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

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1. Introduction

Research on heritage languages (HLs) has been extensive. Heritage speakers (HSs) are native speakers of a particular language in a context where a different language has greater public and institutional presence, such as Spanish in the United States. 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. Most often, scholarship on HLs has set out to distinguish between incomplete acquisition (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 in competence when compared to monolinguals or bilinguals dominant in the same language, they differ in their directionality: incomplete acquisition implies an increase in knowledge until a certain developmental stage, 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," which is the approach adopted in the present study.

However, neither of these theories concentrates on differences between individual HSs or within a single speaker's grammar. Alternatively, 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 research. Following Putnam and Sánchez (2013),

HSs must receive consistent HL exposure to process functional features[1] 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. This can lead to a bilingual alignment (Sánchez, 2019) in which HSs may retain sensitivity to syntactic categories while exhibiting variability in production. Therefore, decreased use of the HL purportedly impacts production before receptive knowledge, which is well-documented in research on Spanish HSs (e.g., Giancaspro & Sánchez, 2021; Perez-Cortes, 2016; Thane, 2023b).

While the latter model shifts the focus towards comparing HSs on the basis of language exposure and experience, it implies that these bilinguals have initially acquired HL 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 differences between HSs, Putnam and Sánchez (2013) do not explicitly discuss how younger HSs acquire features over time. Following Putnam and Sánchez's (2013) model, the increase of English exposure around the onset of schooling could lead to the reassembly of HL features in older children. There is some evidence that HSs begin to restructure their grammatical knowledge in late childhood (e.g., Goebel-Mahrle & Shin, 2020; Merino, 1983), but even more studies reveal that HSs' command of inflectional morphology develops with age in a protracted fashion (Corbet & Domínguez, 2020; Cuza & Miller, 2015; Martinez-Nieto & Restrepo, 2022; Montrul & Potowski, 2007).

[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."

The theories of directionality (incomplete acquisition and attrition) and of individual variability (Putnam & Sánchez, 2013) have all been influential in understanding HL acquisition, 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, these levels of variability have not yet been evaluated within a single project on bilingual children and adults. Evidence has shown that DOM is highly variable in Spanish HSs, and its development is tied to patterns of exposure, which makes it a natural testing ground for the theories laid out above. 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 development, while also individual 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 following a protracted developmental path, or whether they exhibit attrition, and if there are factors that modulate this process for individual HSs.

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* comprises inherent case that

[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.

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 compared to English, as it can disambiguate between subject and object. For instance, in sentence (1), there is no differential object marker, which implies that Roberta is the subject, while in (2), the *a* marker indicates that Roberta is the direct object of this sentence, which has a null subject.

(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 DOM or inherent case, so Putnam and Sánchez (2013) would predict that English-dominant HSs of Spanish would 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 monolinguals' use of DOM (e.g., Arechabaleta Regulez & Montrul, 2021; Callen, 2023; Sánchez & Zdrojewski, 2013; von Heusinger & Kaiser, 2005), but DOM optionality with animate and specific direct objects that are proper nouns, as in the present study, has not been attested (e.g., Reina et al., 2021).

In a longitudinal study on the L1 acquisition of DOM, Rodríguez-Mondoñedo (2008) found that by age three, four children produced the *a* marker with 98% accuracy. Although this indicates that children acquire DOM early, the child with the greatest rates of 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) argued that the majority of instances of omission in Ticio's (2015) study occurred where variable use of DOM has been attested in some dialects, casting doubt on if and how HS children diverge from monolinguals.

Previous experimental studies have revealed that HS children do differ from monolingual children and Spanish-dominant adults with respect to DOM. Cuza et al. (2019) found no effect for age in children's production of DOM with animate and specific direct objects with participants between ages 6;7 and 11;2. Additionally, 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 DOM. HSs produced fewer instances of DOM with animate and specific objects than monolingual peers, but patterned with the monolinguals on acceptability judgments, which supports the previous claim that HSs have asymmetrical productive and receptive knowledge of (morpho)syntactic structures. Once again, there was no effect of age on variability, but rather proficiency modulated individual participants' rates of DOM use.

