

Spanish copula selection with adjectives in school-aged bilingual children

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Pablo E Requena* 

Department of Modern Languages and Literatures, University of Texas at San Antonio, USA

Melisa Dracos*

Department of English, Baylor University, USA

Abstract

Aims and objectives/purpose/research questions: This study examined whether school-aged second-generation heritage speakers exhibit knowledge of the semantic and pragmatic constraints on Spanish copula selection with adjectives, and whether experiential factors affect copula interpretation.

Design/methodology/approach: Following a between-subjects design, we administered 2 Picture Selection Tasks to 50 second-generation bilingual children (ages 5;1–14;10) and 21 first-generation adults living in the same community in central Texas. Task 1 included real adjectives and Task 2 novel adjectives. We administered a morphosyntactic proficiency test in English and Spanish (BESA/BESA-ME) to the children and obtained language exposure and use data.

Data and analysis: Using generalized linear mixed models, analyses compared bilingual children to first-generation adults in their selection of the temporary picture with each copula (*ser* vs. *estar*), and also examined the role of age, language exposure/use, and morphosyntactic proficiency.

Findings/conclusions: Only children with high Spanish morphosyntactic proficiency approached adult-like sensitivity to the semantic and pragmatic distinctions between *ser* and *estar* with adjectives. Age, Spanish exposure and use, and English proficiency did not significantly influence performance on the tasks.

Originality: This study provides the first detailed examination of the acquisition of copula selection with adjectives in Spanish-English school-aged heritage speakers living in the US.

Significance/implications: This study offers evidence of the vulnerability of aspect, as instantiated in Spanish copula selection, among school-aged bilingual children. It also suggests low-proficiency children might be a catalyzing locus of the accelerated changes in copula use.

Keywords

Child language acquisition, bilingual children, heritage speakers, bilingual first language acquisition, Spanish, English, copula, *ser*, *estar*, semantics, pragmatics, proficiency

*Both authors contributed equally to this study.

Corresponding author:

Pablo E Requena, Department of Modern Languages and Literatures, University of Texas at San Antonio, McKinney Humanities Building 4.01.14, 1 UTSA Circle, San Antonio, TX 78249, USA.
Email: pablo.requena@utsa.edu

Introduction

During early childhood, heritage speakers are usually exposed to a socio-politically minority language in the home, which is their dominant language. Prior research suggests that their acquisition of the heritage language up to about age five is similar to that of monolingual speakers (Genesee, 1989). Yet, during the school-aged years, they become exposed to and use more of the socio-politically majority language. The majority language typically becomes dominant, and the minority language often begins to exhibit differences from that of monolingual speakers and heritage speakers of prior generations (Montrul, 2016; Polinsky & Scontras, 2019; Rothman, 2009; Silva-Corvalán, 1986; Zentella, 1997, among many).

In recent decades, researchers uncovered structural properties characteristic of heritage languages and pursued explanations of them. Heritage language speakers particularly exhibit differences from monolingual speakers and first-generation adult speakers with respect to syntax, morphology, and interfaces (e.g. Serratrice et al., 2004). To account for these differences, researchers regularly propose reduced or altered heritage language input, low heritage language proficiency, or crosslinguistic influence, which correlates with increased input from and proficiency in the majority language, as explanatory factors (e.g. Montrul, 2016; Polinsky & Scontras, 2019; Silva-Corvalán, 2014).

Yet, as Polinsky (2018) argues, “the origins of the recurrent properties” of heritage languages remain largely opaque on account of what Montrul (2018) calls a “missing link” in the research. Most research on heritage speakers has focused on adults, and there is only a small number of recent studies focusing on how children acquire the heritage language across the school-aged years (e.g. Chondrogianni & Schwartz, 2020; Daskalaki et al., 2019; Flores et al., 2017; Jia & Paradis, 2020). More research of this latter sort is needed in order to understand the myriad of factors that influence bilingual language development during childhood. School-aged heritage speakers can differ greatly in terms of the input they receive in both languages and their proficiency in both languages. Research on these children that is attentive to their differences can provide a clearer picture of how heritage languages develop and why they develop as they do.

Accordingly, this study examines second-generation Spanish-English bilingual children ages 5–14 to determine whether they interpret Spanish copula selection with adjectives like the first-generation adults in their community, and what factors might account for any differences. Building on prior research on Spanish copulas *ser* and *estar* in general and particular work hypothesizing a weakening of the discourse-pragmatic feature of it amongst heritage speakers, this study will provide the first detailed examination of the acquisition of this grammatical feature amongst school-aged heritage speakers.

Spanish copula selection with adjectives in monolingual speakers

Traditionally, Spanish copula+adjective use may occur in three types of predicate adjective contexts. For the first and simplest context, a set of Spanish adjectives admits of only one Spanish copula. According to Butt et al. (2019), *estar* is used with adjectives denoting “mood, physical condition, temporary physical appearance, or other non-characteristic features” (p. 418), such as *vacío* “empty” in (1), whereas *ser* is used with adjectives denoting “identity or nature, i.e., physical, moral and mental characteristics, as opposed to conditions or states” (p. 416), such as *local* “local” in (2).

- (1) *El plato está vacío.*

The plate is.ESTAR empty.

(2) *El periódico es local.*

The newspaper is.SER local.

The second predicate adjective context is more complex because each adjective admits of both copulas, but each copula usage results in a different, fixed meaning. To say a chicken *está rico* means it is “delicious” (3), but to say a chicken *es rico* is to say it is “wealthy” (4), like the Scots Dumpy hen that inherited millions upon its owner’s demise.

(3) *El pollo está/*es rico.*

The chicken is.ESTAR delicious.

(4) *El pollo *está/es rico.*

The chicken is.SER wealthy.

The third predicate adjective context is the most complex because not only do the relevant adjectives admit of both copulas, but also because this context imbeds semantic and pragmatic aspectual dimensions. These copula+adjective contexts with aspectual dimensions (henceforth CAADs), exemplified in (5) and (6), will be the sole focus of this study from here on.

(5) *Ana está alta.*

Ana is.ESTAR tall.

(6) *Ana es alta.*

Ana is.SER tall.

Semantically, for CAADs, copula selection involves an aspectual distinction. The aspectual distinction has been explained as *estar* implying that the property holds for a stage of an individual or that is episodic as opposed to *ser*, which would imply that the property always holds for an individual or that it is persistent (see Leonetti et al., 2015, pp. 8–9). For example, the use of *estar* in (5) implies that Ana is tall compared to what she used to look like at some point in the past, as in “Ana is tall (compared to the last time I saw her)”. The use of *ser* in (6), however, implies that Ana is tall in comparison to other people. Here we will assume a partial aspectual distinction (Schmitt & Miller, 2007). On this view, the copulas are semantically distinct. *Estar* is specified for aspectual properties while *ser* is underspecified for aspect or devoid of aspectual content.

Pragmatically, copula selection for CAADs is dependent upon pragmatic properties of the prevailing discourse. Through what is known about a given entity in a discourse, speakers assess whether the property (adjective) holds irrespective of time or whether it only holds only during a particular time slice. For example, if a speaker sees Ana and she looks like she always has (discourse information), then a felicitous comment would communicate that such property holds independent of time (pragmatic information) and the speaker could do so by using *ser* in a CAAD like (6). In contrast, if the same speaker sees Ana and she looks taller than what she used to (discourse information), then a pragmatically felicitous comment would communicate that such a property does not hold independent of time, which could be expressed through the selection of *estar* in a CAAD like (5). As Holtheuer (2009) states, “*ser* is seen as disconnected from the discourse while

estar is seen as establishing a link to the discourse” (p. 45). The pragmatics of copula selection, however, is not always straightforward. Variability in copula selection arises and depends on particular interpretations the speaker entertains. For example, speakers could use *ser* to refer to a temporary property if they assume an adverbial ‘now’. Similarly, speakers could use *estar* to refer to a permanent property if information about larger discourse context is ignored and only the present time slice is considered (see Schmitt & Miller, 2007).

