



Acquiring Differential Object Marking in Heritage Spanish: Late Childhood to Adulthood

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Keywords:	Heritage language acquisition, Differential object marking, Incomplete acquisition, Feature reassembly, Age effects
Abstract:	<ul style="list-style-type: none"> • Aims/objectives/purpose/research questions: The present study evaluated child and adult heritage speakers' (HS) productive and receptive knowledge of differential object marking (DOM) and addressed the roles of age, proficiency, and frequency of use in explaining individual variability. • Design/methodology/approach: 127 participants completed a sentence completion task (SCT) and a morphology selection task (MST) targeting DOM with animate and specific direct objects. Fifth grade, seventh/eighth grade, and adult HS groups participated alongside a group of Spanish-dominant bilingual adults. • Data and analysis: All responses were coded for production/selection of DOM and submitted to a binomial logistic regression, which included effects for group, task, and proficiency, and frequency of use of Spanish. • Findings and conclusions: HSs' DOM production and selection increased across age groups. Proficiency modulated differences between HSs of all ages and participants were more likely to select DOM on the MST than to produce it on the SCT, particularly if they used Spanish infrequently. However, all HSs produced and selected DOM at least one time, but many differed from Spanish-dominant bilingual adults. • Originality: This study is the first to plot the course of development across late childhood and into adulthood in Spanish HSs that incorporates both a production task and a receptive measure to explore HSs' holistic linguistic systems. • Significance/implications: These findings show that there are factors

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Acquiring Differential Object Marking in Heritage Spanish: Late Childhood to Adulthood

1. Introduction

The acquisition of heritage languages (HL) has been the topic of extensive research, frequently concentrating on Spanish speakers in the United States. Heritage speakers (HS) are native speakers of a particular language in a context where a different language has greater public and institutional presence. HSs are highly heterogeneous because there are myriad factors that influence their development, and exploring the acquisition of HLs is crucial for a more complete and equitable understanding of first language (L1) acquisition and bilingualism.

Traditionally, scholars have aspired to distinguish between incomplete acquisition of grammatical structures (e.g., Montrul, 2008), referring to fossilized L1 development, and attrition (e.g., Hicks & Domínguez, 2020), referring to loss. While these theories posit end-state differences when compared to monolinguals or bilinguals dominant in the HL, they differ in their directionality: incomplete acquisition implies an increase in knowledge until a certain period in development, while attrition implies a decrease. Montrul (2013, pp. 370-371) describes that “Although longitudinal studies are ideal to tease apart these two possibilities, another way to address these questions is by comparing child and adult heritage speakers.” The present study adopts this underutilized approach to assess HL acquisition.

However, these theories do not concentrate on differences between individual HSs or within a single speaker’s grammar. Putnam and Sánchez (2013) advanced a process-oriented framework that conceives of patterns of exposure as essential to HL acquisition and maintenance. These researchers’ model of HL acquisition is based upon Lardiere’s (2009) Feature Reassembly Hypothesis from second language acquisition research. Following these researchers, HSs must

receive consistent exposure to their HL to process **functional** features¹ and map them onto (or interpret them on) lexical items. They argue that infrequent processing of these features will lead to their reassembly to resemble those of the dominant language. Putnam and Sánchez (2013) claim that reassembly begins in production but may not affect underlying competence until later in the restructuring process, **which can lead to a bilingual alignment (Sánchez, 2019) in which HSs may** retain sensitivity to syntactic categories even when exhibiting variability in production of a given (morpho)syntactic feature. **Therefore, decreased use of the HL purportedly impacts production before receptive knowledge.** Evidence of asymmetries between production and receptive knowledge is well documented in research on **Spanish HSs** (e.g., Author, xxxx; Giancaspro & Sánchez, 2021; Guijarro-Fuentes et al., 2017; Perez-Cortes, 2016).

While this model shifts the focus towards comparing HSs on the basis of language exposure and experience, it implies that these bilinguals have initially acquired such features in the first place. Consequently, although individual patterns of exposure and proficiency, which **have** been interpreted as **proxies** for exposure (e.g., Giancaspro & Sánchez, 2021; López Otero, 2022; **López Otero et al., 2023**), can capture individual differences between HSs, **Putnam and Sánchez (2013)** **do** not explicitly discuss how younger HSs acquire HL features over time. Following Putnam and Sánchez's (2013) model, the increase of English exposure around the onset of schooling could lead to the progressive reassembly of HL features in older children; **therefore, older children may reassemble HL features.** There is some evidence that HSs restructure their grammatical knowledge in late childhood (e.g., Goebel-Mahrle & Shin, 2020; **Merino, 1983**), **but** other studies reveal that **HSs'** command of inflectional morphology develops with age **in a protracted fashion** (Corbet &

¹ Putnam et al. (2019, p. 19) define features as "Indices on lexical items and larger syntactic objects that allow generated structures to be interpreted at external interfaces."

Domínguez, 2020; Cuza & Miller, 2015; Martinez-Nieto & Restrepo, 2022; Montrul & Potowski, 2007).

The theories of directionality (incomplete acquisition and attrition) and of individual variability (Putnam & Sánchez, 2013) have all been influential in understanding HL acquisition more generally, and may be complementary, because they provide predictions at different levels (between-groups, within-groups, and within a single speaker). All of these levels of variability have been explored in different studies on HSs’ acquisition of differential object marking (DOM), a syntactic structure that has been a popular topic in previous research. However, each of these levels of variability has not yet been evaluated within a single project on bilingual children and adults.

