

**Language experience affects comprehension of Spanish relative clauses:
a study of heritage speakers and second language learners**

*Silvina Montrul and Noelia Sánchez-Walker
University of Illinois Urbana-Champaign*

This study investigates whether heritage speakers (HS) and second language (L2) learners of Spanish successfully use subject verb agreement to comprehend subject and object relative clauses with different word orders. Relative clauses (RC) have been extensively studied crosslinguistically in L1 (Diessel & Tomasello, 2005; Kidd, 2011), L2 (Hawkins, 2007; Shirai & Ozeki, 2007) and heritage language (HL) acquisition (O’Grady, 1997; Polinsky, 2011). Although relative clauses appear early in child language production, they pose processing difficulty in comprehension to monolingual and bilingual children and adults because they combine knowledge of complex syntax, typology, grammatical function and in some cases information structure. Sánchez-Walker and Montrul (2016) found that L2 learners successfully comprehended Spanish subject and object relative clauses with the same word order as English subject and object relative clauses, shown in (1) and (2). Like Spanish, Russian also exhibits different word orders within the relative clause, and Polinsky (2011) found that adult HS of Russian had significant difficulty comprehending object relative clauses regardless of word order; the child heritage speakers were at ceiling. To find out whether object RCs are subject to attrition in Spanish as well, we examined comprehension of RCs in L2 learners and heritage speakers as a function of task modality and type and amount of exposure to Spanish.

In Spanish, relative clauses involve a type of *wh*-movement by which an operator (Op) in the deep structure moves to the Spec of the CP, leaving a trace or a gap within the clause. Although many factors affect processing of relative clauses, it is generally agreed that depth of the embedding and the linear distance between the head and the gap (LD) account for subject relative clauses being easier to process than object relative clauses, at least in head-initial languages (O’Grady, Lee, & Choo, 2003). In (1) and (2) the distance in words between the head and the gap is shorter in the subject relative (SR) clause than in the object relative (OR) clause.

- (1) SR-VO *El submarino*_{SUBJECT} *que* ____ *hundió*_{VERB} *los barcos*_{OBJECT}. LD = 1 word
 The submarine_{SUBJECT} that ____ sank_{VERB} the boats_{OBJECT}.
- (2) OR-SV *El submarino*_{OBJECT} *que los barcos*_{SUBJECT} *hundieron*_{VERB} _____. LD = 4 words
 The submarine_{OBJECT} that the boats_{SUBJECT} sank_{VERB} _____.

While English RCs have fixed word order (SR-VO and OR-SV), Spanish RCs can have SR-VO (1) and OR-SV (2) as in English and SR-OV (3) and OR-VS (4), showing different linear distances between the head and the gap. The SR in (3) is less frequent in the input.

- (3) SR-OV *El submarino*_{SUBJECT} *que los barcos*_{OBJECT} ____ *hundió*_{VERB}. LD = 3 words
(4) OR-VS *El submarino*_{OBJECT} *que hundieron*_{VERB} ____ *los barcos*_{SUBJECT}. LD = 2 words

33 HS, 32 L2 learners of Spanish (L1 English) and 30 Spanish native speakers, as a control group, completed a grammaticality judgment task (GJT) to test knowledge of SV agreement and an off-line picture-matching task (PMT) (auditory and written) to test comprehension of these four Spanish RCs. PMT results showed that L2 learners and HS had no difficulty with subject and object RCs that have the same word order in Spanish and English (1 and 2) regardless of number of words or distance from the gap (Figure 1), but struggled with the RCs with different word orders (3 and 4) (Figure 2). HS were the least accurate with SR-OV,

which is most common in written language. Results also showed that linguistic experience affects comprehension of these clauses differently for these two types of learners.

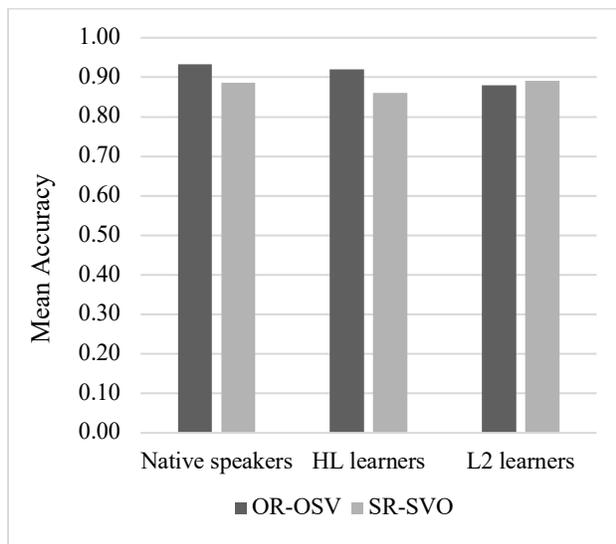


Figure 1

Mean accuracy scores for OR-SV and SR-SVO

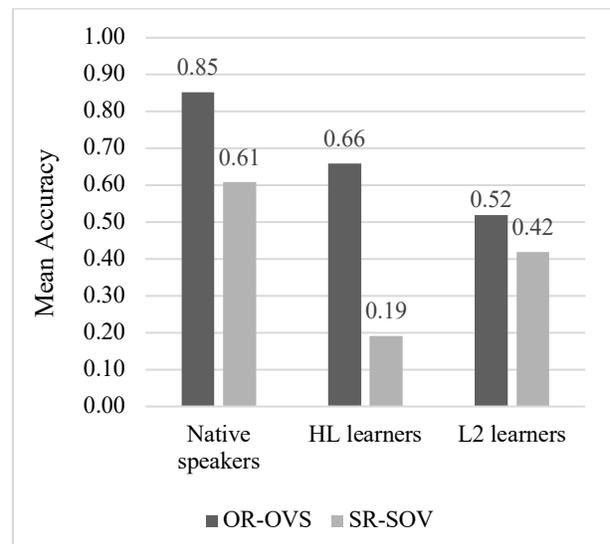


Figure 2

Mean accuracy scores for OR-VS and SR-OV

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