mixed and unmixed) for each participant. The means and standard deviation for each group of CSers is as follows: Regular CSers (M = .23, SD = .23), Infrequent CSers (M = .22, SD = .32), and Non-CSers (M = 0, SD = 0).

This article is under copyright and John Benjamins Publishing Company (<https://doi.org/10.1075/lab>) should be contacted for permission to re-use or reprint this material in any form. pre-school/kindergarten to high school. Their exposure to Spanish outside of school varied greatly from just one hour per week to all the time. All participants reported using Spanish to talk to their families, and some of them mentioned using it with friends or at church. A tendency in their exposure was that they spoke much more Spanish when living with their families, but this usage dropped by a great extent when they came to college.

3.3. Materials and Procedure

Participants completed a language background questionnaire, a Spanish proficiency test, and three gender assignment tasks based on the reading of a story. Participants were tested on two separate occasions, which were at least three days apart. The first encounter was entirely completed in Spanish, whereas the second meeting was a CS session. Greetings, instructions, and materials were all carried out and presented in Spanish in the first session and in CS in the second session. For each session, participants read the story, and then completed three gender assignment tasks in the following order: a fill-in-the-blank oral production task, a story retelling task, and a gender selection test (GST).

Language Background Questionnaire. The language background questionnaire elicited the following information: age, gender, birth place, years spent in Spanish-speaking and English-speaking countries, exposure to Spanish, language(s) considered to be first-languages, language(s) considered to be native languages, education, Spanish and English language use, languages spoken to each family member, and CS usage.

Spanish Proficiency Test. The Spanish proficiency test was taken from a multiple-choice grammar section and a cloze test, based on the Diploma de Español como Lengua Extranjera (DELE) and widely used in the field of second language and heritage bilingualism (Montrul & Slabakova, 2003). The test has a total of 50 questions: 30 multiple-choice fill-in the blank questions

This article is under copyright and John Benjamins Publishing Company (<https://doi.org/10.1075/lab>) should be contacted for permission to re-use or reprint this material in any form. that test vocabulary and 20 multiple choice questions as part of a cloze text. We followed the usual grouping in the field: advanced for those who scored 40-50 points, intermediate for those who scored 30-39 points and low proficiency for those who scored below 30 points.³

Elicited Oral Production Task. The story was split up into three sections in a PowerPoint presentation which contained words and images to guide readers. After each section, participants were shown a series of sentences with fill-in-the-blanks based on the story they had just read. All fill-in-the-blanks were determiner phrases and participants were instructed to make sure that they used an article. See example below.

Figure 2. *Examples of Oral Production Tasks in Spanish Session (top) and CS Session (below).*

En la fiesta el perrito vio _____ que le hizo recordar a su dueño.
At the party, <i>el perrito vio</i> _____ <i>que le hizo recordar a su</i> owner.

The fill-in-the-blanks were the same for each session with the language (Spanish or CS) being the only difference. The oral production task elicited 35 words (see Table 3 below), of which 17 were masculine and 18 were feminine. Words were also manipulated for ending type. Following Harris (1991) and Montrul et al. (2008), we use the categories of canonical and non-canonical for our study. Harris (1991, p. 32) explains that the canonical endings -o and -a are the most prototypical or the “inner core” whereas non-canonical endings are the “outer core.”⁴ These target words were included in the text of the story. In the CS session, they always appeared in English in the story without any gender marking. Since Torres Cacoullós and Ferreira (2000) found that HSs produce

³ We recognize that the DELE is not the most ideal proficiency test due to its prescriptive nature and it is not necessarily appropriate for HSs but it is widely used in the field. Additionally, an advantage to using the DELE is that it allows us to compare to other studies. Future studies could look into other ways to measure language proficiency with heritage speakers that may include oral language instead of written.

⁴ We recognize that there is a strong association with cue validity and canonicity. For practical reasons, we use the term canonicity for our study.

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words differently depending on lexical frequency, frequency of each word from el Corpus de español: web/dialects is presented in parentheses.

