Cross-linguistic Structural Priming in Heritage Spanish Speakers: The Effects of Exposure to English on the Processing of Preposition Stranding in Spanish

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1. Introduction

The proliferation of heritage speaker research in the past few decades has firmly established that exposure to a socially dominant language early in life has long-lasting effects on the home or heritage language (Scontras, Fuchs, and Polinsky 2015). Heritage speakers are bilinguals who were raised speaking a social minority language at home and later in childhood became dominant in the social majority language. Extensive research across a diverse set of heritage languages has attributed their hallmark features—instability and divergence from monolingual norms across linguistic subsystems—to sources like incomplete acquisition, attrition, and cross-linguistic influence (Benmamoun, Montrul, and Polinsky 2010). Notably, these explanations focus on differences in linguistic representation as the source of these features while heritage language processing has received comparatively little attention (Bolger and Zapata 2011). The present study addresses this gap by exploring a possible source of heritage language features rooted in processing—namely the effect of cross-linguistic structural priming from heritage speakers’ dominant language.

Structural priming denotes the phenomenon in which recent exposure to a linguistic structure increases the likelihood that the same structure will be produced in a subsequent utterance. In language comprehension, priming facilitates processing of recently encountered structures during subsequent comprehension. The elicitation of priming effects across languages and linguistic structures in the decades since Bock’s (1986) discovery of structural priming in a controlled experiment indicates that this is a robust phenomenon that can be reliably induced in a laboratory setting (Pickering and Ferreira 2008). Priming occurs not only within a language—for bilinguals, exposure to a structure in one of their languages can prime the corresponding structure in their other language, under the right conditions. Cross-linguistic priming occurs in

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both directions, from a bilingual’s first language (L1) to their second language (L2) and vice versa, although it has been shown that priming does not occur where there are word order differences between analogous structures in the two languages (Loebell and Bock 2003) and priming effects size can be influenced by L2 proficiency for late bilinguals (Bernolet, Hartsuiker, and Pickering 2013).

There is considerable debate about the mechanisms that underlie structural priming (Bock and Griffin 2000) and the present study does not make any claims regarding the source(s) of cross-linguistic priming effects. Abstracting from the specifics of the theoretical accounts, the common narrative is that structural priming operates during language processing and thus the observation of a structural priming effect can be viewed as an indication that recent exposure to a linguistic structure has influenced processing of subsequently-encountered language. The sensitivity of language processing to structural priming during comprehension and production in controlled experiments—priming effects are observed after a single exposure to a structure—and the prevalence of structural alignment in spontaneous discourse (Gries and Kootstra 2017) points to cross-linguistic structural priming as a potentially important source of influence on heritage language processing.

While proficient bilinguals are believed to employ the same basic set of processing routines that have been hypothesized for monolinguals (see Pickering and van Gompel (2006) for an overview), the activation of both languages during production and comprehension is thought to influence the implementation of these routines, resulting in bilingual processing strategies that differ from those employed by monolinguals of either language (Schwartz and Kroll 2006). The influence of a second language on processing has been observed at the level of lexical access (see Kroll and Dussias (2013) for a recent summary) and in the resolution of structural ambiguity during sentence processing (e.g., relative clause attachment (Dussias 2004)). Cross-linguistic structural priming research has so far contributed to this literature by uncovering cross-linguistic processing influence in the form of processing reinforcement—the selection of a particular syntactic structure for a string of words among the possible alternatives available for one language is promoted by the assignment of that structure to a recently encountered string of words in the other language.1

Cross-linguistic structural priming effects have been interpreted as evidence that bilinguals access a shared representation (Hartsuiker, Pickering, and Veltkamp 2004; Schoonbaert, Hartsuiker, and Pickering 2007) or set of structure building operations (Loebell and Bock 2003) when processing structures that are common to both languages. Production of the passive in Spanish reinforces production of the passive in English due to facilitated access to either the abstract structure underlying the passive or the associated structure building operations. A possibility that has not been explored is whether cross-linguistic

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1 The term reinforcement is used here to describe the effect of priming while remaining neutral between explanations that point to residual activation of the complete abstract syntactic structure and those based on implicit learning of the processing operations involved in structure building.
priming can also make abstract structures and/or structure building operations that are ostensibly specific to only one language available during processing of the other language. The present study tests this possibility by attempting to prime preposition stranding in Spanish for heritage Spanish speakers. Preposition stranding, while a commonly occurring feature of English, does not occur in Spanish. The results of the study indicate that exposure to preposition stranding in English does facilitate processing of this structure in Spanish during comprehension. This suggests that the influence of heritage speakers’ dominant language can cause immediate qualitative changes in the way these bilinguals process their heritage language.

