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Children understand 3rd person: Evidence from the acquisition of Spanish agreement and object clitics

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Introduction:

Children produce verbal agreement early and accurately (Poeppel & Wexler 1993, Guasti 1994, Phillips 1995, Bel & Rosado 2009, Doukas & Marinis 2012). However, online sensitivity to agreement varies by language (Brandt-Kobe & Hölbe 2010, Legendre et al 2014) and children do not always use agreement in comprehension tasks (Keeney & Wolfe 1972, Johnson et al 2005, Pérez-Leroux 2005, Miller & Schmitt 2014). In Spanish, comprehension of subject-verb agreement also varies by form:

- 3P /-n/ is comprehended better than 3S -Ø (Pérez-Leroux 2005, Legendre et al 2014)
- 2S /-s/ is comprehended better than 3P /-n/ and 3S -Ø (Miller & Schmitt 2014)

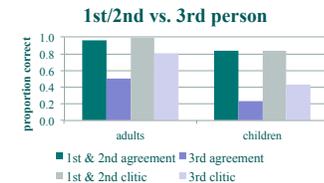
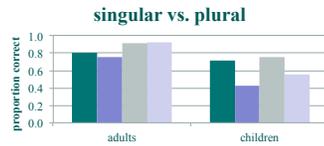
Pérez-Leroux (2005) suggests that overt forms are acquired before null forms, and Polisenska (2010) suggests more generally that phonetically salient forms are acquired earlier. In contrast, Sauerland (2008) and Legendre et al (2011) claim that semantically underspecified forms (ex. 3rd person and plurals) are more difficult to interpret because they require making a pragmatic inference. Both claims capture the observed asymmetries, but they make different predictions for the rest of the agreement paradigm, as well as for object clitics.

Experimental Question:

Are asymmetries in child comprehension of Spanish agreement and object clitics due to differences in meaning or differences in form?

Results:

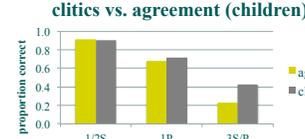
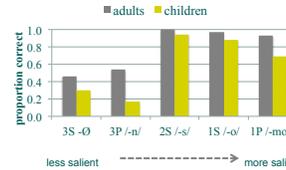
Semantic Hypothesis



- 3-way ANOVAs on child responses revealed the predicted main effects of number (S vs. P), person (1/2 vs. 3), and age group (2, 3, 4, 5+) for both blocks (all $p < 0.01$), and a number-by-age interaction in the clitic block ($p < 0.01$).
- However, 2-way ANOVAs on adult responses also revealed a main effect for person in both blocks (both $p < 0.001$).

Salience Hypothesis

within agreement block

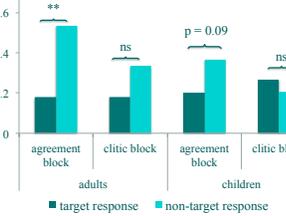


- Tukey post-hoc comparisons between individual agreement forms revealed no significant differences in the predicted direction, apart from the effects of the person asymmetry.
- For child data we collapsed over non-significant differences within each block to form three groups (1/2S, 2P, 3S/P). Chi-squared tests revealed a significant difference between agreement and clitics only for 3rd person forms.

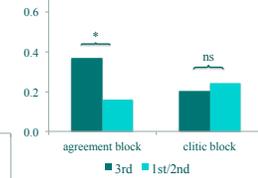
3rd person analysis:

Adults do not display a number asymmetry, indicating reliable calculation of Implicated Presuppositions. Children's number asymmetry may therefore be due to difficulty with Implicated Presuppositions. However, adults do display a person asymmetry. Since adults are clearly competent at Implicated Presuppositions, this suggests problems in locating the appropriate antecedent in 3rd person conditions. We hypothesize that both children and adults struggle with this and look to the most recently mentioned referent for an antecedent.

Rate of matching previous response: target vs. non-target answers



Rate of matching previous response: 1st/2nd vs. 3rd (children)



- In agreement conditions, adult's non-target answers were more likely than their target answers to match the identity of the response given in the preceding filler question. Children showed a trend in the same direction.
- Children's non-target responses were significantly more likely to match the preceding response in 3rd relative to 1st/2nd agreement conditions.
- No significant differences were found in clitic conditions for either children or adults.

Hypotheses & predictions:

Salience Hypothesis: Highly salient inflectional forms are acquired earlier because they are easier to segment (Polisenska 2010).

- Prediction 1: better comprehension of more salient agreement forms:
1P /-mos/ > 1S /-o/ > 2S /-s/ > 3P /-n/ > 3S -Ø

- Prediction 2: better overall comprehension of clitics than agreement

Semantic Hypothesis: 3rd person and plurals are underspecified for person and number. They are interpreted by making a contrast with 1st/2nd and singulars, respectively, a process known as Implicated Presuppositions (Sauerland 2008). Children struggle to perform this pragmatic contrast.

- Prediction 1: better comprehension of singulars than plurals
- Prediction 2: better comprehension of 1st/2nd than 3rd person

Prediction 3 (both hypotheses): Adults should have no difficulties from either salience or semantics.

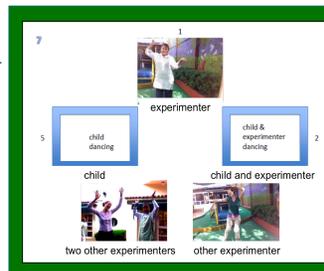
Methods:

Subjects: 42 children ages 2;3-6;7 (mean 4;3.5), 24 adults (11 women) born and raised in Mexico.

Procedure: Subjects were asked to choose one photo from an array in which each of the five grammatical person/number combinations (child, experimenter, experimenter & child, other experimenter, two other experimenters) was depicted performing either the same action (test items) or different actions (fillers). All experimenters were female, to prevent use of gender cues on clitics.

Design: Agreement and clitics were tested in two blocks, each with 15 test items (5 person/number forms x 3 trials), separated by alternating fillers (7 items) and distractors (7 items). Placement of the target was randomized, and order of fillers was re-randomized after every other subject.

1. Test prompts for agreement (a) and clitic (b) blocks.
 - a. Muéstrame la foto en donde bailamos/o/as/a/an
Show me the photo where we/I/you/she/they are dancing.
 - b. Muéstrame la foto en donde Nemo está besándonos/me/te/la/las.
Show me the photo where Nemo is kissing us/me/you/her/them.
2. Filler prompts for agreement (a) and clitic (b) blocks.
 - a. Muéstrame la foto en donde hay alguien bailando.
Show me the photo where there is someone dancing.
 - b. Muéstrame la foto en donde Nemo está besando a alguien.
Show me the photo where Nemo is kissing someone.



Discussion:

Salience hypothesis: Child performance did not show the predicted agreement asymmetries, and the predicted asymmetry between agreement and clitics arose only for 3rd person forms.

Semantic hypothesis: As predicted, adults calculated the Implicated Presupposition associated with plurals while children struggled to do so. Counter to predictions, adults performed poorly in 3rd person conditions, indicating problems locating an antecedent. Both adults and children tended to select the most recently mentioned referent as an antecedent in agreement conditions but not in clitic conditions, consistent with the claim that null subjects require a more highly salient antecedent than overt forms (Ariel 2001). Children behave very similarly to adults, using the structure of the preceding discourse to constrain reference in the case of agreement (contra Shin & Cairns 2012) but less so in the case of clitics. This casts doubt on claims that children struggle to interpret 3rd person as 3rd person (e.g. Charney 1980).

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