Table 3. *Nouns elicited in oral production task and gender selection test.*

Masculine (17)			Feminine (18)		
Canonical	Non-canonical		Canonical	Non-canonical	
-o (6)	consonant (6)	-e (5)	-a (6)	-d (6)	-ción (6)
carro (59,097)	mantel (2,709)	café (115,502)	casa (966,499)	ciudad (800,802)	educación (567,097)
queso (34,069)	jardín (50,381)	maquillaje (33,507)	mesa (162,955)	universidad (474,974)	transición (50,490)
miedo (288,616)	avión (71,4679)	coraje (26,810)	zanahoria (7,935)	dificultad (68,083)	renovación (40,903)
teatro (130,727)	reloj (42,850)	hombre	vida (2,466,248)	libertad (431,891)	condición (167,282)
espejo (53,795)	ascensor (8,538)	estante (2,423)	toalla (11,032)	actitud (168,957)	hibernación (1,340)
trabajo (1,418,043)	mes (381,671)	pie (153,093)	piscina (23,610)	gratitud (17,281)	improvisación (7,979)

As exemplified in Table 3, six of the feminine words had canonical endings, and twelve were non-canonical, of which six ended in *-d* and six ended in *-ción*. Furthermore, six of the masculine words had a canonical ending, six ended in a consonant, and five ended in *-e*. All words were intended to be inanimate in order to avoid biological gender. Originally there were six of the masculine words ending in *-e*, but one of them, “hombre,” was animate and thus was excluded. It is important to note that in the story, none of these words appeared with any part of speech that indicated their gender. Thus, no articles appeared before them nor did they appear with adjectives. Additionally, these Spanish nouns do not have obvious synonyms with another gender. Paired-samples t-tests were performed comparing the frequency of canonical and non-canonical nouns both for masculine and feminine nouns, revealing no differences (masculine: $t(2) = .213, p > .05$; feminine: $t(4) = .412, p > .05$). Additionally, paired-samples t-tests were also performed to test whether the frequency of the masculine nouns was comparable to that of feminine nouns, both

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with canonical and noncanonical nouns, also revealing no significant differences (canonical nouns: $t(2) = -1,133, p > .05$; non-canonical nouns: $t(3) = -.971, p > .05$).

Participants were asked to read the sentences (see Figure 2 for examples) aloud and orally fill in the blanks with a determiner in the first blank and a noun in the second blank. For the CS session, participants followed the same procedure except they were told to use Spanish for the determiner and English for the noun. All Spanish words were in yellow font (shown in bold and italics in Figure 2) and all English words were in white font. Thus, the blank for the determiner was yellow and the blank for the noun was white in order to help participants remember which language to use for each blank. The words immediately before the fill-in-the-blanks were always in Spanish. Thus, all the elicited code-switches were from Spanish to English. Participants read each sentence completely before responding, and they could take as much time as they needed to answer.⁵

Story Retelling. Participants were asked to tell the story in their own words. They were given time to reread a version of the complete story before starting the retelling, upon which, they were not permitted to see the story anymore. During the CS session, participants were asked to retell the story using a mix of Spanish and English but were not instructed in anyway how to mix the two languages.

Gender Selection Test (GST). The GST consisted of a list of the same words elicited in the Oral Production Task. Each word was shown following the determiners *el* and *la* and participants were asked to read each word orally including the determiner that sounded best to them. In the CS session, the determiners were in Spanish, but all the nouns that were elicited were in English (see Table 4 for examples).

⁵ We recognize that the design of this task is more like cued language switching instead of code-switching per se, However, this results from our manipulation of task naturalness.

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Table 4. *Examples of GSTs in Both Sessions.*

Spanish GST	CS GST
(el) (la) jardín	(el) (la) mirror
(el) (la) reloj	(el) (la) month
(el) (la) educación	(el) (la) condition
(el) (la) hibernación	(el) (la) attitude
(el) (la) mantel	(el) (la) towel

3.4. Coding

The coding scheme used is exemplified for these two examples:⁶

(1) *la maquillaje* Elicited Oral Production/Spanish session/Non-canonical/Non-CSer

The-fem make-up-masc

‘The make-up’

(2) *el party* Story retelling/CS session /Canonical/Regular CSer

the-masc party

‘The party’

Gender of the determiner used: This was the dependent variable. The data was coded across tasks and sessions for the gender of the determiner used as masculine or feminine. Example (1) was coded as feminine and (2) as masculine.