2. The Study

To test the extent to which recent exposure to English can influence processing of a subsequently encountered Spanish sentence, a group of adult heritage Spanish speakers completed a comprehension priming task based on a self-paced listening (aka auditory moving window) experimental paradigm. This experiment was designed to answer two questions related to heritage language processing: The primary question asks whether exposure to preposition stranding in English sentences, as in (2a–b) below, facilitates processing of (i.e., primes) structurally-parallel Spanish sentences, as in (1a–b), below. As the heritage speakers tested in this experiment have spent the majority of their lives in an English-speaking environment and are dominant in English, the hypothesis is that exposure to preposition stranding in English will facilitate processing of structurally parallel Spanish sentences.

Because heritage speakers are a heterogeneous population regarding the circumstances under which the heritage and dominant language were acquired and continue to be used, data pertaining to exposure, use, proficiency, and attitudes for Spanish and English were collected in order to answer a secondary question: If comprehension of Spanish preposition stranding can be primed, is the priming effect size modulated by extralinguistic factors related to language exposure and use? A recent event-related potential (ERP) study that examined processing of Spanish structural violations with a comparable group of heritage Spanish speakers found that the amplitude of ERP components that were elicited by sentence structures that are anomalous in Spanish but licit in English was modulated by participants’ amount of exposure to English over the lifetime and current levels of Spanish use (Martohardjono et al. 2017). Given these findings, which suggest that processing syntactic anomaly in heritage Spanish becomes more permeable to influence from English with increasing English exposure and decreasing Spanish use, and the findings from Dussias and Saggarra (2007), which showed a relationship between increased time spent in an L2 English environment and the adoption of English-like parsing strategies for structural ambiguities in L1 Spanish, the hypothesis is that priming effects will be larger for heritage speakers who have spent more of their lives in a predominantly English-speaking environment and use Spanish less often compared to heritage speakers who have had less exposure to English and use Spanish more often.
2.1. Subjects

Thirty-four adult heritage Spanish speakers participated in this study and were paid for their time. The heritage speakers tested in this study were raised from birth speaking Spanish at home but became dominant English during childhood. A key characteristic of this group of bilinguals is that they acquired their dominant language (English) after or alongside their non-dominant language (Spanish). To determine eligibility, subjects completed a language background screener, which included questions pertaining to language exposure and use during childhood and adolescence and self-rated proficiency in each language along with demographic items such as age, education, and caregivers’ countries of origin. Subjects who were enrolled in the study were 18–39 years old at the time of testing (M=24.85, SD=5.29) and were either born in the U.S. (n=28) or were born in a Spanish-speaking Latin American country and brought to the U.S. by age 7 (n=6, mean age of arrival=4.5, SD=2.07). All subjects were raised speaking Spanish by caregivers who themselves were born and raised in Spanish-speaking Latin America and immigrated to the U.S. after age 18. Subjects were born within 20 years of their caregivers’ arrival in the U.S. and were determined to be dominant in English at the time of testing based on their scores on the Bilingual Language Profile (BLP) (Gertken, Amengual, and Birdsong 2014)—a short multiple choice questionnaire designed to elicit information about language exposure, current use, self-rated proficiency, and attitudes for both English and Spanish. Subjects completed the BLP during the testing session and the data collected with this questionnaire served as predictor variables in the modeling of the experimental results (details given below, in Results). All subjects reported regular use of Spanish and moderate to high proficiency in speaking and comprehending Spanish (on a scale of 1–6: M=5.03, SD=0.91).

2.2. Stimuli

Two types of Spanish declarative sentences exhibiting preposition stranding were tested in the priming experiment. The first type, exemplified in (1a), contained a relativized locative prepositional object (la tienda ‘the store’) and a stranded preposition en ‘in’ within the relative clause. The second type, exemplified in (1b), contained a relativized instrumental prepositional object (el serrucho ‘the saw’) and a stranded preposition con ‘with’ within the relative clause.