Of greatest relevance to the present study is Montrul and Sánchez-Walker's (2013) experiment, in which the researchers compared HS 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 production rates. These results show that children continue to acquire this structure into adulthood, and that exposure shapes individuals' 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 on adult HSs' acquisition of DOM are largely consistent with those concerning bilingual children. Research has supported the claim 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, highly-proficient HSs 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 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 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 with bilinguals 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 (Giancaspro & Sánchez, 2021; Perez-Cortes, 2016; Thane, 2023b), 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 bilingual adults (SDBA, $n = 18$), 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 SDBAs were raised in seven Spanish-speaking countries and had moved to the mainland United States no earlier than age twelve. These participants were graduate students or language teachers in the region where this study was conducted, and represented the bilingual input to which HSs 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 HSAs were undergraduate and graduate

students at a large research university and working professionals in the surrounding community. Some were attending university courses in Spanish. Finally, the HS7/8 and HS5 groups were comprised of students at two schools in central New Jersey that were matched for socioeconomic status and demographics (see Thane, 2023a, 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 an English-only school.

Table 1 summarizes each group's 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 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. 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 Thane (2023a).

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 that only occurs in such clauses, 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 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 subordinate clauses was *las hermanas* (*the sisters*), therefore eliciting third person plural morphology with the –an agreement suffix instead of the third person singular, whose word-final /a/ suffix would have reduced the salience of the object marker *a*. 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.

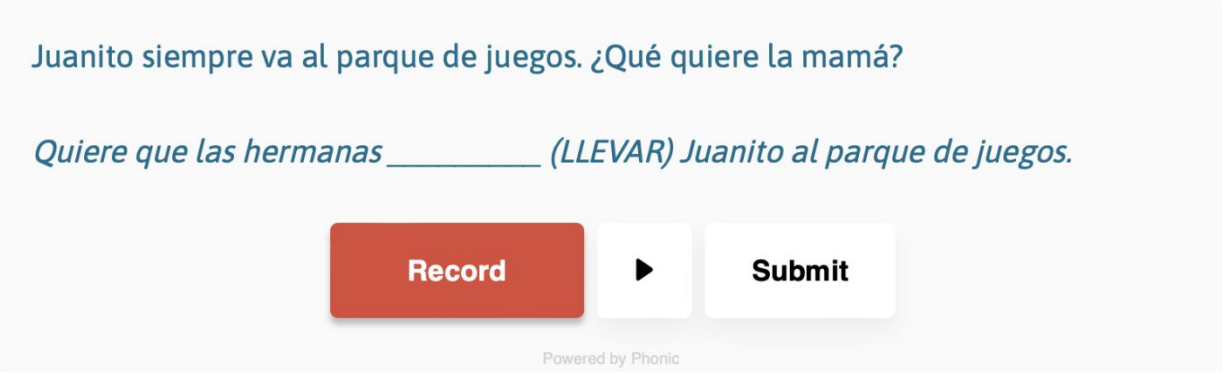

Figure 1. Sample of sentence (3) from the SCT administered on Qualtrics.

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*, an animate and specific proper noun. In these sentences, DOM was tested following the structure *tienen que* (*they have to*) + infinitive. 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].

