The parsing of Spanish object clitics by 4-year-olds

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Learners' difficulties with object clitics (1) are well-documented in the acquisition literature, with supporting evidence coming primarily from production data (e.g., Castilla & Pérez-Leroux, 2010; Clark, 1985)). Recent work has added evidence from offline receptive tasks, but little is known about the parsing of object clitics in real-time (Grüter, 2006; Pérez-Leroux et al., 2008). Here we present findings from an eye-tracking experiment with 4-year-old (n=24) and adult (n=12) native speakers of Spanish, designed to address this gap. Specifically, we ask:

Q1)   Do children's difficulties with clitics in production extend to online comprehension?

Q2)   Are preverbal clitics (1a) more difficult to parse than postverbal clitics (1b)?

Building on Ferreira (2000), Grüter and Crago (2011) presented an account for learners' illicit clitic omissions (1c) in terms of processing limitations affecting the syntactic encoding stage in production. This suggests learners' difficulties are limited to production, thus predicting 'no' in answer to Q1. Within their account, the non-canonical word order – Subject-Object(clitic)-Verb – in sentences with *pre*verbal clitics plays an important role, implicating that sentences with *post*verbal clitics may cause less difficulty (potentially 'yes' to Q2).

In an experiment using the looking-while-listening procedure (Fernald et al., 2008), participants listened to sentences like (1a/b) while looking at two pictures, both showing the same agent and action (*Dora touching*) but a different object. Only one of the objects was mentioned in the previous trial and matched the clitic for gender, thus constituting an appropriate referent for the clitic. **Adults** started orienting towards the target picture shortly after the onset of the clitic in both preverbal-clitic and postverbal-clitic conditions, i.e., significantly earlier in the pre- compared to the postverbal condition. **Four-year-olds** were divided into two groups based on frequency of clitic omission in an elicited production task (G1: ≤10%, G2: >10% omissions). The eye-movement data from G1 indicate a similar pattern to that observed in adults, with increased looks to the target after the onset of the clitic in both conditions, i.e., earlier in the CLITIC-PRE compared to the CLITIC-POST condition. In G2, however, no significant increase in looks to the target is observed following the clitic in either CLITIC-PRE or CLITIC-POST condition. This between-group difference is underscored by the observation that both subgroups performed comparably when the object was named with a full noun phrase (2), suggesting that the difference is specific to the parsing of clitic constructions.

The observation that children whose production of clitics is variable (G2; mean omissions: 41%, mean clitics: 52%; 31% preverbal, 21% postverbal) also have difficulty parsing clitic constructions in real-time ('yes' to Q1) indicates that the problem is not limited to syntactic *en*coding (contra Grüter and Crago, 2011), but affects a processing mechanism common to production and comprehension. Interestingly, postverbal clitics did not appear to be easier to process than preverbal ones ('no' to Q2). This indicates that syntactic complexity beyond surface word order, such as verb movement to the left periphery in both pre- and postverbal clitic constructions but not in clauses with lexical objects (e.g., Uriagereka, 1995), may be a critical contributor to learners' processing difficulties, suggesting that 'linguistic' grammars may indeed articulate closely with processing.

Examples

(1)   a.   Dora ***lo***   está   tocando.
                 Dora *it-SG-MASC*   is   touching

         b.   Dora está tocando***lo***.
                 Dora is   touching-*it-SG-MASC*

         c.   *Dora está tocando.
                 'Dora is touching it.'

(2)   Dora está tocando el zapato.
                'Dora is touching the shoe.'