The study of DOM has been tied to patterns of exposure and evidence shows it is highly variable in HS populations, which makes it a natural testing ground for the theories laid out above and their intersection with age. The present study compares HSs’ knowledge of DOM across the adolescent years into adulthood using both productive and receptive measures to provide a more holistic perspective of the developmental path of this structure, while also considering patterns of exposure. This study therefore has implications for our understanding of theories of HL acquisition by considering whether HSs continue to develop DOM into adulthood, therefore following a protracted developmental path, or whether they exhibit attrition, while simultaneously considering how patterns of use and proficiency shape differences between individual HSs and also comparing productive and receptive knowledge within a single speaker.

2. Differential Object Marking in Spanish

Spanish is among approximately 300 languages that feature a DOM system whereby some animate objects require special case marking (Bossong, 1991). In Spanish, *a* marks dative case

with all indirect objects **as well as** accusative case with animate and specific direct objects (Fábregas, 2013; Torrego, 1998).² **Other direct objects do not receive case marking.** In such instances, Torrego (1998) argues that **the differential object marker *a* is an instance of** inherent case that is marked on animate and specific **direct** objects **that raise overtly from within the VP to check a D-feature in *spec,vP*.** Although the morphological realization of this structure is not highly salient (see Montrul et al., 2015 or Sagarra et al., 2019 concerning saliency and DOM in HL acquisition), it has important implications for meaning: DOM facilitates the freer word order of Spanish when compared to languages such as English, as it enables disambiguating between subject and object. For instance, in sentence (1), there is no **differential object marker**, which implies that Roberta is the subject of this VS sentence. However, in (2), there is a null subject, and Roberta is the direct object, as indicated by the **differential object marker *a*.**

(1) Escucha Roberta.
Listen-3PS Roberta.
 Roberta listens.

(2) Escucha a Roberta.
Ø listen-3PS to Roberta.
 She listens to Roberta.

While both English and Spanish have structural case, English does not have a DOM or inherent case system, so Putnam and Sánchez (2013) would predict that English-dominant HSs of Spanish could reassemble their case marking system to obviate the D-feature with animate and specific direct objects, beginning in production and extending to underlying knowledge. It should be noted that previous studies have found variability in monolingual communities' use of DOM. However, omission of DOM with animate and specific direct objects that are proper nouns, which

² There are other semantic considerations in DOM, including verbal telicity, subject agentivity, and the animacy of animals (see citations above) that are not relevant to the present project, and therefore will not be discussed due to space limitations.

are tested in the present study, has not been attested in previous research on dialectal variation (e.g., Reina et al., 2021).

2.1. Monolingual Acquisition of DOM

In the L1 acquisition of DOM. Firstly, Rodríguez-Mondoñedo (2008) evaluated four children’s development of DOM longitudinally, and found that by age three, participants produced the *a* marker with 98% accuracy. Although this indicates that monolingual children acquire DOM early, the child with the greatest rates of DOM omission was bilingual in Spanish and Catalan. In contrast, Ticio (2015) found greater variability among monolingual children and age-matched bilinguals acquiring English and Spanish. Through age 3;6, Ticio documented a DOM omission rate of 75% among bilinguals. However, in a reanalysis of these data, Requena (2022) argues that the majority of instances of omission in Ticio’s (2015) study occurred in situations where variable use of DOM has been attested in some dialects, casting doubt on if and how older HS children diverge from monolinguals.

2.2. Bilingual Acquisition of DOM

Previous experimental studies have revealed that HS children do differ from monolingual children and adults with respect to their DOM systems. Cuza et al. (2019) evaluated DOM in children between ages 6;7 and 11;2, and found no effect for age in the production of this structure with animate and specific direct objects. Secondly, in a set of studies, Guijarro-Fuentes and Marinis (2011) and Guijarro-Fuentes et al. (2017) evaluated English-dominant Spanish HSs between ages ten and fourteen in their knowledge of different semantic entailments of DOM. HSs produced fewer instances of DOM than monolingual peers in animate and specific contexts, but patterned with the monolinguals on acceptability judgments, which supports the finding that HSs have asymmetrical knowledge of (morpho)syntactic structures. Once again, there was no effect of

age, nor of language dominance, on variability, but rather, proficiency modulated participants' use of DOM.

Of greatest relevance to the present study is Montrul and Sánchez-Walker's (2013) experiment, in which the researchers compared children's and adults' production of DOM across two tasks. Despite variability ranging from 0% to 100% production of DOM in the expected contexts, adults produced more DOM than children between ages six and seventeen, and patterns of current exposure to Spanish modulated HSs' production tendencies. These results show that children continue to acquire this structure into adulthood, and that exposure shapes individual HSs' knowledge. Nevertheless, the children in this study comprised a single group, which problematizes identifying when HSs converged on bilingual adult-like knowledge of DOM. Furthermore, there was no receptive task with which to assess growth of underlying syntactic knowledge, which presents an opportunity for research.