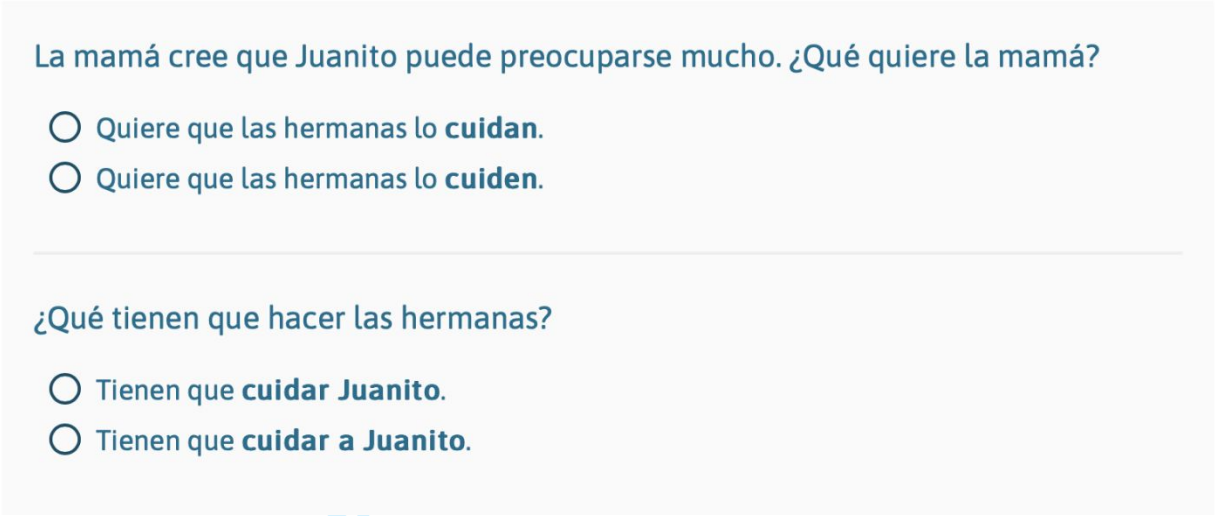

Figure 2. Sample of sentence (4) from the MST administered on Qualtrics.

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 (https://github.com/pthane/DLI-Morphosyntax-2023). 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 the 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.

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).

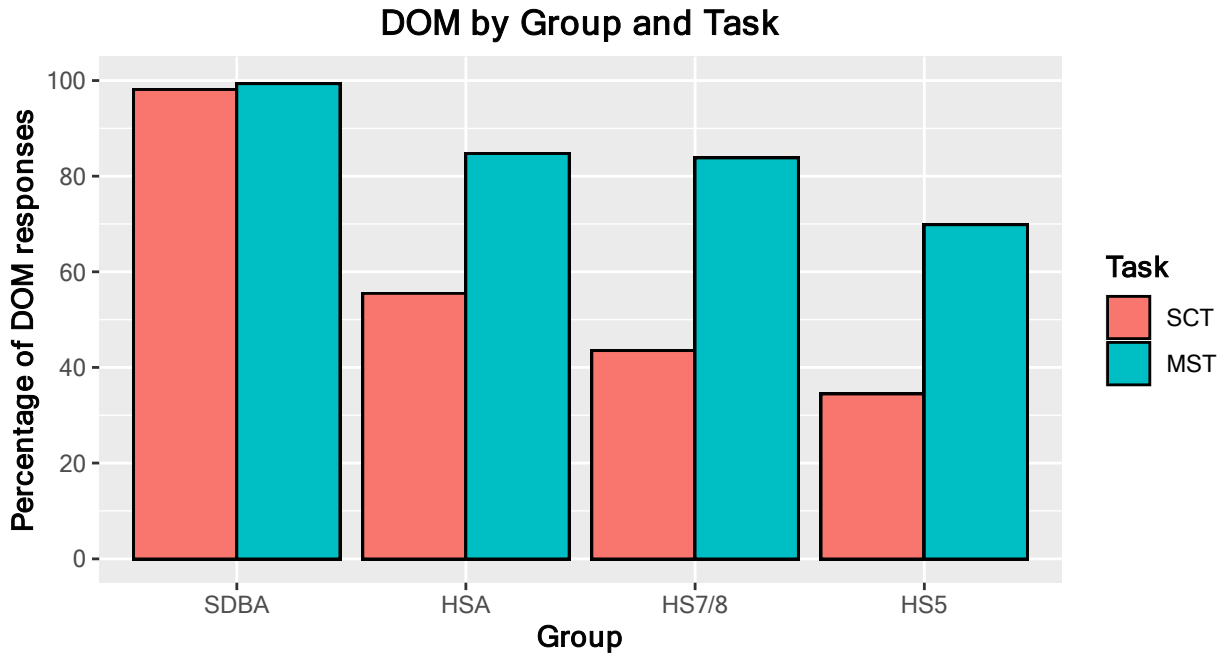

Figure 3. Percentages of DOM production and selection by group and task.