In sum, copula selection for predicate adjectives with aspectual dimensions requires: (a) knowing that *estar* expresses aspectual content and *ser* does not; and (b) being able to pragmatically calculate implicatures within a given discourse.

Acquisition of CAADs by monolingual children

Interestingly, while some errors have been reported in contexts where copula selection results in a different base meaning of the adjective, copula selections for CAADs appears to be nearly error-free in monolingual children (Holtheuer, 2009). The absence of significant errors may be attributed to complementary distribution in early use of copulas with adjectives. While most Spanish adjectives allow the alternation, corpus studies on the input children receive and longitudinal studies on child usage show only a handful of adjectives being used with both copulas (Holtheuer, 2013; Sera, 1992). Therefore, a child’s error-free usage of copulas with adjectives does not entail that young children have knowledge of the aspectual distinction in copula selection, because their error-free usage may derive from word-knowledge (Sera, 1992, p. 414).

Accordingly, experimental research is needed to determine when children acquire CAADs, and a small set of experimental studies has responded to the challenge (Holtheuer et al., 2011; Requena, 2020; Requena et al., 2015; Schmitt & Miller, 2007). Most of these studies use Picture Selection Tasks (PSTs) to assess children’s ability to integrate discourse information about properties that change during a story in order to interpret the copula and select the relevant picture. The PSTs employed in Requena et al. (2015) and Requena (2020), which are the same as those used in the present study, involved a between-subjects design where children had to select either the temporary or the permanent picture based on whether *ser* or *estar* was used in the question they were asked about a character (see Materials and Procedure section of the present study for more details about the tasks). Overall results of these studies (see rates of temporary picture selection in Table 1) suggest that monolingual children ages 4;0–7;0 are, similar to the adults, able to distinguish between the two copulas, associating *estar* to a property that temporarily changed in the story. Findings from Requena et al. (2015) and Requena (2020) indicate that this is the case even with novel adjectives, which are devoid of any lexical biases that could exist towards a particular copula. In other words, while the rate of temporary picture selection with *estar* is slightly lower in the novel adjective task for monolingual children ages four and older (Requena et al., 2015), we still see the same pattern consisting of a clear association of *estar* with temporary properties. With *ser*, some monolingual adults (those tested in Requena, 2020) and children alike did not display a clear pattern of picture selection preference, displaying great variability. This variability follows from *ser* being less specified for aspect and the fact that participants can, when presented with *ser*, assume a hidden adverbial “now” and, thus, select the temporary picture. In short, this body of research suggests that monolingual children ages 4;0 and older know the semantic-aspectual distinction between *ser* and *estar*, and they are able to integrate discourse information and calculate the implicatures associated with the copulas. Children age 3;0, however, do not seem to have this ability, as their copula selection appears stochastic in the given tasks (Requena, 2020).

While the overall picture suggests that by age four monolingual children know the semantic-aspectual distinction between *ser* and *estar* and are able to integrate discourse information and

Table 1. Monolingual rates of temporary picture selection in *Estar* and *Ser* conditions across real- and novel-adjective tasks in Requena et al. (2015) and Requena (2020).

Study	Selection of the temporary picture in PST with real adjectives	Selection of the temporary picture in PST with novel adjectives
Requena et al. (2015)	Adults: <i>Estar</i> (100%) <i>Ser</i> (0%) Children ages 4–7: <i>Estar</i> (86%) <i>Ser</i> (66%)	Adults: <i>Estar</i> (100%) <i>Ser</i> (0%) Children ages 4–7: <i>Estar</i> (71%) <i>Ser</i> (60%)
Requena (2020)	Adults: <i>Estar</i> (88%) <i>Ser</i> (48%) Children age 4: <i>Estar</i> (69%) <i>Ser</i> (56%) Children age 3: <i>Estar</i> (53%) <i>Ser</i> (60%)	Adults: <i>Estar</i> (83%) <i>Ser</i> (40%) Children age 4: <i>Estar</i> (65%) <i>Ser</i> (41%) Children age 3: <i>Estar</i> (52%) <i>Ser</i> (61%)

Note: These studies, like the present study, followed a between-subjects design where each participant was assigned to only one copula condition, which was the same for both Picture Selection Tasks.

calculate the implicatures associated with the copulas, the rates with *estar* presented in Table 1 illustrate that these older children still select the permanent picture more than monolingual adults. Some selection of the permanent picture with *estar* by these children could indicate lack of reliance on the discourse. Yet it is important to keep in mind that the children aged four and older still displayed a strong association of *estar* to temporary pictures.

In conclusion, according to prior research on the acquisition of CAADs, by age 4;0 monolingual speakers have acquired the semantic and pragmatic interpretation of the copulas and are able to integrate discourse information, even if they may exhibit more variation than adults in discourse integration.

Acquisition of CAADs by heritage speakers

Researchers have reported a process of language change with respect to copula selection with adjectives amongst monolingual speakers of Spanish, where *estar* is observed to encroach into contexts traditionally reserved for *ser* (e.g. Geeslin & Guijarro-Fuentes, 2008; Gutiérrez, 1992, 1994; Ortiz López, 2000). Interestingly, studies on Spanish in contact with other languages suggest that this change may accelerate amongst heritage speakers (Gutiérrez, 2003; Salazar, 2007; Silva-Corvalán, 1986, 1994). Silva-Corvalán observes such innovative uses in second- and third-generation bilinguals (i.e. children and grand-children of Mexican immigrants) in Los Angeles, CA. She, in turn, hypothesizes that there may be a three-stage weakening process of the discourse-pragmatic conditioning on selection of *estar*. She proposes that selection of *estar* would initially be constrained by the notions of individual-frame as well as the nature of the subject referent and of the attribute (susceptibility to change and circumstantiality) (Stage I). However, these constraints would progressively lose relevance (Stage II), resulting in a grammar where “the only constraint on the selection of *estar* is that it introduces an attribute”, having lost all contrastive meaning with *ser* when used with attributes (Stage III) (Silva-Corvalán, 1986, p. 595). Interestingly, Silva-Corvalán observes that the weakening of the constraints emerged variably in second-generation bilinguals and only third-generation speakers showed evidence that would support Stage III. Regardless of generation, however, innovative uses of *estar* (i.e. in contexts where a grammar that encodes the copula contrast would have selected *ser*) increase as Spanish proficiency decreases.

Following from this previous research, we might expect to observe differences between school-aged second-generation speakers and first-generation adults in copula selection in CAADs when tested in a task that involves semantics, pragmatics and discourse integration. Presently, however, there is not sufficient research to confirm this hypothesis.

Research on Spanish copula selection with adjectives in child heritage speakers is scarce. Existing data comes from two pioneering longitudinal studies (Silva-Corvalán, 2014; Silva-Corvalán & Montanari, 2008) following two English-dominant Spanish-English bilingual children – Nico and his younger brother Brennan (ages 1;6–5;11). While these bilingual children are reported to follow a path of acquisition similar to that of monolingual children, there are two relevant exceptions. First, both children exhibit innovative uses of copulas in copula+adjective contexts with aspectual dimensions. Where monolingual children exhibit near error-free usage of copulas+adjectives, Nico and Brennan exhibit significant amounts of non-target usage, mostly in CAADs with *estar*, which encroaches into contexts of *ser*. This indicates that heritage speakers have some difficulty acquiring CAADs and that *estar* encroaches into contexts usually requiring *ser*.