Findings in research on adult HSs' acquisition of DOM are largely consistent with those with bilingual children. Researchers have claimed that adult HSs experience incomplete acquisition of DOM (Montrul & Bowles, 2009; Montrul et al., 2015), possibly due to its low perceptual salience (Montrul et al., 2015). However, past studies have found that proficiency and frequency of use modulate individual HSs' command of this structure (Arechabaleta Regulez & Montrul, 2023; Montrul, 2004; Montrul & Bowles, 2009; Montrul & Sánchez-Walker, 2013), both variables that have been interpreted as proxies for HL exposure (Giancaspro & Sánchez, 2021; López Otero, 2022; López Otero et al., 2023). Specifically, despite high overall rates of DOM omission, those HSs with high proficiency produce this structure nearly categorically (Arechabaleta Regulez & Montrul, 2023; Montrul, 2004; Montrul & Bowles, 2009). Most recently, Hur (2020) found that HSs' self-ratings of the frequency of individual verbs modulated how often

they produced DOM with each lexical item, particularly at intermediate proficiency levels. This study goes beyond comparisons of HSs to other groups of speakers by concentrating on within-speaker variability and on variability within individual speakers' grammars, which represents a shift in focus towards understanding the myriad factors that affect acquisitional differences between and within HSs.

3. The Experiment

There is yet to be a single study on child HSs that has evaluated multiple age groups using both a production task and a receptive measure. Since older school-aged children represent age groups that are essential for distinguishing between theories of HL acquisition, comparing pre-adolescent and adolescent children to adults who are HSs of Spanish has critical implications. Furthermore, such research can contribute to a growing body of work that concentrates on differences between and within HSs' grammatical systems, by addressing the roles of proficiency and frequency of use (between speakers) and productive-receptive knowledge asymmetries (within-speaker). Therefore, the present study evaluated three levels of variability (between-groups, between-speakers, and within-speaker) through three research questions (RQs):

1. Do older age groups of HSs produce and select more DOM with animate and specific direct objects than younger children?

As stated previously, the role of age in the HL acquisition of DOM has been difficult to pinpoint. Past research shows that HSs continue to master DOM into adulthood (Montrul & Sánchez-Walker, 2013), but there are no age effects found in studies on bilingual children as old as age fourteen (Cuza et al., 2019; Guijarro-Fuentes et al., 2017). It was therefore hypothesized that adults would produce and select more instances of DOM than children. The resulting prediction is that adult HSs will produce more DOM and select it more consistently on the receptive task than the

adolescent HSs in the fifth through eighth grades, who would not show differences from one another.

2. Do proficiency and frequency of use of Spanish influence differences in DOM production and selection between HSs with animate and specific direct objects?

Previous research shows that frequency of use and morphosyntactic proficiency modulate production and acceptability judgment of DOM (Guijarro-Fuentes et al., 2017; Montrul, 2004; Montrul & Bowles, 2009; Montrul & Sánchez-Walker, 2013), in line with Putnam and Sánchez's (2013) predictions. A logical hypothesis was therefore that both would affect rates of DOM use. Therefore, it was predicted that HSs who have higher scores on a Spanish morphosyntactic proficiency measure and those who report using Spanish more frequently across contexts would also produce and select DOM more frequently.

3. Do HSs show asymmetries between production and selection of DOM with animate and specific direct objects?

Previous research on adult HSs' inflectional systems points towards stronger receptive knowledge than what is observed in production (Author, xxxx; Giancaspro & Sánchez, 2021; Perez-Cortes, 2016), in line with Putnam and Sánchez's (2013) predictions. This is consistent with Guijarro-Fuentes and Marinis (2011) and Guijarro-Fuentes et al. (2017), who showed that pre-adolescent and adolescent HSs patterned more similarly to monolinguals on a receptive task when compared to production. The same hypothesis was proposed for the present study, whereby HSs would show stronger receptive knowledge of DOM. Therefore, it was predicted that HSs in this experiment would select DOM with animate and specific direct objects on a multiple-choice task more frequently than they would produce this structure in the same contexts.

3.1. Participants

127 bilinguals participated in the present experiment in four groups: Spanish-dominant bilinguals (SDB, $n = 18$), HS adults (HSA, $n = 34$), HS in seventh and eighth grade (HS7/8, $n = 34$; ages 12-14), and HS in fifth grade (HS5, $n = 41$; ages 10-11). All children and 26/34 adult HSs came from households where both parents spoke Spanish. The SDB were raised in seven Spanish-speaking countries and had moved to the mainland United States no earlier than age twelve. These participants were working as graduate students or language teachers in the region where this study was conducted, and represented the bilingual input to which HSs may receive exposure. This reduces the potential confound between the innovations in heritage grammars and variability that may be present in their input (Rothman et al., 2023). The HSA were undergraduate and graduate students at a large research university and working professionals in the surrounding community. Some were attending university courses in Spanish, but none had received a bilingual immersion education. Finally, the HS7/8 and HS5 were students at two schools in central New Jersey that were matched for socioeconomic status and demographics (see author, xxxx, Ch. 3), and were primarily sequential bilinguals of Mexican and Dominican descent who reported Spanish as the primary language at home. 48/75 children actively attended or had attended a bilingual school, although approximately half of these participants had only done so for part of their elementary education, and the remaining children attended a traditional English-only school.

Table 1 summarizes each group’s characteristics: frequency of use of Spanish, proficiency on the Bilingual English-Spanish Assessment (BESA; Peña et al., 2014), and number of monolingual Spanish-speaking parents, taken as a proxy for the concentration of sequential and simultaneous bilinguals in each group. In addition, adults completed the DELE, a lengthier proficiency test that has been used in other research on Spanish (e.g., Montrul & Slabakova, 2003).

Variable	SDB		HSA		HS7/8		HS5	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Frequency of use (max. 30)	19.7	6.1	12.1	4.8	16.1	5.4	17.8	6.5
BESA score (max. 18)	11.8	2.2	11.2	2.5	11.5	2.3	9.2	2.7
DELE score (max. 50)	47.6	1.6	33.3	8.8	—	—	—	—
Number of monolingual Spanish-speaking parents	1.8	0.3	0.1	0.9	1.1	0.8	0.9	0.9

Table 1. Group characteristics.