(1) a. *Esta es la tienda que Gonzalo compró el pollo en para cocinar la cena.
   ‘This is the store that Gonzalo bought the chicken in to cook dinner.’

   b. *Este es el serrucho que Eduardo cortó la rama con para hacer leña.
   ‘This is the saw that Eduardo cut the branch with to make firewood.’
The target sentences exemplified in (1a–b) are structurally identical and differ only in the thematic role of the relativized prepositional object and the corresponding preposition. An adjunct phrase modifying the relative clause verb was added to the end of these sentences to avoid overlap between processing of the stranded preposition and sentence wrap-up effects. The structures in (1a–b) are ungrammatical in Spanish due to the presence of the stranded prepositions—the grammatical versions of these sentences feature the prepositions at the beginning of the relative clause, preceding the relativized prepositional object (cf. Esta es la tienda en que Gonzalo compró el pollo para cocinar la cena. ‘This is the store in which Gonzalo bought the chicken to cook dinner.’ Este es el serrucho con que Eduardo cortó la rama para hacer leña. ‘This is the saw with which Eduardo cut the branch to make firewood.’) A total of 22 en sentences and 24 con sentences were constructed with 43 unique relative clause verbs and common vocabulary items (the verbs escribió ‘wrote’, vio ‘saw’, and hizo ‘made’ appeared in both the en and con target sentences). Familiarity with the vocabulary items was verified by two bilinguals who did not participate in this study: one heritage Spanish speaker and one Spanish-dominant late bilingual.

For each of the en and con target sentences, two corresponding English sentences were constructed with translation equivalents of the relative clause verb and preposition. The English prime sentences, exemplified in (2a–b), feature the same structure as the Spanish target sentences while the English control sentences, exemplified in (3a–b), feature a different structure in which the direct object is relativized (rather than the prepositional object).

(2) a. This is the flower shop that David bought the plant in.
   b. These are the scissors that Mary cut the paper with.

(3) a. This is the plant that David bought in the flower shop.
   b. This is the paper that Mary cut with the scissors.

Prime and control trials were created for each Spanish target sentence. In prime trials, a Spanish target sentence, like (1a), was preceded by the corresponding English prime sentence, like (2a), containing the same structure and translation equivalents of the verb and preposition. In control trials, a Spanish target sentence was preceded by the corresponding English control trials.

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2 Priming effects have been elicited in production studies with and without repetition of lexical material between the prime and target items, although the magnitude of the priming effects is larger when the head of the structure to be primed is repeated between the prime and target (Pickering and Branigan 1998). In contrast, few studies have found priming effects during comprehension without repetition of lexical material between primes and targets (but see Traxler, Tooley, and Pickering (2014)). For this reason, the prime and target sentences in this experiment shared translation equivalents of the relative clause verbs and prepositions.
sentence, like (3a), which shared the same lexical items as the corresponding prime but differed in structure. Prime and control trials were counterbalanced over two versions of the experiment to permit comparisons between identical Spanish targets. In version 1, half of the en and con target sentences were presented in prime trials and the other half were presented in control trials. In version 2, the trials were flipped so that the target sentences that appeared in prime trials in version 1, appeared in control trials in version 2, and vice versa. In both versions, trials were interspersed with 180 English and Spanish filler sentences to disguise the purpose of the task and balance the total number of grammatical and ungrammatical sentences in each language. All sentences were recorded as natural running speech with neutral prosody by a Spanish-dominant late bilingual who was raised in the Dominican Republic and U.S. Participants completed only one version of the experiment and heard each stimulus sentence only once. Equal numbers of subjects completed versions 1 and 2.

2.3. Methods

The stimuli described above were presented in a self-paced listening experiment using E-Prime 2.0 software. Subjects completed the experiment seated in a comfortable chair, 70cm from a computer monitor and external speakers in a sound-proof testing booth. At the start of the experiment, subjects read instructions in English and completed a practice session of 10 trials. Following the practice session, subjects completed four experimental blocks, each lasting 10–15 minutes, and were given short breaks between each block. Following the experiment, subjects completed the BLP and received payment.