Second, there are crucial differences between Nico and Brennan. While Nico begins to exhibit error-free usage of CAADs around age three, Brennan continues to produce innovative uses of copulas, especially with *estar*, well after.¹ Silva-Corvalán hypothesizes that the “delay” in Brennan follows from a difference between the two brothers. As time went on, more English was being spoken in the home and in other family situations, which decreased Brennan’s exposure to and proficiency in Spanish. While the small number of participants and the limitations of using naturalistic production to examine copula use in CAADs disallow strong conclusions, Silva-Corvalán hypothesizes that factors like reduced input and low proficiency in Spanish may impact acquisition of copula+adjective use amongst child heritage speakers. She calls in turn for studies on: (a) monolingual acquisition of copula+adjectives, which has been done and described above; and (b) comparable bilinguals, which has not yet been done.

Present study

Previous research reports a process of language change involving weakening of the discourse-pragmatic conditioning for CAADs in monolingual varieties (Geeslin & Guijarro-Fuentes, 2008; Gutiérrez, 1992, 1994; Ortiz López, 2000), and this process seems to accelerate amongst low proficiency heritage speakers due to language contact (Silva-Corvalán, 1986). Whereas monolingual children acquire CAADs at a very early age (Requena, 2020), very young bilingual children can take longer to acquire the copula distinction in the heritage language (Silva-Corvalán, 2014). Language exposure and use as well as proficiency in the heritage language have been hypothesized to influence the very early acquisition of CAADs (Silva-Corvalán, 2014) as well as their use at the end-state (Silva-Corvalán, 1986). Yet how the proposed weakening of the discourse-pragmatic conditioning for CAADs plays itself out amongst heritage speakers and the impact of the mentioned factors on acquisition during the school-aged years remains unknown. To fill this gap in the research, we implemented the same experimental tasks as Requena et al. (2015) with second-generation bilingual children ages 5–14. We also tested a group of first-generation immigrant adults from the same community (some of whom were the children’s caregivers) in order to obtain a measure of the input that the second-generation bilingual children received. Thereby this study aims to address two research questions:

1. Do child heritage speakers display knowledge of the semantic and pragmatic constraints on Spanish copula selection in CAADs (copula+adjective contexts with aspectual dimensions)? How does copula selection by child heritage speakers compare to that of first-generation adults?
2. Do age, language exposure/use, or proficiency, affect copula selection in school-aged child heritage speakers of Spanish?

Table 2. Summary of participants' information.

	Bilingual children (n = 50)	First-generation adults (n = 21)
Mean age at testing	7;5 (5;1–14;10)	42 (24–60)
Mean age of arrival	US-born ^a	29.2 (SD: 10.5)
Mean length of residence in US	US-born ^a	14.4 (SD: 6.7)
Mean Spanish language spoken with particular family members	Parental-report: 3.8/5 (SD: 1.0)	n/a
Mean Spanish exposure/use (outside school)	Parental report: 3.9/5 (SD: 0.9)	Self-report ^{**} : 70.2 (SD: 25.0)
Mean Spanish exposure/use in school (during last academic year)	Administrator/caregiver report: 3.1/5 (SD: 1.2)	n/a
Mean Spanish proficiency	BESA(ME): –0.4 (SD 2.8)	DELE: 34/50 (SD: 8.1) Self-report: 9.5/10 (SD: 0.7)
Mean English proficiency	BESA(ME): 0.6 (SD 2.8)	MELICET: 22.2/50 (SD: 11.1) Self-report: 5.2/10 (SD: 2.9)

Note: The proficiency scores are mean standardized proficiency scores expressed in terms of standard deviations.
^aOne bilingual child participant was born in Mexico, but she moved to the US before age two, and had resided in the US for almost eight years at the time of testing.
^{**}Data is missing from one adult participant due to technological error.

Participants

Data from 50 typically developing Spanish-English bilingual children aged 5;1–14;10 ($M=7;5$, $SD=2;6$) were collected from a bilingual community in central Texas. The children were born in the US, except one Mexican-born child who arrived in the US before age two. At least one parent of each child participant was born in Mexico (96%) or Honduras (4%) and immigrated to the US after age 15.²

The children's language exposure and use outside school were determined through a parent questionnaire that asked parents to mark the percentage of time that their child heard and spoke Spanish as opposed to English outside school.³ Parents were also asked to list the members of the family living in the home as well as close family and friends outside the home with whom the child interacts regularly. The caregivers reported the age of each of these individuals and the language that each spoke with the child.⁴

We used the data from the questionnaires to assign each child a score on 5-point Likert scales for the following four measures: language spoken with particular family members; language exposure outside school; language use outside school; and current exposure and use of Spanish at school.⁵ In these Likert scales, higher scores mean more Spanish exposure/use and less English exposure/use (see Appendix A in the Supplemental material for the complete scales).

Table 2 provides an overview of the participants' background information. The average score for language exposure was 4.10 ($SD=.81$) and the average score for language use was 3.78 ($SD=1.01$), indicating that overall Spanish is heard and spoken more than English in the homes of the children. Nevertheless, there was a range of scores (2–5 for exposure and 1–5 for use), indicating that some children live in predominately Spanish-speaking homes and others live in predominately English-speaking homes. Since the scores for exposure and use were strongly correlated positively [$r=.77$, $p<.0001$], we combined these two scores into a Spanish exposure and use variable, following Shin et al. (2019).

The variable current exposure and use of Spanish at school was based on the children's Spanish exposure/use during the academic year prior to this study, which was conducted at the beginning of the summer during an optional summer-school program. The average score for current exposure and use of Spanish at school was 3.10 ($SD=1.21$), but there was a range between 1 and 4, which depended upon whether the children received some Spanish instruction or had a bilingual support aid in the classroom, or if they just used Spanish minimally in social contexts. It is relevant to note that none of the child participants in this study received instruction in Spanish through any sort of evening or weekend heritage language school or institute. The children's current exposure and use of Spanish at school correlated negatively with age in months [$r=-.86, p<.0001$], which reflects the fact that in local Texas schools, children receive more Spanish instruction and support in the early school grades. Specifically, the district followed an early exit bilingual model designed to transition students to English-only classrooms by the fourth grade. However, during the academic year prior to this study, the district had increased the amount of Spanish instruction provided in the prekindergarten and kindergarten grades with the goal of moving toward implementing a dual-language model in the elementary school grades in the future.

Depending on their age, child participants completed the English and Spanish morphosyntax subtests of either the *Bilingual English-Spanish Assessment* 'BESA' (through age 6) (Peña et al., 2014), or the *Bilingual English-Spanish Assessment – Middle Extension* 'BESA-ME' (ages 7 and up) (Peña et al., 2016).⁶ The tests were developed to address the need for a valid, reliable instrument for assessing language ability along a continuum in Spanish-English bilingual children. The morphosyntactic subtest in both the BESA and BESA-ME consists of an orally elicited cloze task (using images) and a sentence repetition task that assess structures such as the following: possessive -s, past tense, and passives in the English version, and preterite, subjunctive, and article or adjective agreement in the Spanish version. To compare Spanish and English morphosyntactic proficiency continuously across all the participants regardless of the assessment they completed, we standardized the children's raw scores on their respective test versus the national means provided by the test creators. To do this, we subtracted the mean for the appropriate age group of the national sample ($n=756$ for BESA; $n=544$ for BESA-ME) from the participant's score and then divided by the standard deviation. For our sample, this resulted in a mean score of 0.63 ($SD 2.84$) for English proficiency (range: -3.37 – 7.25), and a mean score of -0.40 ($SD 2.84$) for Spanish proficiency (range: -6.04 – 6.12). Thus, overall the children exhibit greater proficiency in English than Spanish, yet the range indicates considerable variability.⁷