3.2. Tasks

There were four tasks in the present experiment. Adults took the experiment online, and children completed the tasks using laptop computers in their schools. All participants completed a brief questionnaire investigating their use of Spanish in six contexts along 1-5 Likert scales, the sum of which comprised the frequency of use score in the statistical modeling, as well as the BESA, which contained eighteen questions concerning morphosyntactic proficiency in Spanish. In addition, there were two experimental tasks used to address the acquisition of DOM. Both tasks shared the same communicative context about a mom's wishes for her twin daughters and younger son while preparing for sleepaway camp. Both tasks were untimed, as the present study did not evaluate the processing of DOM (see Arechabaleta-Regulez & Montrul, 2023 or Sagarra et al., 2019). All verbs were morphologically regular, disyllabic, and ended in -ar, the first and most frequent conjugation class. Full transcripts of the tasks are found in AUTHOR (xxxx).

The first was the sentence completion task (SCT), in which participants recorded their voices completing sentences. There were ten items targeting DOM in subordinate clauses, as this experiment also tested speakers' command of mood morphology, as well as six distractors in the children's version and an additional 31 distractors in the adults' version. Participants read a series of sentences for each item and then needed to complete the subordinate clause in the final sentence by recording their voice through a software embedded on Qualtrics known as Phonic. The infinitival form of each verb appeared in parentheses, followed by *Juanito*, the name of the younger

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brother. Participants needed to supply an inflected form of the verb as well as any other words, such as the differential object marker *a*, that they determined were necessary. The subject of all of the subordinate clauses was *las hermanas* (*the sisters*), to increase the salience of DOM by using third person plural morphology with the *-an* verbal suffix (rather than *-a*, the third person singular). Sentence (3) is an example item from the SCT, as reflected in Figure 1.

- (3) Juanito siempre va al parque de juegos. ¿Qué quiere la mamá? Quiere que las hermanas _____ (LLEVAR) Juanito al parque de juegos.
- Juanito always goes to the playground. What does the mother want? She wants for the sisters _____ (TAKE) Juanito to the playground.*

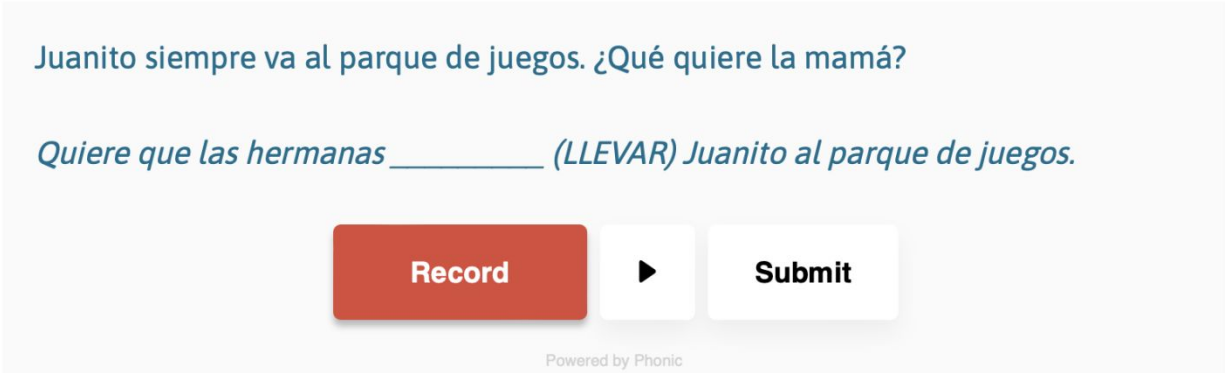


Figure 1. Sample of sentence (3) from SCT administered on Qualtrics.

The morphology selection task (MST) tapped underlying knowledge of DOM. In these instances, participants read prompts and needed to select which of two choices they felt sounded best. The two choices differed only in the inclusion or omission of the differential object marker *a* between the verb and the direct object *Juanito*. In these sentences, DOM was tested following the structure *tienen que* (*they have to*) + infinitive. Since this task was administered in written form, the target region was boldfaced. There were also fourteen distractors for children and 47 for adults. Sentence (4) is an example item from the MST, reflected in Figure 2.

- (4) ¿Qué tienen que hacer las hermanas?
- a. Tienen que cuidar Juanito.
 - b. Tienen que cuidar a Juanito.

What do the sisters have to do?

- a. They have to take care of Juanito [no DOM].
- b. They have to take care of Juanito [DOM].

La mamá cree que Juanito puede preocuparse mucho. ¿Qué quiere la mamá?

- ☐ Quiere que las hermanas lo **cuidan**.
- ☐ Quiere que las hermanas lo **cuiden**.

¿Qué tienen que hacer las hermanas?

- ☐ Tienen que **cuidar Juanito**.
- ☐ Tienen que **cuidar a Juanito**.

Figure 2. Sample of sentence (4) from MST administered on Qualtrics.