Prime and control trials were presented phrase-by-phrase and subjects controlled the rate of presentation by pressing a button on a Serial Response (SR) Box to hear the next phrase in each sentence. The prime and control sentences were split after the first noun phrase (prepositional object in prime sentence; direct object in control sentence) and the subject noun phrase (e.g., Prime: This is the flower shop | that David | bought the plant in. Control: This is the plant | that David | bought in the flower shop.). The target sentences were split following the prepositional object, the subject noun phrase, and following the stranded preposition (e.g., Esta es la tienda | que Gonzalo | compró el pollo en | para cocinar la cena.). Filler sentences were split into 3–5 phrases and were presented phrase-by-phrase following the same procedure as the experimental trials. Experimental trials were pseudorandomized so that the same combination of trial type (prime/control) and target type (en/con) never appeared in succession and at least two fillers appeared between trials. After each trial and following 50% of the fillers, a true/false comprehension question related to the trial appeared on the screen. The experiment resumed after participants answered the question by pressing a button on the SR Box. For the experimental trials, comprehension questions did not make reference to the structure of the target sentences. Participants were instructed to listen for meaning and were not asked to make any metalinguistic judgments during the experiment.
2.4. Results

To ensure that subjects comprehended the sentences presented in the self-paced listening experiment, comprehension question accuracy was analyzed. This analysis showed that all subjects except one answered the comprehension questions with at least 80% accuracy (range=82.14–93.75, M=88.23, SD=0.03).

Response times (RTs) were measured for each phrase in the Spanish target sentences as the time between the offset of the phrase and the time until the subject pressed the button to hear the next phrase. For the analysis, response times were log transformed and log-transformed response time outliers were identified for each subject by phrase and condition and were removed from the analysis. Outlier removal affected 5.45% of data points across subjects and phrases. Table 1, below, shows grand mean raw response times with outliers removed.

Table 1: Grand mean response times (outliers removed).

<table>
<thead>
<tr>
<th>Phrase</th>
<th>Condition</th>
<th>N items</th>
<th>Mean (ms)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Prime</td>
<td>724</td>
<td>448.89</td>
<td>332.80</td>
</tr>
<tr>
<td>1</td>
<td>Control</td>
<td>739</td>
<td>448.64</td>
<td>322.54</td>
</tr>
<tr>
<td>2</td>
<td>Prime</td>
<td>738</td>
<td>434.21</td>
<td>236.91</td>
</tr>
<tr>
<td>2</td>
<td>Control</td>
<td>735</td>
<td>458.25</td>
<td>263.62</td>
</tr>
<tr>
<td>3</td>
<td>Prime</td>
<td>740</td>
<td>507.09</td>
<td>538.01</td>
</tr>
<tr>
<td>3</td>
<td>Control</td>
<td>734</td>
<td>516.56</td>
<td>511.72</td>
</tr>
<tr>
<td>4</td>
<td>Prime</td>
<td>749</td>
<td>699.98</td>
<td>723.10</td>
</tr>
<tr>
<td>4</td>
<td>Control</td>
<td>756</td>
<td>838.68</td>
<td>900.46</td>
</tr>
</tbody>
</table>

Grand mean raw response times are plotted with 95% confidence intervals in Figure 1, below. This plot shows similar raw response times between prime and control conditions for phrases 1–3 (e.g., *Esta es la tienda* | *que Gonzalo compró el pollo en*) while phrase 4 (e.g., *para cocinar la cena*) shows a faster response time in the prime condition compared to the control condition. To test for significant differences in log-transformed reaction times between prime and control conditions, linear mixed-effects models were generated for each phrase separately using the *lmerTest* package in R. The mixed-effects model for each phrase included condition (prime vs. control) as a fixed effect and the maximal random effects structure that allowed the model to converge (Barr et al. 2013): random slopes and intercepts for both subjects and items for phrases 1 and 4; random slopes and intercepts for subjects and random intercepts for items for phrases 2 and 3.
Since the English prime and control sentences are structurally identical in phrases 1 and 2, no differences were predicted for target sentence log-transformed response times in relation to condition (prime vs. control). The model estimates for phrase 1 ($\beta = -0.01, SE = 0.03, p = .76$) and phrase 2 ($\beta = -0.04, SE = 0.03, p = .15$) confirm this prediction. Faster response times were predicted for the critical phrase (phrase 3, containing the stranded preposition) in the prime condition compared to the control condition, however the model estimates for phrase 3 show no significant effect of condition on log-transformed response times ($\beta = -0.03, SE = 0.03, p = .39$). Faster response times were also predicted for the sentence-final phrase (phrase 4, the spillover region) in the prime condition given that structural priming effects during comprehension have been found to extend into sentence regions following the point of structural disambiguation (Traxler, Tooley, and Pickering 2014). As predicted, the model estimates for log-transformed response time at phrase 4 showed significantly faster response times in the prime condition ($\beta = -0.14, SE = 0.05, p < .01$).