Data were also collected from 21 first-generation adults who were born in Mexico and immigrated to the US after age 15. First-generation immigrants were chosen as the baseline because: (a) they provide the heritage language input to the second-generation children; and (b) previous research has argued for and shown the importance of comparing heritage speakers to first-generation immigrants who are also bilingual to some degree and reside where the dominant societal language is not the language of the home (e.g. Montrul & Sánchez-Walker, 2013; Pascual y Cabo & Rothman, 2012). The first-generation adults in this study were from the same bilingual community in central Texas as the children tested, and some of the adults ($n=8$) were parents of some of the children tested ($n=11$). Thus, the Spanish spoken by these Mexican-born adults can be considered representative of the language that the children receive as input. To assess their language profiles in Spanish and English, the only languages with which the adult participants had experience, they completed the Spanish translation of the Language Experience and Proficiency Questionnaire (LEAP-Q) (Marian et al., 2007). As seen in Table 2 where details on patterns of language exposure, use, and proficiency (in speaking, listening, and reading) are presented, this adult group's mean length of residence in the US was 14.6 years, and the group reports using more and being more proficient in Spanish compared to English. Other proficiency measures adult participants completed were a version of the DELE,⁸ a Spanish proficiency test designed by the Spanish Ministerio de

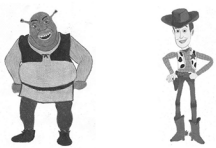
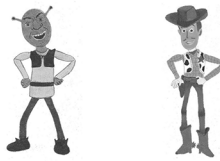
Target Trial	Script	Pictures
Researcher:	Ahora te voy a contar una historia de lo que les pasa a estos personajes cuando toman pastillas mágicas. 'I am going to tell you a story about what happens when these characters take magic pills.'	
Researcher:	Cuando Shrek y Woody las toman. 'When Shrek and Woody take them.'	
Researcher:	¡Míralos! 1. ¿Cuál es flaco? 2. ¿Cuál está flaco? <i>Look at them!</i> <i>1. Which one is:SER thin?</i> <i>2. Which one is:ESTAR thin?</i>	

Figure 1. Task 1 (real adjectives) sample experimental trial.

Educación, Cultura y Deporte (Ministry of Education, Culture, and Sport) (<http://diplomas.cervantes.es/en>) and a version of the MELICET, a test designed by the University of Michigan English Language Institute (<http://www.michigan-proficiency-exams.com/melicet.html>).

Materials and procedure

Both children and adults completed two Picture Selection Tasks (PST) designed to investigate copula selection with adjectives. The stimuli and procedure for these tasks were identical to that of Requena et al. (2015), other than the fact that we replaced the adjective *alto* “tall-MASC” with *grande* “big”. This small change was made for better consistency in the dichotomy for the adjective pairs (fat-thin, small-big).

Task 1: Real adjectives. Prior to each of the four experimental trials, which were conducted using Microsoft PowerPoint, the participants were shown slides with familiar cartoon characters to ensure that they were familiar with them. The participants then listened to a story about two characters, one of which changed in body size after taking magical pills. Following the story, participants were asked (using either *ser* or *estar*) to respond to the key question by selecting one of the characters (i.e. a temporary or permanent picture). The four adjectives used in this task were: *gorda* “fat-FEM”, *pequeña* “small- FEM”, *grande* “big- NEUT”, *flaco* “thin- MASC”. A sample trial is presented in Figure 1.

Task 2: Novel adjectives. The second task began with three practice trials to familiarize participants with using novel words. The participants were then shown the popular cartoon characters

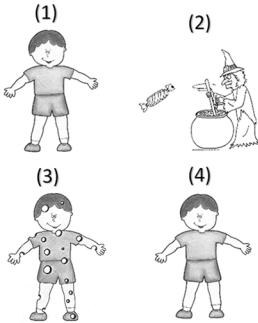
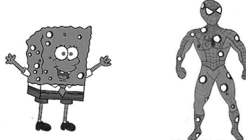
Target Trial	Script	Pictures
Researcher:	¿Los conoces? ¿Cómo se llaman? ¿Dónde los has visto? ¿Tienen amigos? (<i>niño responde</i>)(<i>Experimentador señala a Juan</i>) Este se llama Juan, ¿Cómo se llama? (<i>niño repite 'Juan'</i>) Ahora te voy a contar historias. Presta atención. 'Do you know them? What are their names? Where have you seen them? Do they have friends? (child answers) (Experimenter points at Juan) This one's called Juan. Can you say his name? (child repeats 'Juan'). Ahora viene una historia de Juan y alguien más. Adivina adivinador ¿Qué otros personajes aparecerán con Juan en esta historia? (<i>niño responde</i>) A ver... 'Now it comes the story about Juan and somebody else. Can you guess which characters will appear together with Juan in this story? (child answers) Let's see...'	
Researcher:	Un día, a Juan (1) la bruja le dio un dulce mágico (2). Juan lo comió y míralo qué POGO! (3). Pero después de un rato... míralo otra vez (4). 'One day, to Juan (1) the witch gave a magic candy (2). Juan ate it and look how POGO! (3 – Image of Juan with holes throughout all his body). But after a while... look at him again (4).'	
Researcher:	Y de estos dos: 1. ¿Cuál es POGO? 2. ¿Cuál está POGO? And from these two: 1. Which one is:SER POGO? 2. Which one is:ESTAR POGO?	

Figure 2. Task 2 (novel adjectives) sample experimental trial.

that would be used in the stories to ensure their familiarity with them, and they were introduced to “Juan”, an invented character. For each of the four experimental trials, the participants listened to a story in which Juan changed after eating a magic candy. With each transformation, a novel adjective is introduced representing the change that Juan experienced temporarily before

changing back to normal. The novel adjectives used were: *gudo* “one-eyed”, *dapo* “striped”, *fate* “spikey-haired”, and *pogo* “holey”. The participants were then asked (using either *ser* or *estar*) to select a known character exhibiting the same novel property (adjective) exhibited by Juan. A sample trial is presented in Figure 2.

Following a between-subjects design, each participant was assigned to only one copula condition, which was the same for both PSTs. The child participants were tested in two sessions, and the majority ($n = 44$) were tested in their school library during the summer-school day, with the remaining children ($n = 6$) tested in a quiet location in their home. Both PSTs were administered during Session 1. The BESA/BESA-ME morphosyntax subtest was administered in Session 2, with the test in Spanish preceding the test in English. The adults completed all the tasks in one session in the following order: *ser-estar* tasks 1 and 2, DELE, MELICET, LEAP-Q.

Predictions

The two PSTs are alike designed to test sensitivity to the semantic and pragmatic dimensions in CAADs. We predict that the first-generation adult speakers will perform like adult monolinguals on the same tasks. Having fully acquired CAADs, they will exhibit near categorical selection of the temporary picture in the *estar* condition in both tasks and will not exhibit a strong preference for the temporary picture in the *ser* condition in both tasks. Alternatively, if first-generation adults exhibit lower rates of selection of the temporary picture with *estar* than monolingual adults, the results would be more difficult to account for. Such a result could be consistent with language change already in their pre-contact variety of Mexican Spanish. Another explanation for such a pattern could be an acceleration of language change (i.e. *estar* encroaching into *ser* contexts) due to contact. Characterized as attrition, similar patterns have been reported only in production (Bayram et al., 2019) or in production and comprehension (Tsimpli et al., 2004).