Gender of the noun/equivalent: The data were coded for the gender of the noun in the Spanish session and the gender of the Spanish equivalent in the CS task. (1) was coded as masculine and (2) was coded as feminine. The most obvious or most frequent Spanish equivalent was used in order to determine the gender of the Spanish equivalent. If there were synonyms that were had similar frequencies of use, then that token was excluded. Only feminine nouns were examined in this paper, given that masculine nouns in Spanish-English CS do not offer much

⁶ Contrasts were coding using treatment coding.

This article is under copyright and John Benjamins Publishing Company (<https://doi.org/10.1075/lab>) should be contacted for permission to re-use or reprint this material in any form. evidence. If participants used a masculine determiner, it is impossible to identify if it is the target masculine determiner or the masculine default.

Canonicity of the ending: This fixed effect was coded for the type of ending of the noun in the Spanish session or the Spanish equivalent of the noun in the CS task. (1) was coded as non-canonical and (2) as canonical, since the Spanish equivalent *fiesta* ‘party’ displays the canonical ending for feminine nouns in Spanish.

Task: Participants completed three tasks: an elicited oral production task, a story retelling, and a gender selection test. The data from the gender selection test was used to examine participants’ knowledge of gender and was excluded from the statistical analyses. Thus, the data was coded for task with two levels: oral production task and story retelling. Therefore, (1) was coded as oral production task and (2) as story retelling.

Session: This fixed effect had two levels: Spanish-only session and CS session. (1) was coded as Spanish-only session and (2) as CS session.

CSer type: Participants were divided into three groups according to their reported use of CS into regular CSer, infrequent CSer, and non-CSer.

4. Results

4.1. Gender asymmetry

In order to examine gender assignment in CS, the distribution of determiner utilized in mixed DPs with English nouns and Spanish determiners in the CS session for both tasks is presented in Table 5 below. Nouns are divided according to the gender of the Spanish equivalent.

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Table 5. *Gender of determiner used in mixed DPs with Spanish determiner and English noun in CS session.*

	English Nouns with Masculine Spanish Equivalent		English Nouns with Feminine Spanish Equivalent	
	Oral Production	Retelling	Oral Production	Retelling
	N (%)	N (%)	N (%)	N (%)
Masculine Determiner	520 (93.5%)	63 (96.9%)	123 (22.2%)	28 (53.8%)
Feminine Determiner	36 (6.5%)	2 (3.1%)	430 (77.8%)	24 (46.2%)
TOTAL	556	65	553	52

From Table 5 above, a clear gender asymmetry can be observed in that the feminine determiner is barely used with nouns with a masculine Spanish equivalent whereas the masculine determiner is used much more frequently with nouns with a feminine Spanish equivalent. This finding exemplifies that speakers tend to assign masculine gender more than feminine gender when not following the analogical criterion. Since this paper examines the use of a masculine default, only feminine nouns were included in the analysis. Table 6 presents the data on the gender of the determiner used with feminine Spanish nouns or English nouns whose Spanish equivalent is feminine across ending types (C = canonical, NC = non-canonical), tasks, and sessions. In the CS session, only English nouns (mixed NPs) are included, not Spanish nouns.

Table 6: *Gender of the determiner used with feminine nouns or feminine Spanish equivalent nouns across noun endings, tasks, and sessions.*

Session	Spanish-only				CS			
	Oral Production		Retelling		Oral Production		Retelling	
Noun canonicity	C	NC	C	NC	C	NC	C	NC
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Masculine Determiner	83 (5.8%)	71 (19.2%)	2 (1.0%)	7 (8.9%)	37 (19.4%)	109 (28.7%)	19 (52.8%)	9 (52.9%)
Feminine Determiner	108 (94.2%)	299 (80.8%)	202 (99.0%)	72 (91.1%)	154 (80.6%)	271 (71.3%)	17 (47.2%)	8 (47.1%)
TOTAL	191	370	204	79	191	380	36	17

Participants largely used Spanish feminine determiners with feminine nouns in the Spanish-only session, with a higher rate of masculine nouns with non-canonical endings in oral production. In

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contrast, in the CS mode, the rate of use of the feminine determiner is lower, particularly in the retelling session where the use of the masculine determiner is slightly higher than that of the feminine determiner.