4. Results

All analyses were carried out through RStudio (R Core Team, 2022) using the *emmeans* (Lenth, 2021), *lme4* (Bates et al., 2015), *lmerTest* (Kuznetsova et al., 2017), and *tidyverse* (Wickham et al, 2019) packages. All anonymized code and data were shared on a public GitHub repository (URL BLINDED). A total of 128 responses from the SCT were omitted where participants produced grammatical alternatives to DOM by inserting extra words (e.g., *peinen el pelo de Juanito*, *they style the hair of Juanito*) or in which **they** did not save their response, leaving 1,122 observations (88.3%). 27 responses from the MST were omitted in which the participant did not select a choice between two sentences, leaving 876 observations (99.5%). Therefore, there were a total of 2,155 observations for analysis, in which inclusion of the **differential** object marker *a* was assigned a score of 1, and omission of this structure was assigned a score of 0. Based upon these calculations, Table 2 and **Figure 3** summarize the percentages of DOM production and selection in the SCT and MST by group.

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Group	EPT		FCT	
	Mean	SD	Mean	SD
SDB	9.06	1.09	7.94	0.24
HSA	5.06	3.62	6.91	2.21
HS7/8	3.85	3.61	6.70	1.68
HS5	2.98	2.93	5.59	1.87

Table 2. Average number of sentences produced with DOM by group and task (with standard deviation).

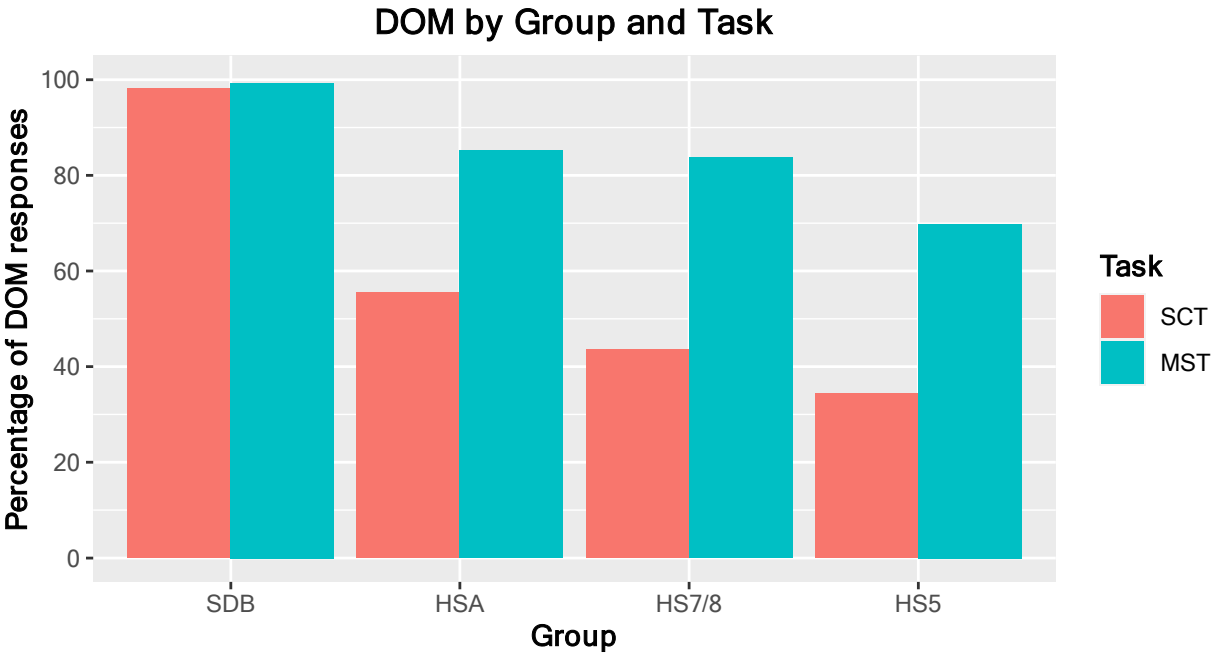


Figure 3. Percentages of DOM production and selection by group and task.

To explore these data further, two generalized linear mixed methods (GLMM) binary logistic regression models were necessary. DOM production and selection was the dependent variable and participant and item were random effects in both models. The first model incorporated group as the independent variable, with SDB established as the baseline. This model revealed significant effects at the $p < .05$ level for all HS groups, summarized in Table 3. This table also summarizes the differences between HS groups that were generated through Tukey post-hoc comparisons. The difference between the HSA and HS5 group was significant at the $p < .05$ level, but those between the HSA and HS7/8 as well as the HS7/8 and HS5 were not. Therefore, there is

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a gradual progression towards the adult-like system in HSs' command of DOM, which is consistent with the descriptive statistics summarized in Table 2 and Figure 3.

Contrast	β	SE	z	p
SDB – HSA	4.545	0.821	5.537	< .0001
SDB – HS7/8	5.187	0.823	6.306	< .0001
SDB – HS5	6.001	0.814	7.369	< .0001
HSA – HS7/8	0.642	0.491	1.308	.5578
HSA – HS5	1.456	0.470	3.099	.0105
HS7/8 – HS5	0.814	0.463	1.759	.2934

Table 3. Tukey post-hoc comparisons of groups.

The second GLMM model evaluated HSs' data only to better explore individual and within-speaker variability. The independent variables were task, BESA proficiency (maximum value: 18), and frequency of use of Spanish (maximum value: 30), as well as the two-way interactions between task and proficiency and task and frequency of use. The SCT was selected as the baseline for task; participants' BESA scores and frequency of use of Spanish were **standardized** continuous variables. Table 4 shows the results of the model, in which main effects for the MST, BESA proficiency, and the interaction between the MST and frequency of use were significant at the $p < .05$ level. The effects of group and task can be observed in Figure 3; Figure 4 shows each HSs' DOM production and selection as a function of BESA proficiency, and Figure 5 visualizes each HSs' production and selection of DOM by frequency of use.