The bilingual children may exhibit three distinct patterns in the tasks. First, they could perform like adults in the tasks, which indicates full acquisition of CAADs. Second, like monolingual children ages 4;0 and older, the bilingual children may have a strong but not adult-like preference for the temporary picture in the *estar* condition and this preference is also stronger than their preference for the temporary picture in the *ser* condition. This would indicate that they are calculating for implicatures but have yet to develop adult-like abilities in discourse interpretation and, thus, adult-like usage of CAADs. Third, like monolingual children age 3;0, they may exhibit chance-like preference for the temporary picture in the *estar* condition or prefer the temporary picture more in the *ser* condition than in the *estar* condition. This would indicate that they are not sensitive to the aspectual dimensions in CAADs. If task effects were found when comparing picture selection performance with real adjectives (Task 1) versus novel adjectives (Task 2), we expect more adult-like behavior with real adjectives since children would have experienced them in the input. Task 2 stimuli with novel adjectives, in contrast, are assumed to be devoid of all lexical biases stemming from language use. Therefore, copula selection in Task 2 should require a higher level of abstraction of the semantic and pragmatic distinction in CAADs. While monolingual children ages 4;0 and older (Requena, 2020; Requena et al., 2015) showed sensitivity to the copula distinction in both tasks, their rate of temporary picture selection with *estar* was slightly higher and in turn more adult-like in the task with real adjectives. Since input in Spanish is reduced for the bilingual children, we could see more drastic differences between the two tasks. Lastly, if factors such as age as well as exposure/use and proficiency in Spanish or English condition task performance, then this indicates a corresponding

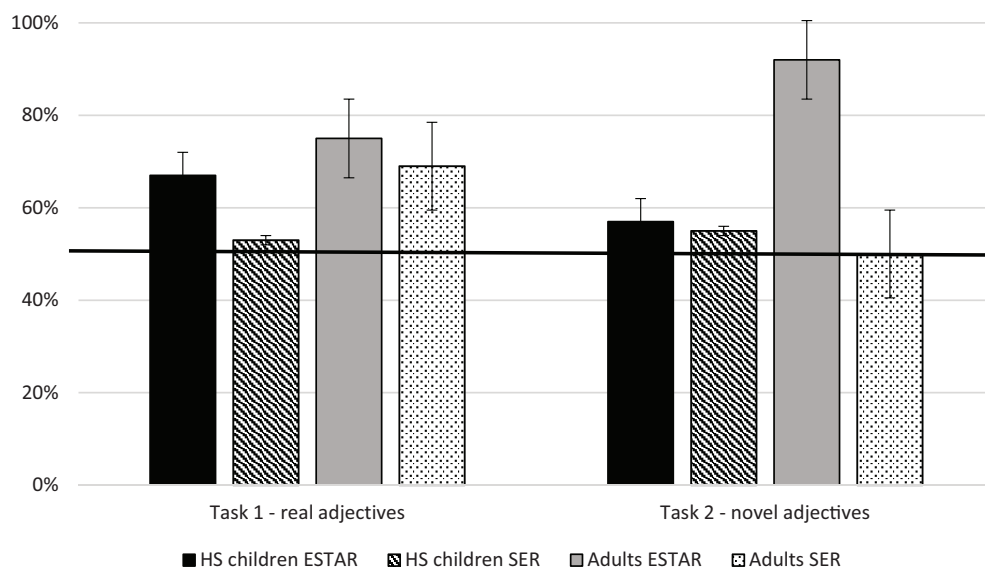


Figure 3. Selection of the temporary picture by children and adults by condition.

Note: The bold line indicates chance at 50%.

effect for acquisition of CAADs. Based on Silva-Corvalán (2014), we predict the variability in Spanish exposure/use and proficiency amongst the participants will mirror differences in task performance and different levels of acquisition of CAADs.

Results

In Task 1 (real adjectives) selection of the temporary picture by the children was 67% in the *estar* condition and 53% in the *ser* condition. The adults selected the temporary picture in this task 75% of the time with *estar* and 69% of the time with *ser*. In task 2 (novel adjectives) selection of the temporary picture by the children was 57% in the *estar* condition and 55% in the *ser* condition. The adults selected the temporary picture in this task 92% of the time with *estar* and 50% of the time with *ser*. The results from Tasks 1 and 2 by are presented in Figure 3 (see Appendix B in the Supplemental material for the results by trial).

To test performance on copula interpretation as well as the role of linguistic and experiential factors, we ran generalized linear mixed models (GLMM) with a logit-link and binomial error distribution in IBM SPSS Statistics version 26 (with graphs outputted by Stata/SE version 15.1). All models included Participant and Trial as random factors and Participant as a random slope.

We first compared the bilingual child group as a whole to the first-generation adults. The binary response variable was whether the participant selected the temporary picture or not (1 and 0, respectively). The explanatory variables in the model included Condition (*ser* vs. *estar*), Group (child vs. adult), and Task (Task 1 – real adjectives vs. Task 2 – novel adjectives). Three two-way interactions were tested, namely Condition x Task, Condition x Group, and Task x Group. A three-way interaction between Condition x Task x Group was also added. Results from the GLMM showed a significant observed association of Condition ($F(1, 560)=4.53, p=.03$) on selection of

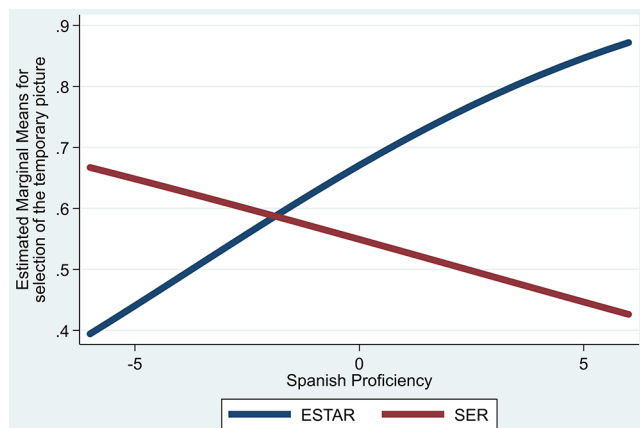


Figure 4. Significant condition x Spanish proficiency interaction for child participants.

Note: See Participants section for how morphosyntactic proficiency scores were standardized.

the temporary picture as well as a significant interaction between Condition x Task ($F(1, 560)=4.38$, $p=.037$). Group did not reach significance ($F(1, 560)=3.77$, $p=.053$). However, there was a significant three-way interaction between Condition x Task x Group ($F(1, 560)=10.89$, $p=.001$) showing that in Task 2 with novel adjectives, the odds ratio for adults selecting the temporary picture with *estar* as compared to *ser* was significantly higher ($OR=21.09$, 95% $CI=2.77, 160.63$) than the odds ratio of the child group ($OR=1.21$, 95% $CI=0.36, 4.01$). Note that the odds ratio for the child group was insignificant but the three-way interaction comparing the odds ratio of adults to children was significant (17.49 , 95% $CI=1.65, 183.65$). In other words, the adults showed much greater selection of the temporary picture with *estar* as compared to the children in Task 2 with novel adjectives.

Yet, while the adults tested in the present study constitute a rather homogenous group (see Method section), the children vary greatly in terms of their age, language exposure, and language proficiency. Thus, we further analyzed children's responses by running GLMMs including Condition and Task, as well as the following variables and all possible two-way interactions: age in months, language exposure and use outside school, language exposure and use in school, language spoken with parents, English proficiency, and Spanish proficiency.

Results reveal a significant interaction between Spanish proficiency and task performance. Specifically, the best-fit model based on model comparison tests (i.e. Akaike information criterion (AIC) and Bayesian information criterion (BIC)) included only Spanish proficiency and Condition as well as the interaction between these two, and the interaction between Condition x Spanish Proficiency ($F(1, 396)=3.91$, $p=.049$) was significant (Figure 4). Age, exposure/use in Spanish and English, and English proficiency were not significant in models that included them. This indicates that, regardless of the task (exposure to real or novel adjectives), increased Spanish proficiency corresponds to increased selection of the temporary picture with *estar*, and the selection of the temporary picture with *ser* decreases.