4.2. Language mode, codeswitcher type, and noun canonicity

In order to examine the effect of language session, CSer type, task, and noun ending canonicity of the Spanish equivalent, a mixed effects multivariate regression was carried out. This analysis examined gender assignment of all nouns that had feminine gender (in the case of Spanish nouns) or that had a feminine Spanish equivalent (in the case of English nouns). The dependent variable was the gender of the determiner produced (application value: masculine). Session, CSer type, task, and noun ending canonicity of the Spanish equivalent were fixed effects while participant and item were treated as a random effect. Two significant interactions were observed and are reported in Table 7 below.

Table 7. *Mixed effects analysis of all the feminine nouns included in the analysis. Application value: masculine determiner.*

Input			.00
AIC			866.794
Total			14
	Factor Weight	%	N
Noun canonicity * Session $p < .001$			
Canonical & CS	.67	21.6%	218
Non-can & Spanish	.67	14.3%	448
Canonical & Spanish	.33	1.0%	395
Non-can & CS	.33	26.9%	387
Task * Session $p = .001$			
Production & Spanish	.64	10.5%	561
Retelling & CS	.64	53.8%	52
Production & CS	.36	22.2%	553
Retelling & Spanish	.36	3.2%	282
Participant	<i>Random</i>		
Item	<i>Random</i>		

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The most significant interaction was between noun canonicity and session. Participants used significantly more masculine determiners with canonical nouns in CS than with canonical nouns in Spanish. They also used more masculine determiners with non-canonical nouns in Spanish than with canonical nouns in CS. Additionally, there was an interaction between task and session. Participants used more masculine determiners in the elicited oral production task than in the story retelling in the Spanish-only session. In contrast, in the CS session, participants used more masculine determiners in the story retelling than in the elicited oral production task.

Since session had interactions with noun canonicity and task, it is warranted to further investigate the effect of the other variables in each session separately: monolingual Spanish and CS. This is important to reach conclusions about a variable such as noun ending canonicity in each language mode. Therefore, two separate analyses were carried out: one with data from just the monolingual Spanish session and another with only the CS session data. The three independent variables included in the analyses were CSer type, noun ending, and task. Participant and item were included as random effects. Interaction terms were also included, and no interaction was found to be significant. Table 8 below presents the data from the Spanish only session.

Table 8. *Mixed effects analysis of gender assignment of al feminine nouns in the monolingual Spanish session. Application value: masculine determiner.*

Input				.003
AIC				296.266
Total				843
	Factor Weight	%	N	
Noun Canonicity	<i>p</i> < .001			
Non-canonical	.87	14.3%	448	
Canonical (-a)	.13	10.0%	395	
<i>Range</i>	74			
Participant	<i>Random</i>			
Item	<i>Random</i>			

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From Table 8, it can be observed that noun canonicity was the only significant predictor of gender assignment in the monolingual Spanish session. A non-canonical noun favored the masculine determiner whereas a canonical noun favored the feminine determiner.⁷ CSer type was not a significant predictor of gender assignment in the Spanish session, which indicates that all participants had similar accuracy of gender assignment in Spanish. Likewise, task was not significant for the Spanish session. Next, the analysis from the CS session is presented below in Table 9. Similar to the previous analysis for the Spanish-only data, interaction terms were also included, and no interaction was found to be significant.

Table 9. *Mixed effects analysis of gender assignment of all English nouns with Spanish feminine equivalents in the CS session. Application value: masculine determiner.*

Input	.167		
AIC	579.18		
Total	605		
	Factor Weight	%	N
Task	<i>p</i> < .001		
Retelling	.70	53.8%	52
Oral Elicited Production	.30	22.2%	553
<i>Range</i>	40		
CSer Type	<i>p</i> = .008		
Regular CSer	.76	29.5%	396
Infrequent CSer	.65	23.1%	134
Non-CSer	.15	4.0%	75
<i>Range</i>	61		
Participant	<i>Random</i>		
Item	<i>Random</i>		

As can be seen in Table 9 above, in the CS session, task and CSer type were significant predictors of gender assignment. The story retelling favored the masculine determiner with an English noun whose Spanish equivalent is feminine while the oral elicited production task favored the feminine

⁷ Both non-canonical ending types -ción and -d had similar patterns in that they both strongly favored the masculine determiner (factor weights of .85 and .70 respectively).