Fixed effect	Estimate	SE	z	p
(Intercept)	−0.308	0.275	−1.118	.2636
MST	2.468	0.324	7.611	< .0001
BESA proficiency score	0.756	0.205	3.694	.0002
Frequency of use	0.162	0.198	0.817	.4141
MST : BESA proficiency score	−0.267	0.145	−1.837	.0661
MST : Frequency of use	−0.327	0.144	−2.265	.0235

Table 4. Results of second GLMM model with HSs' data.

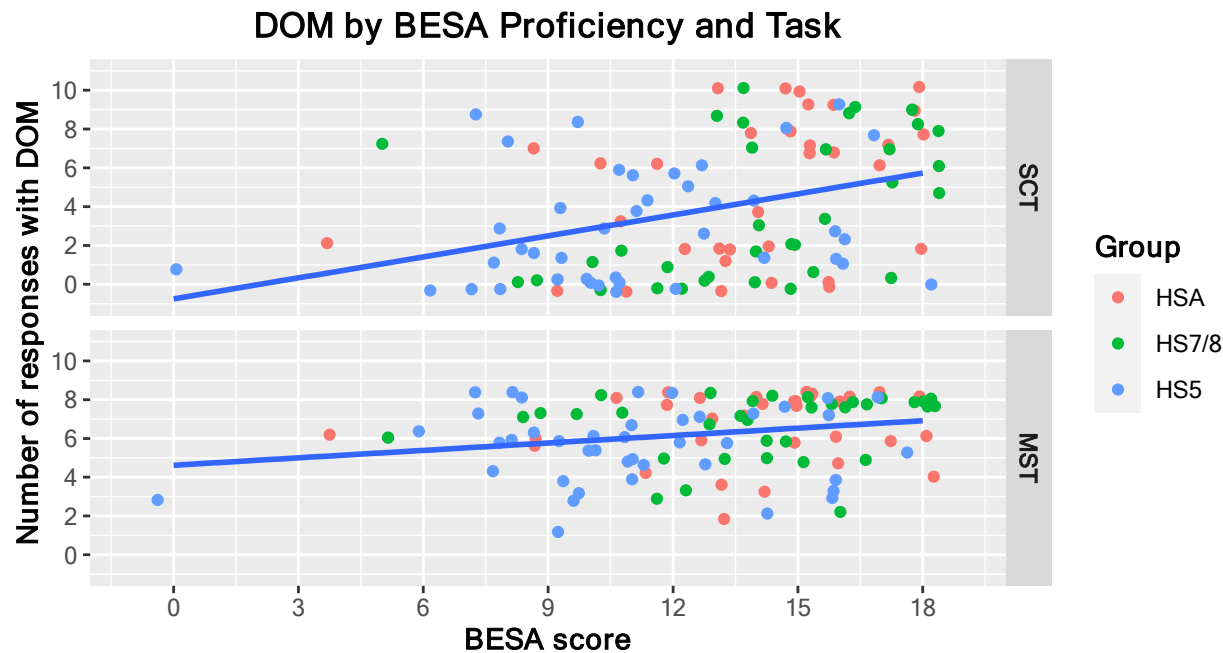


Figure 4. DOM production and selection by BESA proficiency score and task.

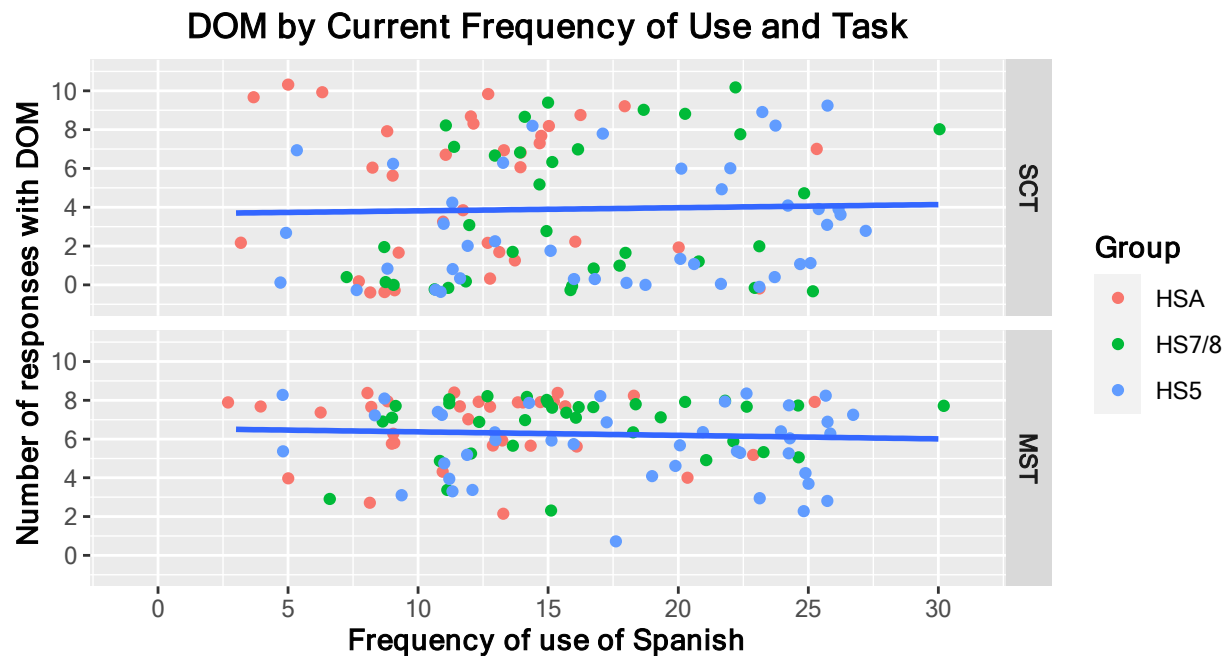


Figure 5. DOM production and selection by frequency of use of Spanish and task.