Given the significance of Spanish proficiency on task performance, we further explored the way experiential factors might influence task performance on those with more or less proficiency in Spanish. We ran GLMMs exploring three-way interactions between Condition, Spanish

proficiency, and the experiential factors. Of them, the best-fit model included Condition, Spanish Proficiency, Average Exposure and Use outside of School, and all possible two-way and three-way interactions. The results reveal a main effect of Average Exposure and Use outside of School ($F(1, 392)=3.95, p=.048$). This factor was part of an interaction with Condition and Spanish Proficiency. Albeit not significant ($F(1, 392)=2.89, p=.090$), this three-way interaction signals that as a child's Spanish proficiency increased, greater Spanish exposure and use increased the probability of selecting the temporary picture with *estar*. The Condition x Spanish Proficiency interaction does not reach significance in this model ($F(1, 392)=1.87, p=.173$).

In light of the independent effect of Spanish proficiency on selection of the temporary picture in the bilingual children, we decided to test whether children with higher Spanish proficiency do in fact resemble adults in selection of the temporary picture. We therefore divided the children in two proficiency groups (High-proficiency (HP) vs. Low-proficiency (LP)) based on the standardized proficiency measure described in the Methods section. A GLMM was fitted including main effects for Condition (*ser* vs. *estar*), Proficiency group (HP, LP, Adults), Task (Task 1 – real adjectives vs. Task 2 – novel adjectives), all two-way interactions, and a Condition x Proficiency Group x Task three-way interaction. The results showed a main effect of Condition ($F(1, 556)=4.91, p=.027$) and a significant Condition x Proficiency Group x Task three-way interaction ($F(2, 556)=6.34, p=.002$). Pairwise comparisons indicated that selection of the temporary picture was not significantly different between high-proficiency children and the adults. However, in Task 2 with novel adjectives, the odds ratio for adults selecting the temporary picture with *estar* as compared to *ser* was significantly higher (OR=30.37, 95% CI=3.48,264.91) as compared to the odds ratio of the low-proficiency group (OR=.55, 95% CI=.124,2.42). Note that the odds ratio for the low-proficiency group was insignificant but the three-way interaction comparing the odds ratio of adults to low-proficiency children was significant (55.48, 95% CI=4.00,768.55) (see Figure 5).

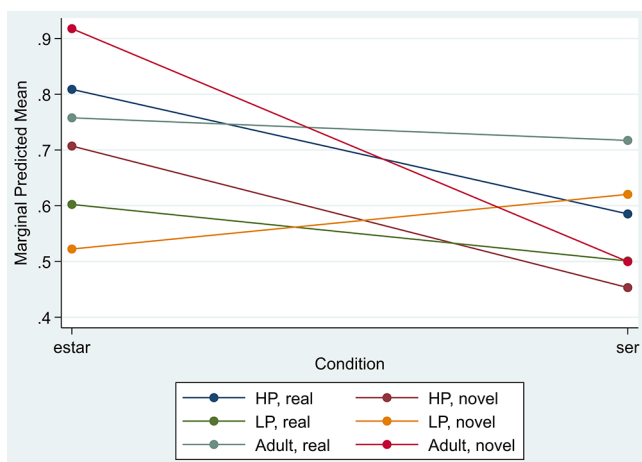


Figure 5. Significant condition x proficiency group x task three-way interaction.

Note: HP = high-proficiency; LP = low-proficiency; novel = novel adjectives in Task 2; real = real adjectives in Task 1.

Discussion and conclusion

This study aimed to address: (a) whether school-aged, second-generation heritage speakers of Spanish interpret copula selection in CAADs like the first-generation adults in their own community; and (b) whether factors like age, language exposure/use, or proficiency (English and Spanish) affect copula selection for this group of children. The results of this study, however, suggest that these two issues cannot be approached independently.

The first-generation adult heritage speakers performed like monolingual adults on the tasks, with one notable exception. The slight preference for the temporary picture when presented with *ser* falls within the normal range for monolingual speakers. Like monolingual adults, they exhibit near categorical selection of the temporary picture when presented with *estar* in the case of novel adjectives. Yet they do not prefer the temporary picture as strongly when presented with *estar* in the case of real adjectives. This task effect in the first-generation adults could be due to an acceleration of the weakening of the pragmatic constraints associated with *estar*. Evidence of attrition in first generation immigrants compared to monolingual speakers has been reported elsewhere (see Bayram et al., 2019; Tsimpli et al., 2004). If attrition is behind the first-generation adults' results, the pattern could be interpreted as starting with individual lexical items these speakers had experience of using (Task 1 consisted of known adjectives). This could be evidence of the accelerating influence of contact on language change as well as of the piecemeal (lexical) nature of this process. Lack of access to the patterns of language use by these first-generation speakers before contact with English, however, prevents us from attributing this task effect among first-generation adults to contact with English as opposed to evidence of change in progress in the source grammar prior to contact (see criteria for determining contact-induced change in Poplack & Levey, 2010). Answering this question about first-generation speakers falls outside the scope of the present study. In any case, these adults clearly exhibit the expected pattern of copula selection with CAADs, and their performance on the tasks will henceforth be the baseline for the bilingual children.

When the children are, despite the differences amongst them, lumped into one group and compared to the adults, the results are difficult to interpret. For example, their performance when presented with *estar* and real adjectives is not significantly different from adults. Yet, when presented with *estar* and novel adjectives, they do not select the temporary picture near categorically like the adults in their community but, instead, exhibit near chance-like selection, which is lower than reports on monolingual children ages 4–7 (Requena et al., 2015).

The picture becomes pellucid when we take into account the heterogeneity found in our child heritage speakers. Like prior research that found no effect of age on bilingual production of Spanish morphosyntax (Cuza et al., 2019), this study found no effect of age on task performance. Nor did we find an effect of English proficiency. This supports research concluding that copula systems in early Spanish-English bilingual children develop independently (Silva-Corvalán & Montanari, 2008). Lastly, this study surprisingly found no independent effect of Spanish exposure/use, but it did seem to interact with proficiency (see below).

Importantly, this study suggests that Silva-Corvalán's (2014) astute observations of two siblings play themselves out amongst school-aged heritage speakers as well. This study found that proficiency in Spanish morphosyntax is a significant factor that conditions performance on the given tasks and, thus, appears to condition the acquisition of copula selection in CAADs. Results yielded a predictive model (see Figure 4) for task performance. Those highest on a proficiency scale are predicted to exhibit adult-like copula selection regardless of task, which indicates full acquisition of CAADs. Those lowest in the proficiency scale are predicted to exhibit chance-like preference for the temporary picture in the *estar* condition and prefer the temporary picture more in the *ser* condition than in the *estar* condition, which indicates a lack of sensitivity to the

aspectual dimensions in CAADs. This finding was corroborated in our follow-up model that divided the bilingual children into low- and high-proficiency groups and compared them to first-generation adults.

Those with low Spanish proficiency exhibit little sensitivity to the aspectual dimensions in CAADs. They have a discernible but weak preference for the temporary picture in the *estar* condition with real adjectives, but exhibit chance-like performance in this condition with novel adjectives. The low-proficiency children in this latter task look similar to monolingual children aged 3;0 (Requena, 2020), who do not appear to have acquired the aspectual dimensions of CAADs. Therefore, in line with our third prediction (of chance behavior), we see little evidence that the low-proficiency heritage children in our study know the semantic and pragmatic distinction between *ser* and *estar* with adjectives. This was particularly evident with novel adjectives, which would suggest that Task 2 might impose greater difficulty for younger children, also in line with our prediction for task effects.