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determiner. This can be explained by the fact that the retelling task consisted of more natural, spontaneous speech. Thus, it enabled our participants to practice CS norms that they would take part in during everyday interactions. In terms of CSer type, regular CSers favored the production of a masculine determiner with an English noun whose Spanish equivalent is feminine the most, followed by infrequent CSers who showed the same tendency but to a lesser degree. In contrast, non-CSers favored the feminine determiner with a feminine Spanish equivalent.

To examine CS effects, independently of specific lexical items, Table 10 below presents gender mismatches of mixed DPs in CS that are unique to CS versus those that are repeats from the Spanish session. In order to calculate gender mismatches unique to CS, all gender mismatches in mixed DPs including a Spanish determiner were identified in the CS session. Then, all nouns from the CS session that were not mentioned by the same participant in the Spanish session were eliminated from the analysis. This left us with pairs of nouns that each individual produced: one from the Spanish session and one in English in the CS session (e.g., *el libertad* and *el freedom*; *la zanahoria* and *el carrot*). A gender mismatch was deemed unique to CS if the participant had assigned the correct gender in the Spanish session but then had a gender mismatch of the same word in CS (e.g., *la zanahoria* and *el carrot*). The cases that were not unique to CS (e.g., *el libertad* and *el freedom*) were eliminated.

Table 10. *Distribution of mixed DPs with gender mismatches to the Spanish equivalent unique to CS.*

	Unique to CS		Not Unique to CS (repeat of gender mismatch from Spanish session)	
	N	%	N	%
Oral Elicited Production	99/145	68%	46/145	32%
Gender Selection Task	196/225	87%	29/225	13%
Story Retelling	21/21	100%	0/21	0%

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Table 10 above shows that out of the gender mismatches in mixed DPs in CS (that have comparable tokens in the Spanish session), the majority are unique to CS, meaning that participants know the correct gender in Spanish but behave differently in CS by using the masculine determiner with nouns whose Spanish equivalent is feminine. Thus, participants display distinct behaviors in monolingual Spanish and CS and thus exhibit a CS effect.

5. Discussion

The first research question sought to examine whether HSs of Spanish behave differently in terms of gender assignment to Spanish nouns in a monolingual Spanish session compared to gender assignment of English nouns in a CS session. While earlier research has documented the use of different strategies in CS, previous work generally did not compare the same speaker in different language modes. This comparison can further clarify whether Spanish HSs in our study use a different strategy when they are CS than when they are in monolingual mode. For instance, the masculine default strategy (e.g., Montes-Alcalá & Shin, 2011; Valdes Kroff, 2016) could be partly due to the speaker's lack of knowledge of the gender of a noun or their variable gender assignment, which has been amply documented in research on the Spanish of HSs (Montrul et al., 2008). Our results showed that participants used a masculine determiner with a feminine noun or a feminine Spanish equivalent significantly more in the CS session than in the Spanish session. Crucially, since we had data from the same participants in a Spanish monolingual session and a CS session, we were able to compare the same nouns produced in Spanish and CS by each individual. Findings showed that participants exhibited a CS effect in that they used the gender-matching determiner

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with a noun in Spanish but when they produced the same feminine noun in English in the CS session, they behaved differently, using the masculine determiner. Although this is the first study to compare participants' gender assignment of nouns in both a Spanish and a CS session, results that there is a more frequent use of the masculine determiner with feminine nouns in the CS session is in line with predictions about CS behavior from previous research. Several studies have observed a tendency or preference for masculine gender assignment in Spanish-English CS (e.g., Aaron, 2014; Montes-Alcalá & Shin, 2011; Otheguy & Lapidus, 2003; Valdés Kroff, 2016). This result can be explained from a grammatical approach to CS, given the fact that English nouns do not have gender and, as a result, there is no gender to check with the determiner. It is well established in the literature, that the masculine determiner is the default in monolingual Spanish (Hualde, Olarrea, & Escobar, 2003). When Spanish HSs are CS, then, they are applying the default determiner for a noun that lacks grammatical gender. Thus, the current study contributes to the field by showing that this gender assignment behavior is not just the result of HSs not knowing the correct gender assignment in Spanish but an extension of the use of the masculine default to English nouns, as these do not have grammatical gender either.