To determine whether there were any differences in priming between the *en* and *con* target types, a second set of linear mixed-effects models was generated that included *preposition type* as a fixed effect. For each phrase, the fit of the

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3 For all model estimates, predictor significance was tested with the *lmerTest* package in R with maximum likelihood t-tests using Satterthwaite approximations for degrees of freedom.
models with and without preposition type as a fixed effect were compared using likelihood ratio tests (Baayen 2008). These comparisons showed that inclusion of preposition type as a fixed effect did not improve model fit for any phrase, so this effect was removed from further modeling of the results. Together, these results confirm the first hypothesis, that exposure to preposition stranding in English facilitates comprehension of parallel (but illicit) Spanish structures, and further suggest that this priming effect is equivalent for sentences with *en* and *con* as the stranded preposition.

To address the second hypothesis, that priming effects for Spanish preposition stranding will be larger for heritage speakers who have spent more of their lives in a predominantly English-speaking environment and use Spanish less often, the predictors listed in Table 2 were entered into the linear mixed-effects model of the log-transformed response times for phrase 4. All predictors were centered prior to analysis and the covariance among centered predictors (calculated using Spearman’s rho) was less than ±0.40, indicating low collinearity. This model included a maximal random effects structure (random slopes and intercepts for subjects and items) and fixed effects for condition (prime vs. control) and the interaction between condition and each predictor listed in Table 2.

**Table 2:** Predictors entered in the linear mixed-effects model of log-transformed response time, phrase 4.

<table>
<thead>
<tr>
<th>Predictor (calculated from BLP responses)</th>
<th>Range</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of life speaking English</td>
<td>0.60–1.00</td>
<td>0.83</td>
<td>0.10</td>
</tr>
<tr>
<td>Proportion of life exposed to English</td>
<td>0.38–0.93</td>
<td>0.69</td>
<td>0.15</td>
</tr>
<tr>
<td>Proportion of life exposed to Spanish</td>
<td>0.17–0.71</td>
<td>0.46</td>
<td>0.15</td>
</tr>
<tr>
<td>Proportion of daily interactions in Spanish</td>
<td>0.07–0.67</td>
<td>0.30</td>
<td>0.13</td>
</tr>
</tbody>
</table>

The model estimates show a significant main effect of condition (Prime) ($\beta = -0.17$, $SE = 0.07$, $p = .02$) and an interaction between condition and proportion of daily interactions in Spanish (Prime – Spanish use) that approaches significance ($\beta = -0.72$, $SE = 0.39$, $p = .08$). There were no other significant main effects or interactions for the remaining predictor variables listed in Table 2. The main effect indicates that response times for phrase 4 were faster overall

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4 *Proportion of life speaking English* = (current age – English age of acquisition) / current age; *Proportion of life exposed to English* = ((years of schooling in English + years living in English-speaking region + years living with English speaking family) / 3 ) / current age; *Proportion of life exposed to Spanish* = ((years of schooling in Spanish + years living in Spanish-speaking region + years living with Spanish speaking family) / 3 ) / current age; *Proportion of daily interactions in Spanish* = (% daily interactions with friends in Spanish + % daily interactions with family in Spanish + % daily interactions at school or work in Spanish) / 3.
in the prime condition compared to the control condition and the interaction appears to show that response times in the prime condition decrease as subjects’ proportion of daily interactions in Spanish increases. This interpretation is in the opposite direction from the hypothesized effect. However, when the direction of the non-significant main effect of proportion of daily interactions in Spanish ($\beta = 0.68$, $SE = 0.97$, $p = .48$) is taken into account, it becomes apparent that the interaction is largely driven by comparatively longer response times for phrase 4 in the control condition among subjects who currently use more Spanish, rather than comparatively shorter response times in the prime condition.

3. Discussion

The objective of this study was to explore whether cross-linguistic influence on processing, in the form of cross-linguistic structural priming, could explain some of the instability and/or variability that are often cited as the prominent characteristics of heritage languages. To address this question, a group of heritage Spanish speakers were tested in a comprehension priming experiment to measure the effects of exposure to preposition stranding in their dominant language, English—a frequently encountered feature of the language—on their comprehension of preposition stranding in Spanish—a structure which is not typically viewed as part of the language. The results of the experiment partially confirmed the hypotheses regarding the effect of recent English exposure on Spanish processing. While a significant main effect of priming from English was observed during comprehension of the structurally parallel but anomalous Spanish sentences, there were no significant relationships between the size of the priming effect and individual factors pertaining to exposure and use for Spanish and English.