The bilingual children with high Spanish proficiency, on the other hand, approach adult-like copula selection with CAADs. In the *estar* condition with real adjectives, there is little difference between them and adults. While the high-proficiency children do not exhibit near categorical selection of the temporary picture in the *estar* condition with novel adjectives like adults, they still strongly prefer it. This slight difference between rates of temporary picture selection with *estar* by task could also point to some greater difficulty with novel adjectives, where the association of *estar* with a temporary property was a bit weaker than with real adjectives. We found that Spanish exposure/use seemed to interact with proficiency by having a positive effect in the *estar* condition for high-proficiency children. This could indicate that, for CAADs, some minimum threshold in heritage language morphosyntactic proficiency is required before children can profit from increased Spanish input, and it is possible that children with increasingly high-proficiency and increasing input are those most likely to achieve adult-like usage of CAADs. In any case, even though they do not exhibit exact adult-like usage, high-proficiency children do exhibit knowledge of the pragmatic and semantic dimensions in CAADs.

These findings prompt future questions and directions. First, this study did not find Spanish exposure/use to independently condition acquisition of CAADs. But increased exposure/use and higher proficiency are assumed to go hand-in-hand. Future studies should explore further triangulation of language background data and gather diachronic information since birth. Second, this study found morphosyntactic proficiency played a role in copula interpretation in the present study. It would be interesting to assess how different dimensions of proficiency (morphosyntactic competence, receptive vocabulary) interact with particular grammatical structures in heritage language acquisition. Third, a study using a within-subjects design with more participants per age represented could reveal that other predictor variables not found significant here also impact copula interpretation. Fourth, a longitudinal study through adulthood would shed light on the possibility of continued development in low-proficiency bilinguals up to their end state, a necessary approach to conclusively address questions about incomplete acquisition. While future work along these lines would be beneficial, the present study makes an important contribution as the first research to attest delayed and divergent acquisition of CAADs amongst low proficiency heritage speakers in the school years.

In conclusion, prior research hypothesized that tense-aspect-mood phenomena constrained by semantic and pragmatic factors in bilingual language acquisition are particularly vulnerable (Serratrice et al., 2004). The present study evidences this vulnerability for copula selection in CAADs. While first-generation adults exhibited lower rates of temporary picture selection with *estar* compared to monolinguals (which could indicate some attrition among first-generation immigrants), these speakers clearly showed evidence of the copula distinction. The

heritage-speaking children diverged in their interpretation of CAADs from first-generation adults (their input) as well as from school-aged monolingual children. This divergence, however, was particularly acute amongst heritage speakers with low proficiency in Spanish morphosyntax. Amongst these low-proficiency children, we see no evidence that they have acquired the semantic and pragmatic distinction between the copulas in CAADs. Silva-Corvalán (1986) proposed that amongst heritage speakers there might be an accelerated language change process resulting in a grammar where *estar* has lost the discourse-pragmatic constraints in CAADs. We humbly submit low-proficiency second-generation child heritage speakers as a catalyzing locus of this accelerated language change process.

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ORCID iD

Pablo E Requena  <https://orcid.org/0000-0002-9011-9755>

Supplemental material

Supplemental material for this article is available online.

Notes

1. When Brennan stopped producing errors cannot be determined, because he refused to speak Spanish to the researcher from age 4;5–5;0 resulting in very few adjectives ($n=8$) between 4;0 and 5;10, only one of which can be used with both copulas (Silva-Corvalán, 2014, Appendix 3).
2. Forty-two of the 50 child participants had 2 immigrant parents. For the eight children with only one immigrant parent, in all cases the other parent was born into a Spanish-speaking home within a bilingual community in the US.
3. The questionnaire asked parents to distinguish between exposure and use on weekdays and weekends. However, since parents reported identical or nearly identical percentages for weekdays and weekends, any minor differences in rates were averaged.
4. An anonymous reviewer inquired about the sibling status of the child participants. Forty-eight of the 50 children had siblings. Twenty-seven of the children were older siblings, meaning they had at least one younger sibling. Ten of these participants were the first-born child in their family. The specific role of language input from and use with siblings, and the influence of birth order, are relevant issues to explore (see e.g., Bridges & Hoff, 2014), but was beyond the scope of the present study. It is important to note, though, that language exposure to Spanish/English via siblings was taken into account in our overall measure of Average Exposure and Use Outside of School.
5. For the children tested in their school, administrators reported the approximate amount of Spanish exposure and use for each child during the previous school year, based on the classroom, teacher, and curriculum.

6. We acknowledge that BESA-ME was designed and normed to be used with Spanish-English bilingual children ages 7;0-10;11, yet we tested seven children between ages 11-14. Given that we were not using this test to identify language impairment (one of its main uses) but rather as a proficiency measure, for consistency we deemed it appropriate to use this test with the seven child participants that exceeded the upper age limit. None of these participants scored at ceiling in either the English or Spanish morphosyntactic subtest administered.
7. There was no significant correlation between Spanish proficiency and age ($r = .19, p = .160$) for the children tested in this study. As would be expected, though, there was a strong correlation between English proficiency and age ($r = .73, p < .0001$).
8. The group mean was rather low (34/50) for these first-generation adults, and the range was quite wide (22–47), with 5 participants scoring below 30. We believe that some scores were lower than expected due to two factors. First, many of the first-generation immigrants in our study were not highly educated or accustomed to taking computerized tests. Second, due to this lack of experience with computers and tests, when we administered the test, the experimenter walked through the exam question by question and filled in the participant's responses for him or her. Therefore, the administration of the test also differed from when participants take the test without assistance. We recognize that this may have resulted in a more artificial test environment and that it constitutes a limitation of the interpretation of the DELE results. For this reason, we also included their self-reported Spanish and English proficiency (Table 2).

References

- Bayram, F., y Cabo, D. P., & Rothman, J. (2019). Intra-generational attrition. In M. S. Schmid, & B. Köpcke (Eds.), *The Oxford handbook of language attrition* (pp. 446–457). Oxford University Press.
- Bridges, K., & Hoff, E. (2014). Older sibling influences on the language environment and language development of toddlers in bilingual homes. *Applied Psycholinguistics*, 35(2), 225–241.
- Butt, J., Benjamin, C., & Moreira Rodriguez, A. (2019). *A new reference grammar of modern Spanish*. Routledge.
- Chondrogianni, V., & Schwartz, R. G. (2020). Case marking and word order in Greek heritage children. *Journal of Child Language*, 47(4), 766–795.
- Cuza, A., Miller, L., Pérez Tattam, R., & Ortiz Vergara, M. (2019). Structure complexity effects in child heritage Spanish: The case of the Spanish personal a. *International Journal of Bilingualism*, 23(6), 1333–1357.
- Daskalaki, E., Chondrogianni, V., Blom, E., Argyri, F., & Paradis, J. (2019). Input effects across domains: The case of Greek subjects in child heritage language. *Second Language Research*, 35(3), 421–445.
- Flores, C., Santos, A. L., Jesus, A., & Marques, R. (2017). Age and input effects in the acquisition of mood in Heritage Portuguese. *Journal of Child Language*, 44(4), 795–828.
- Geeslin, K., & Guijarro-Fuentes, P. (2008). Variation in contemporary Spanish: Linguistic predictors of *estar* in four cases of language contact. *Bilingualism: Language and Cognition*, 11(3), 365–380. <https://doi.org/10.1017/S1366728908003593>
- Genesee, F. (1989). Early bilingual development: One language or two? *Journal of Child Language*, 16(1), 161–179. <https://doi.org/10.1017/S0305000900013490>
- Gutiérrez, M. (1992). The extension of *estar*: A linguistic change in progress in the Spanish of Morelia, Mexico. *Hispanic Linguistics*, 5(1–2), 109–141.
- Gutiérrez, M. (1994). *Ser y estar en el habla de Michoacán, México*. Universidad Autónoma de México.
- Gutiérrez, M. (2003). Simplification and innovation in US Spanish. *Multilingua-Journal of Cross-cultural and Interlanguage Communication*, 22(2), 169–184. <https://doi.org/10.1515/mult.2003.009>
- Holtheuer, C. (2009). *Learning Ser and Estar: A study of production and comprehension in Chilean Spanish* (Unpublished doctoral thesis). Australian National University.
- Holtheuer, C. (2013). How children use the input to acquire the Spanish copulas *Ser* and *Estar* with adjectives. *Revista de Lingüística Teórica y Aplicada*, 51(2), 29–47.
- Holtheuer, C., Miller, K., & Schmitt, C. (2011). *Ser* and *Estar*: The role of adjective-types. In M. Pirvulescu, M. C. Cuervo, A. T. Pérez-Leroux, J. Steele, & N. Strik (Eds.), *Proceedings of the Generative Approaches to Language Acquisition in North America (GALANA-4)* (pp. 90–105). Cascadilla Proceedings Project.
- Jia, R., & Paradis, J. (2020). The acquisition of relative clauses by Mandarin heritage language children. *Linguistic Approaches to Bilingualism*, 10(2), 153–183.