To explore these data further, two generalized linear mixed methods (GLMM) binary logistic regressions 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 SDBAs 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 groups was significant at the $p < .05$ level, but those between the HSA and HS7/8 groups as well as the HS7/8 and HS5 groups were not. Therefore, there is 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***

SDBA – HSA	4.545	0.821	5.537	< *.0001*
SDBA – HS7/8	5.187	0.823	6.306	< *.0001*
SDBA – 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.

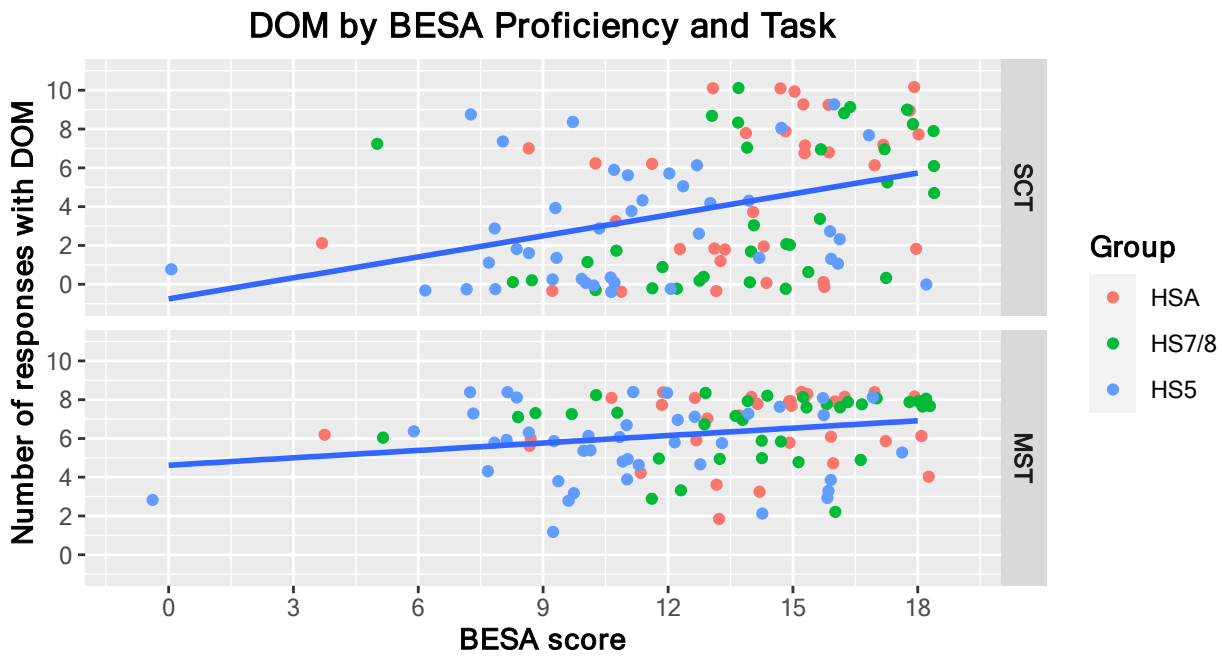

Figure 4. DOM production and selection by BESA proficiency score and task.