The significant effect of priming, measured as reduced response times at phrase 4 (following the stranded preposition) indicates that comprehension of a novel structure in the heritage language can be primed from exposure to an analogous structure in the dominant language. However, the lack of significant interactions with individual factors related to exposure and use for each language leaves open the question as to whether this priming effect is different for heritage speakers who have had different language experiences. Inspection of the marginally significant interaction between condition and current Spanish use revealed that this interaction was driven primarily by differences in response times in the control condition across subjects (longer response times for subjects who use Spanish more frequently) rather than differences in response times in the prime condition. This finding can be accommodated by the fact that the target sentences contained a structural violation in Spanish, which would be expected to interrupt comprehension. Since the BLP questionnaire items that provided the measure of proportion of daily interactions in Spanish required subjects to define current Spanish use in opposition to use of English, less use of Spanish means greater use of English. Subjects who reported less frequent use of Spanish, and therefore more frequent use of English, showed less difference in response times between prime and control conditions, which could be
attributed to a reduced interruption in comprehension upon encountering preposition stranding in Spanish.

As for the remaining extralinguistic variables that were hypothesized to influence priming magnitude, findings from a recent meta-analysis of structural priming studies suggest that while the number of items and subjects tested in the present study provide adequate statistical power to detect a main effect of priming, the present study does not have sufficient power to reliably detect a true effect of individual-level variables on priming (Mahowald et al. 2016). Data will need to be collected for more subjects to determine with some certainty whether the null effects for proportion of life speaking English, proportion of life exposed to English, and proportion of life exposed to Spanish accurately reflect the influence of these variables or are just due to low statistical power.

Increasingly, researchers have suggested that the influence of structural priming may extend beyond immediate short-lived effects to influence grammatical acquisition (Leonard 2011) and long-term language change (Fernández, Souza, and Carando 2017; Kootstra and Doedens 2016; Pickering and Ferreira 2008; Torres Cacoullos and Travis 2011). Although the role of structural priming as an agent of language change is difficult to test directly, there are indications that structural priming from L2 can subtly shape a bilingual’s L1 in two ways: by increasing the frequency of production for syntactically licit but dispreferred L1 structures and by extending licit L1 structures to new L1 environments. In a study of structural priming in Spanish-English bilinguals living in a language contact environment (New York City) and in a non-contact environment (Argentina), both groups were found to produce higher rates of Spanish sentences with dispreferred verbal argument structures in Spanish following exposure to parallel structures both in English and in Spanish (Carando 2015). In Fernández et al.’s (2017) extension of this work, the authors suggest that persistent effects of priming novel verb argument structures in L1 may explain recent findings that highly proficient bilinguals have less difficulty processing novel L1 argument structures during comprehension even when they were not primed by exposure to L2 during the experiment (Fernández and Souza 2016; Higby 2016). Analyzing actual language use, Torres Cacoullos and Travis found in their (2011) study of spontaneous discourse among Spanish-English bilinguals in New Mexico that exposure to English sentences featuring the first-person English pronoun I in preceding dialogue led to an increased rate in subsequent production of the first-person Spanish pronoun yo in Spanish sentences where it is optional. The authors attribute this change to structural priming from English and conclude that for this bilingual community “…cross-linguistic priming may play a role in ostensible contact-induced change by modestly raising the rate of a superficially similar structure, without accompanying changes in language-particular grammatical patterns” (2011, 3).

The results of the present study indicate that a grammatical structure or structure building operations that are particular to English can be accessed during processing of heritage Spanish. In addition to influencing the frequency with which existing L1 structures are used and extending their use to new L1
environments (see also Ivanova et al. (2012) and Hsin, Legendre, and Omaki (2013)), this finding suggests a third way that cross-linguistic structural priming has the potential to shape heritage languages: by facilitating access to entirely new structures or structure building operations from the dominant language during heritage language processing. While this finding does not establish a direct link between the momentary influence of cross-linguistic priming on the comprehension of a novel heritage language structure in a controlled experiment and aspects of variation and instability that have been documented in the heritage language literature, in particular the acceptability of Spanish preposition stranding among adult heritage Spanish speakers (Pascual y Cabo and Soler 2015) and the production of Spanish preposition stranding during bilingual development (Silva-Corvalán 2014), this study takes the first step in exploring this relationship by showing that exposure to a structure that is particular to the dominant language can influence heritage language processing.

For similar cross-dialectal priming effects, see Kaschak and Glenberg (2004) and Fraundorf and Jaeger (2016).

References