Finally, individual analyses provide additional insight into HSs' use of DOM. Figure 6 represents the number of sentences where each HS produced and selected (used) DOM. Results indicate that the participant who used DOM least selected it one time and did not produce this

structure, while all other 109 participants produced and/or selected **it** at least twice. This argues that bilinguals have not altogether lost or incompletely acquired DOM, but rather that **(almost all) HSs** experience variability in their command of this structure. **Furthermore, almost all participants selected DOM as much or more than they produced it, therefore corroborating the inferential and descriptive statistics concerning asymmetrical performance across tasks. It should be noted that the SDB participant who produced and selected DOM the least did so in a total of 16/18 contexts; 19/109 (17.4%) of HSs used DOM in 16/18 or more instances, therefore converging on the range of adults who were raised and educated in Spanish.**

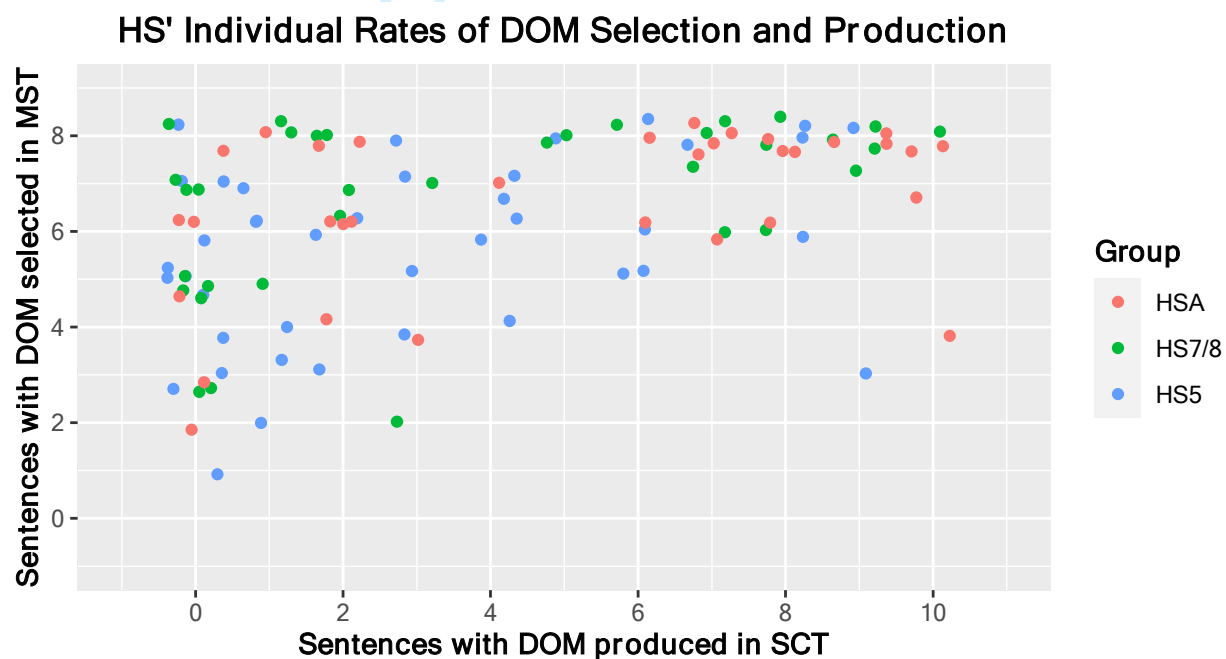


Figure 6. Levels of DOM production and selection by participant.

4. Discussion

The present study aimed to address the bilingual acquisition of DOM in late childhood and into adulthood, with the goal of elucidating the path of development that has typically been researched in only one of these populations at a time. This study also took individual patterns of exposure, as operationalized through frequency of use and proficiency, into consideration to

address differences between children and adults. Finally, it evaluated within-speaker variability by comparing HSs’ productive and receptive knowledge of DOM. By evaluating variability at multiple levels, the present study makes an important contribution to bilingualism research by assessing the acquisition of HLs in an understudied age range, allowing for the distinction between multiple theories concerning their acquisition.

RQ1 addressed whether adult HSs produce and select DOM with animate and specific direct objects more frequently than children. Based upon previous research, it was predicted that adults would produce this structure on the SCT and select it on the MST more frequently than children, which is supported by the descriptive and inferential data. There is a steady increase in DOM production across the age groups, although only the difference between the HS5 and HSA groups was significant at the $p < .05$ level, implying gradual development. Therefore, the present study shows that HSs continue to acquire DOM into adulthood, but it should be noted that their group-level quantities of production and selection still differ from SDB participants.