The second research question examined the effect of noun canonicity in Spanish in the Spanish-only session and in the Spanish equivalent to English nouns in CS. Previous studies have observed that Spanish speakers use grammatical gender cues to assign gender including the final phoneme -o/-a, the penultimate rhyme, and final syllable (Eddington, 2002). Importantly, these cues are not present in English nouns. Thus, if our speakers used these cues with English nouns in the CS session, it would imply they were accessing the Spanish equivalent. In addition, several studies have reported that HSs are less accurate with gender agreement with non-canonical nouns in monolingual Spanish (e.g., Montrul et al., 2008; van Osch et al., 2014). To the best of our

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knowledge, no previous research has examined whether there is an effect of noun canonicity in English single-noun switches. A noun canonicity effect, or lack thereof, can facilitate our understanding of these single noun switches in a similar way to how the gender of the determiner can allow us to distinguish between CS and borrowing (Aaron, 2014). It can inform as to whether the Spanish equivalent is being accessed and the English noun being adapted to Spanish. Results regarding the effect of noun canonicity further support the finding of a CS or bilingual mode effect. When separate logistic regression analyses were carried out for each session, it was found that noun canonicity was the only significant factor in the Spanish monolingual mode session and that non-canonical nouns favored the use of the masculine determiner with feminine nouns in Spanish. However, in the CS session, noun canonicity was not a significant predictor of gender mismatches, meaning that the use of the masculine default was similar with English nouns whose equivalents had canonical endings and those whose equivalents had non-canonical endings. Therefore, participants treated English nouns similarly to non-canonical nouns in Spanish, in that they did not offer cues with respect to gender. In fact, the interaction between noun canonicity and session showed that canonical nouns in CS favored the masculine default while non-canonical nouns in Spanish favored it. This further supports a CS effect, as it shows that Spanish HSs are influenced by gender and noun canonicity in Spanish but behave differently in CS. Results from the Spanish session corroborate findings from previous studies in that Spanish HSs were less accurate with gender assignment of non-canonical nouns (Alarcón, 2011; Montrul et al., 2008; Montrul et al., 2013; Montrul et al., 2014; van Osch et al., 2014). However, the present study extends this literature by showing that noun-canonicity is not an important factor for gender assignment of English nouns, which exemplifies that HSs behave differently when code-switching.

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The final research question inquired whether gender assignment is affected by type of CSer. Although previous research examining gender assignment did not compare different types of CSers but possibly included different types of CSers across studies (and possibly within studies), this factor can contribute to a better understanding of gender assignment in Spanish-English CS. It could, for instance, explain some of the different strategies (masculine default, analogical criterion, etc.) reported in previous studies. It is possible that the masculine default is used in communities which regularly engage in CS (bilinguals in Miami, Valdés-Kroff, 2016, or bilinguals in NYC in Montes Alcalá & Shin, 2011) but not by English second language learners (e.g., Licerias et al., 2008). Additionally, Beatty-Martínez and Dussias (2017) found differences between regular CSers and non-CSers. With this in mind, we coded our data for three types of CSers: regular CSers, infrequent CSers, and non-CSers. It was important to see the effect of CSer type in each of the two language sessions separately in order to examine whether one of the types of CSers did not know the correct gender in Spanish as much as the other groups or whether it was a behavior unique to CS. As predicted, CSer type was not significant in the Spanish session but was in the CS session. In CS, regular CSers and infrequent CSers favored the masculine determiner while non-CSers favored the feminine determiner. Thus, it can be concluded that in Spanish, there is no statistical difference between CSer types in gender assignment and that CS behavior did not have a bearing on the accuracy of gender assignment in Spanish. It appears that the CS effect we observe is much stronger with regular CSers. This result is also consistent with a CS effect as CS practices have been shown to vary according to speaker-type. Poplack (1980), for instance, reported different types of CS between those who were Spanish-dominant, who used more emblematic CS (what we have been referring to as borrowing here, or insertional type of CS in Muysken, 1995), and those who were more balanced in both languages, who engaged in intimate CS (CS, here, or the