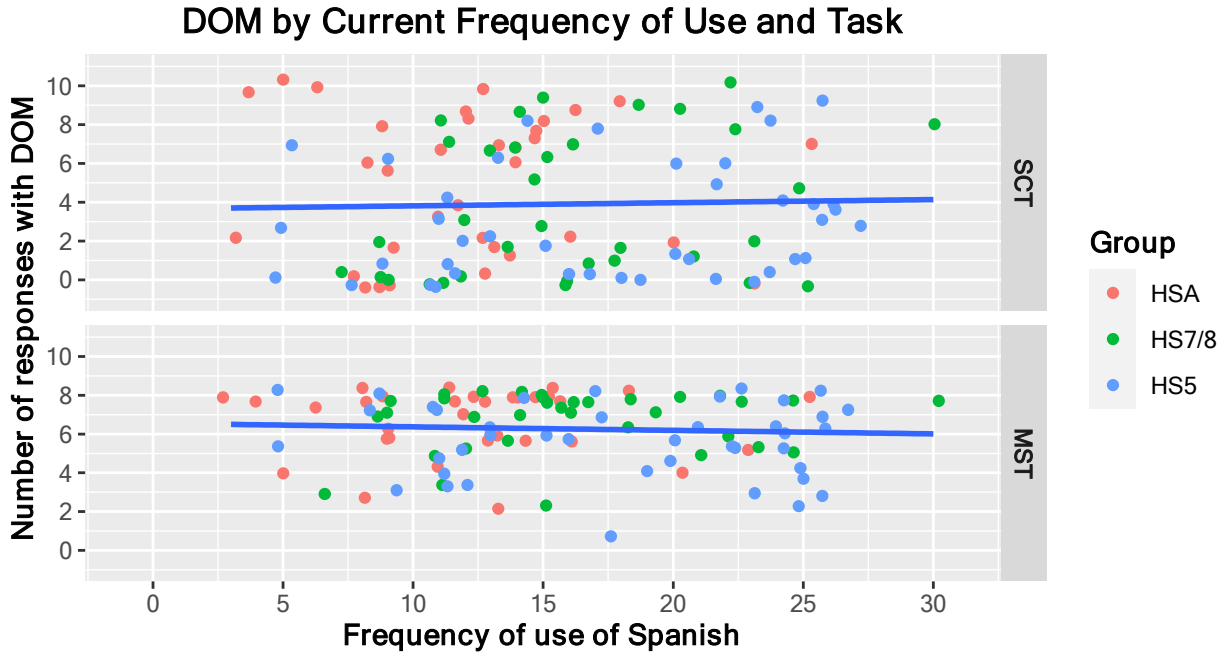

Figure 5. DOM production and selection by frequency of use of Spanish and task.[3]

Finally, individual analyses provide additional insight into HSs' use of DOM. Figure 6 represents the number of sentences where each HS produced and selected DOM. Results indicate

[3] Note that the maximum number of responses to the MST was 8.

that the participant who used (produced and selected) 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 SDBA 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 SDBAs.