- Leonetti, M., Pérez-Jiménez, I., & Gumiel-Molina, S. (2015). *Ser and estar*: Outstanding questions. In I. Pérez-Jiménez, M. Leonetti, & S. Gumiel-Molina (Eds.), *New perspectives on the study of Ser and Estar* (pp. 1–22). John Benjamins.
- Marian, V., Blumenfeld, H., & Kaushanskaya, M. (2007). The Language Experience and Proficiency Questionnaire (LEAP-Q): Assessing language profiles in bilinguals and monolinguals. *Journal of Speech Language and Hearing Research*, 50(4), 940–967. Adapted to Spanish by R. Rojas & A. Iglesias. (2008). *Temple University Bilingual Language Laboratory*. [https://doi.org/10.1044/1092-4388\(2007/067\)](https://doi.org/10.1044/1092-4388(2007/067))
- Montrul, S. (2016). *The acquisition of heritage languages*. Cambridge University Press.
- Montrul, S. (2018). Heritage language development: Connective the dots. *International Journal of Bilingualism*, 22(5), 530–546. <https://doi.org/10.1177/1367006916654368>
- Montrul, S., & Sánchez-Walker, N. (2013). Differential object marking in child and adult Spanish heritage speakers. *Language Acquisition*, 20(2), 109–132.
- Ortiz López, L. (2000). Extensión de estar en contextos de ser en el español de Puerto Rico: ¿evaluación interna y/o contacto de lenguas? [Extension of estar in ser contexts in Puerto Rican Spanish: internal evaluation or language contact?]. *Boletín de la Academia Puertorriqueña de la Lengua Española (BAPLE)*, 98–118.
- Pascual, y, Cabo, D., & Rothman, J. (2012). The (il)logical problem of heritage speaker bilingualism and incomplete acquisition. *Applied Linguistics*, 33(4), 450–455.
- Peña, E. D., Bedore, L. M., Iglesias, A., Gutiérrez-Clellen, V. F., & Goldstein, B. (2016). *Bilingual English Spanish Assessment-Middle Elementary (BESA-ME)*. Unpublished test. University of Texas at Austin.
- Peña, E. D., Gutiérrez-Clellen, V. F., Iglesias, A., Goldstein, B., & Bedore, L. M. (2014). *BESA: Bilingual English-Spanish Assessment Manual*. AR-Clinical Publications.
- Polinsky, M. (2018). *Heritage languages and their speakers*. (Cambridge Studies in Linguistics). Cambridge University Press. <https://doi.org/10.1017/9781107252349>
- Polinsky, M., & Scontras, G. (2019). Understanding heritage languages. *Bilingualism: Language and Cognition*, 23(1), 4–20. <https://doi.org/10.1017/S1366728919000245>
- Poplack, S., & Levey, S. (2010). Contact-induced grammatical change: A cautionary tale. In P. Auer & J. E. Schmidt (Eds.), *Language and space: An international handbook of linguistic variation* (Vol. 1, pp. 391–419).
- Requena, P. E. (2020). *Acquisition of Spanish copula selection with adjectives by monolingual children before age 4;0*. *Journal of Child Language*, 1–13. <https://doi.org/10.1017/S0305000920000446>
- Requena, P. E., Román-Hernández, A., & Miller, K. (2015). Children's knowledge of the Spanish copulas Ser and Estar with novel adjectives. *Language Acquisition*, 22(2), 193–207. <https://doi.org/10.1080/10489223.2014.928299>
- Rothman, J. (2009). Understanding the nature and outcomes of early bilingualism: Romance languages as heritage languages. *International Journal of Bilingualism*, 13(2), 155–163. <https://doi.org/10.1177/1367006909339814>
- Salazar, M. (2007). Está Muy Diferente a Como Era Antes: Ser and estar + adjective in New Mexico Spanish [It is (estar) quite different from what it was (ser) before: Ser and estar + adjective in New Mexico Spanish]. In K. Potowski, & R. Cameron (Eds.), *Spanish in contact: Policy, social and linguistic inquiries* (pp. 345–355). John Benjamins.
- Schmitt, C., & Miller, K. (2007). Making discourse-dependent decisions: The case of the copulas *ser* and *estar* in Spanish. *Lingua*, 117(11), 1907–1929. <https://doi.org/10.1016/j.lingua.2006.11.007>
- Sera, M. (1992). To be or to be: Use and acquisition of the Spanish copulas. *Journal of Memory and Language*, 31(3), 408–427. [https://doi.org/10.1016/0749-596X\(92\)90021-O](https://doi.org/10.1016/0749-596X(92)90021-O)
- Serratrice, L., Sorace, A., & Paoli, S. (2004). Crosslinguistic influence at the syntax–pragmatics interface: Subjects and objects in English–Italian bilingual and monolingual acquisition. *Bilingualism: Language and Cognition*, 7(3), 183–205. <https://doi.org/10.1017/S1366728904001610>
- Shin, N., Rodríguez, B., Armijo, A., & Perara-Lunde, M. (2019). Child heritage speakers' production and comprehension of direct object clitic gender in Spanish. *Linguistic Approaches to Bilingualism*, 9(4/5), 659–686. <https://doi.org/10.1075/lab.17029.shi>

- Silva-Corvalán, C. (1986). Bilingualism and language change: The extension of *estar* in Los Angeles Spanish. *Language*, 62(3), 587–608. <https://doi.org/10.2307/415479>
- Silva-Corvalán, C. (1994). *Language contact and change: Spanish in Los Angeles*. Clarendon Press.
- Silva-Corvalán, C. (2014). *Bilingual language acquisition: Spanish and English in the first six years*. Cambridge University Press.
- Silva-Corvalán, C., & Montanari, S. (2008). The acquisition of *ser*, *estar* (and *be*) by a Spanish–English bilingual child: The early stages. *Bilingualism: Language and Cognition*, 11(3), 341–360. <https://doi.org/10.1017/S136672890800357X>
- Tsimpli, I., Sorace, A., Heycock, C., & Filiaci, F. (2004). First language attrition and syntactic subjects: A study of Greek and Italian near-native speakers of English. *International Journal of Bilingualism*, 8(3), 257–277.
- Zentella, A. C. (1997). *Growing up bilingual: Puerto Rican children in New York*. Blackwell.

Author biographies

Pablo E Requena is an assistant professor of Hispanic linguistics at the University of Texas at San Antonio. His research focuses on language acquisition and bilingualism.

Melisa Dracos is an assistant professor of linguistics at Baylor University. Her research focuses on the acquisition of morphosyntax by monolingual and bilingual children, and in adult heritage speakers and second-language learners.