RQ2 addressed individual variability between HSs based upon their frequency of use of and morphosyntactic proficiency in Spanish. It was hypothesized that both variables would affect individual variability, although only proficiency influenced results. The role of proficiency in the production of DOM is consistent with many previous studies (Arechabaleta Regulez & Montrul, 2023; Guijarro-Fuentes & Marinis, 2011; Guijarro-Fuentes et al., 2017; Montrul, 2004; Montrul & Bowles, 2009). Frequency of use has a subtle effect on HSs’ production, which suggests that this domain is particularly vulnerable to language exposure effects, as Putnam and Sánchez (2013) predict. Exposure effects are also consistent with Montrul and Sánchez-Walker’s (2013) finding. Regardless, the role of proficiency, which has been interpreted as a proxy for HL exposure

(Giancaspro & Sánchez, 2021), successfully accounts for differences between individual HSs, regardless of age, in their command of this structure.

Finally, the last RQ addresses whether HSs would select DOM with animate and specific direct objects more frequently than they would produce this structure. The predicted effect favoring recognition of this structure on a receptive task over its production is upheld by the descriptive, inferential, and individual analyses. Moreover, frequency of use is particularly impactful on production of DOM. These findings are in line with Putnam and Sánchez's (2013) model of HL acquisition and maintenance.

These findings also align with the predictions of incomplete acquisition at the group level, as HSs do not converge on the tendencies of other populations of native speakers. However, the individual data argue against the altogether absence of DOM from speakers' linguistic repertoires, and show that some HSs have ceiling-level use of this structure (approximately 1/6 place within the range of SDB adults). Since incomplete acquisition represents differences between HSs and other bilinguals, it does not make specific predictions about gradient knowledge or asymmetries between productive and receptive performance. Nevertheless, there is no evidence of attrition across age groups, so the present study also does not fully support Putnam and Sánchez's (2013) predictions of feature reassembly. These researchers correctly predict that HSs will exhibit productive-receptive asymmetries, and that the effect of proficiency, which represents exposure (Giancaspro & Sánchez, 2021), would account for differences between individual speakers. Frequency of use also affected DOM production. However, there is no evidence that HSs are progressively losing DOM at older ages due to the reassembly of the D-feature, as production and selection of this particular structure increased as participants grew older.

The present study joins López Otero (2022) in arguing that Putnam and Sánchez’s (2013) model accurately predicts variability in HSs’ grammatical knowledge without evidence of feature reassembly. Putnam and Sánchez (2013, p. 490) state that “Some late-acquired L1 FFs [functional features] may only be very weakly activated before being replaced, or, at the very least, existing in competition with, similar and identical FFs from the L2 [second language].” This claim acknowledges that certain features may not receive high levels of activation in their initial acquisition, which in turn exposes that there is the potential for addressing how Putnam and Sánchez’s (2013) framework could be readjusted to account for protracted development by bilingual children rather than reassembly. That is, HSs’ optionality appears to be due to a gradual acquisition process rather than a reassembly of features that had previously been acquired. An intriguing possibility would be that the process of feature reassembly that Putnam and Sánchez (2013) propose could run in reverse in the initial acquisition of (morpho)syntactic structures, leading to productive-receptive asymmetries and differences in knowledge based upon patterns of exposure as HSs continue to develop their grammars. This would be supported by the descriptive data, as the locus of differences between the HSA and HS7/8 groups occurred in production, although both groups showed similar levels of DOM selection (see Table 2 and Figure 3).

The present study therefore corroborates existing research that exhibits differential levels of attainment of DOM in HS adults when compared to SDB, which cannot purely be due to feature reassembly nor incomplete acquisition. HSs do show gradient knowledge of the Spanish object marking system whereby they produce and select this structure in some instances, but not others. This raises the question of how to account for such variability. Based upon previous research, the lexical frequency and likelihood to accept animate objects of individual verbs affect adult HSs’ production and acceptability judgment of DOM (Hur, 2020, 2022), both possibilities that would

be beneficial to explore in future research with bilingual children. An additional limitation is that there was a greater concentration of participants in the HSA group who were simultaneous bilinguals than in the HS5 and HS7/8 groups (see Table 1), although previous research on this topic has not found age of acquisition effects on Spanish HSs' command of DOM (Montrul et al., 2015; Montrul & Sánchez-Walker, 2013). However, to maximize the comparison of age groups, future research may wish to control for age of acquisition and/or number of Spanish-speaking parents across each.

There were two final shortcomings of this study. Given the experiment was also designed to elicit mood morphology, there is the possibility that the complexity of the sentences in the SCT resulted in lower levels of production of this structure. In contrast, the *a* marker appeared in the matrix clause in the MST, where participants selected DOM more frequently. Future research may wish to address this limitation by more strictly controlling the production and receptive tasks used to observe bilingual children. Secondly, the present study did not consider DOM overextension to inanimate direct objects, which has been demonstrated in previous research on monolingual and bilingual populations (e.g., Callen, 2023; Sánchez & Zdrojewski, 2013; von Heusinger & Kaiser, 2005). Future work should seek to explore the full extent of children's DOM systems by incorporating both animate and inanimate objects.

5. Conclusion

The present study evaluated older school-aged children and adults who were HSs of Spanish regarding their production and selection of DOM. HSs showed growth over the course of the age span studied, and proficiency modulated differences between individual speakers. HSs produced more DOM on the SCT than they selected it on the MST. The latter findings support Putnam and Sánchez's (2013) approach to HL acquisition; however, the developmental trends

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observed **do** not point towards a reassembly of the D-feature responsible for DOM in Spanish. Therefore, these findings have implications for our understanding of HL acquisition more generally, whereby the data highlight the need for theories that can account for the initial acquisition of these features.

For Peer Review

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