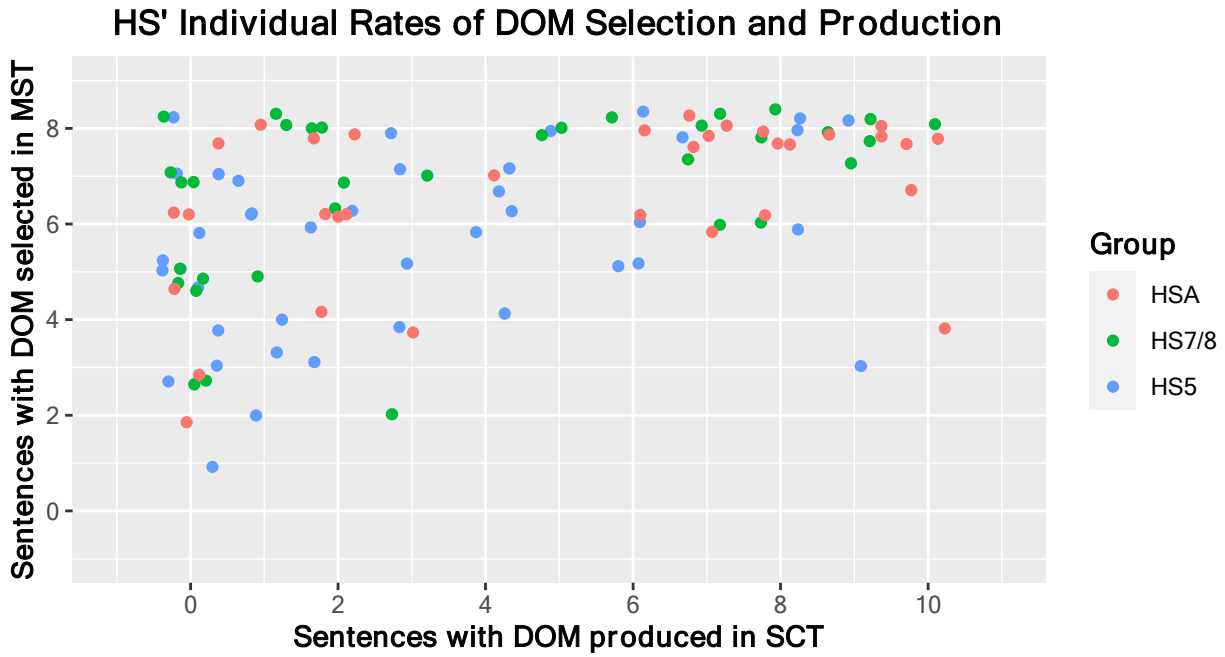

Figure 6. Levels of DOM production and selection by participant.

4. Discussion

The present study aimed to address the bilingual acquisition of DOM from late childhood 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. 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 and at multiple levels (between-groups, within-groups, awithin a single speaker), allowing for the distinction between multiple theories concerning their development.

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, partly contra the prediction, 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 HSAs' production and selection of DOM still differ from SDBAs at the group level.

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 command of DOM is consistent with previous studies (Arechabaleta Regulez & Montrul, 2023; Guijarro-Fuentes & Marinis, 2011; Guijarro-Fuentes et al., 2017; Montrul, 2004; Montrul & Bowles, 2009). Frequency of use had a subtle effect on HSs' production, which suggests that this domain is particularly vulnerable to language exposure effects than receptive knowledge, as

Putnam and Sánchez (2013) predict. Exposure effects are also in concert with Montrul and Sánchez-Walker's (2013) results.

Finally, RQ3 addressed 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 SDBAs). 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 caused by greater crosslinguistic influence from English, 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, so it may be useful to evaluate how Putnam and Sánchez's (2013) framework could be adjusted to account for protracted development by bilingual children rather than feature 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, yet this process still results in a different DOM system for some adult HSs. 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, such that HSs' underlying command of morphosyntax stabilizes before production. This would be supported by the descriptive data, as the locus of differences between the HS7/8 and HSA 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 SDBAs, 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 of individual verbs to be followed by animate objects 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. Moreover, a limitation of this study 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 groups.

It is also important to mention that the present study reports slightly different results with regards to the SDBAs than those found in Arechabaleta Regulez and Montrul (2021), who found that monolingual speakers of Mexican Spanish overaccepted DOM omission with animate direct objects. There are two possible explanations. Firstly, it is possible that the methodology used in this experiment, in which participants chose between a grammatical and an ungrammatical alternative, favored the use of DOM, while participants were more "forgiving" of DOM omission where only the ungrammatical alternative was provided, as in Arechabaleta Regulez and Montrul's (2021) experiment. Another explanation is that proper nouns, such as *Juanito* as used in this study, are maximally animate and specific and therefore more likely to elicit DOM categorically, leading to differences between the SDBAs in this project and other experimental work. The former possibility seems more likely considering that the participants in Arechabaleta Regulez and Montrul (2021) showed online sensitivity (longer reaction times) to ungrammatical DOM omission with animate direct objects and near-categorical acceptance of grammatical DOM with animate direct objects, arguing that this feature is not truly variable in their grammar.

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 (e.g., Arechabaleta Regulez & Montrul, 2021; Callen, 2023; Sánchez & Zdrojewski, 2013; von Heusinger & Kaiser, 2005). Future work should seek to explore the full extent of HSs' 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 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.

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