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alternational type of CS in Muysken, 1995). Our results, thus, can be interpreted as indicative of the masculine default strategy being the preferred strategy in CS, while the analogical criterion is used in borrowing, and the preference in using one over the other depends on the type of bilingual speaker. This is consistent with the idea that regular CSers are exposed to the convention of community norms—a CS effect consisting of the tendency to use a masculine determiner with nouns whose Spanish equivalents are feminine. Aaron (2014) expresses the importance of conventions of a speech community: “Language is a local phenomenon, molded by speakers in everyday life as they build a grammar that works in their lives” (2014, p. 18).

Our participants come from a rather heterogeneous community as there are Spanish speakers from a variety of origins, similar to Otheguy and Lapidus’ (2003) participants living in New York. Previous studies have found similar results regarding a masculine default regardless of differences in speech communities in the US (Aaron, 2014; Otheguy & Lapidus, 2003). For example, the Spanish of New Mexico is unique in that it has had long-term contact with English for over 150 years, but Aaron (2014) observed use of the masculine default similar to Otheguy and Lapidus (2003). Thus, we would expect similar results to those observed in the current study in other US Spanish heritage communities as long as the participants are bilinguals in a true contact situation and regular CSers and not English second language learners in an institutional setting.

These results, as a whole, are consistent with the use of a masculine default determiner with an English noun in Spanish-English CS, as shown through three pieces of evidence discussed in this paper: (i) overall comparison of language modes through the two sessions, (ii) the effect of CSer type, and (iii) the effect of noun canonicity. Overall, results indicate that participants use significantly more masculine determiners in CS than in Spanish-only, thus, identifying a CS mode effect. Although the participants also used feminine determiners with English nouns, it is possible

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that, in those cases, they are adapting the nouns, i.e., resorting to borrowing instead. Our results showed that those participants who rarely or never engage in CS used the masculine default significantly less in CS, as compared to those speakers who regularly engage in CS, even though these speaker groups behaved similarly with respect to gender assignment in the Spanish monolingual mode session. Lastly, Spanish HSs were sensitive to noun canonicity in Spanish. In CS, in contrast, participants did not differ in consistency of gender agreement depending on the noun ending of the Spanish equivalent. This indicates that when Spanish HSs were using the English noun, they were not adapting it to the Spanish equivalent gender. These results cannot be attributed to lack of knowledge of the gender of the word (Spanish equivalent), since our results showed that participants used the expected feminine determiner in Spanish with the same nouns used in the CS session where they did not use the feminine determiner consistently.

6. Conclusion

The current study adds to previous literature on gender assignment of single-noun switches in Spanish-English CS in that it is the first study to examine gender assignment by the same individuals in two separate language sessions or eliciting the same nouns in both sessions. Examining data from the same speakers from two different language sessions allowed us to identify if gender assignment follows the same patterns in CS as in Spanish. Particularly, we were able to compare the same nouns in both Spanish and English, thus ruling out the idea that HSs use gender mismatches in CS because they do not know the correct gender in monolingual Spanish mode.

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This paper additionally examined the effect on gender assignment of two variables that had not been previously included in the literature: noun canonicity and CSer type. While the endings of the English nouns had been examined in previous CS work, the ending of the Spanish equivalent had not been explored in CS. Examining the effect of CSer type was informative to examine the status of these single-noun switches as instances of CS or of borrowing. This result also contributes to the role of language experience in CS behavior. Our results show that those who engage in CS use single-noun CS and treat them differently than those who are not regular CSers. It is possible that the difficulty in finding a consistent result for the masculine default strategy in the previous literature can be ascribed to the participants used, where a combination of CSer profiles might have been used across studies. Liceras et al. (2008), for instance, likely used participants who were non-CSers while Montes-Alcalá and Shin (2011) used participants who were regular or, at least, infrequent CSers. We would encourage further research to compare these different types of CSers across different contexts to further clarify if the strategies used are related to language dominance or if they are related to language experience regarding CS, as we would predict.

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