

The comprehension of sluicing by Italian-acquiring children

This study investigates the acquisition of elliptical indirect wh-questions, i.e. sluicing, by Italian preschool children. The main goal is to determine whether the locality principle of featural Relativized Minimality (fRM) regulates the comprehension of sluicing (Rizzi 2004; 2013; 2018).

Previous acquisition studies have reported a robust subject>object asymmetry in different A-bar dependencies, e.g. wh-questions, relative clauses, and topicalizations. Nevertheless, not all object A-bar dependencies are equally challenging: experimental studies have indeed shown that children's performance improves in the presence of certain featural specification mismatches between the object and the intervening subject (Friedmann, Belletti & Rizzi 2009; Belletti et al. 2012). This subject>object asymmetry has been reported to hold in English sluicing (Mateu & Hyams 2021) and Mandarin sluice-like constructions (Liu, Hyams & Mateu 2020). However, these studies did not manipulate fRM-relevant features. Therefore, the subject>object asymmetry found so far in sluicing could also be compatible with explanations other than fRM, e.g. NP Accessibility (Keenan & Comrie 1977), Structural distance (Gibson 1998), Frequency/Canonicity effects (Kidd et al. 2007).

To assess whether fRM applies in sluicing, we manipulated Number, a feature relevant for the computation of locality in Italian (Adani et al. 2010), by creating either a match (i.e. inclusion) or a mismatch (i.e. intersection) configuration. We asked (i) whether the subject advantage holds in Italian sluices and (ii) whether the number-mismatch (i.e. intersection) configuration reduces the effect of intervention in object sluices.

A *yes/no* question task adapted from Mateu and Hyams (2021) was administered to 80 Italian-speaking children (Age 3=25; Age 4=26; Age 5=29) and 24 adults. The experiment comprised 24 test trials manipulated for three variables, *Extraction_Site* (subject/object), *Number* (match/mismatch) and *Scenario* (Yes-Scenario/No-Scenario). 12 controls, consisting of fully lexicalized embedded interrogatives, were added to ensure participants' comprehension of the task. Each test sentence was paired with a picture involving three characters performing a transitive action one on another: in half of the stimuli the target character was partially hidden (No-Scenario), to make a question pragmatically felicitous. A puppet uttered a sluiced embedded interrogative and the child was asked to point to the target character.

We calculated the correct responses participants gave in each condition (Figure 1). The statistical model (GLMM with orthogonal sum-to-zero contrasts) revealed significant effects of the predictors *Age*, *Extraction_Site*, *Number*, and the interaction of *Extraction_Site* and *Number*. Children's performance generally increased with *Age*, although 5-year-old children were not adult-like yet. Children gave more correct responses in subject than in object sluices. Additionally, correct answers increased in object sluices with a mismatch in *Number*. Individual analyses showed that no child comprehended object sluices without comprehending subject sluices. Moreover, no child comprehended object sluices with a match in *Number* without comprehending object sluices with a mismatch in *Number*.

Our results demonstrate that children's comprehension of sluicing is modulated by fRM: intervention effects arise in the comprehension of object sluices, but are reduced when a mismatch in *Number* (i.e. intersection configuration) is involved, in line with the results on other A-bar dependencies (e.g. Adani et al. 2010). Our findings support Rizzi's (2013) theoretical conclusion that locality operates as a grammatical principle independent of lexicalization. A fortiori, our study corroborates the presence of an underlying structure at the ellipsis site of sluices, as opposed to approaches that assume no structure at all (e.g. Culicover & Jackendoff 2005), and more specifically, our results are mostly compatible with a movement followed by ellipsis analysis for Italian sluicing (e.g. Merchant 2001).

A) Examples of the stimuli (sluiced embedded interrogative sentences and pictures)

- (1) a. Posso vedere che una bambina pettina la signora, puoi vedere quale bambina <__ pettina la signora>?
 ‘I can see that a baby girl is combing the lady, can you see which baby girl <__ is combing the lady>?’
 b. Posso vedere che una bambina pettina le signore, puoi vedere quale bambina <__ pettina le signore>?
 ‘I can see that a baby girl is combing the ladies, can you see which baby girl <__ is combing the ladies>?’
- (2) a. Posso vedere che la bambina pettina una signora, puoi vedere quale signora <la bambina pettina __>?
 ‘I can see that the baby girl is combing a lady, can you see which lady <the baby girl is combing __>?’
 b. Posso vedere che le bambine pettinano una signora, puoi vedere quale signora <le bambine pettinano __>?
 ‘I can see that the baby girls are combing a lady, can you see which lady <the baby girls are combing __>?’



a. Yes-Scenario for (1a) b. No-Scenario for (1b) c. No-Scenario for (2a) d. Yes-Scenario for (2b)

B) Results (Descriptive Graph and Statistical Model)

Figure 1. Correctness of responses (%) by Extraction_Site*Number for each Age Group

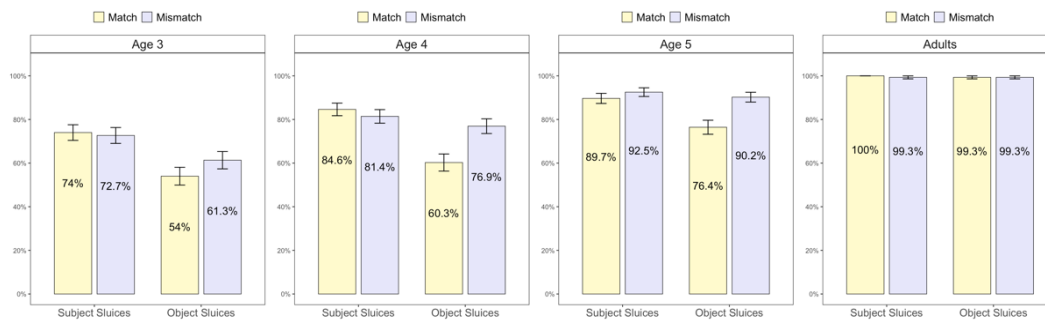


Table 1. Fixed Effects Estimates of the Generalized Linear Mixed Effects Model

Predictors	β	SE	z	p
Intercept	2.432	0.174	13.974	<.001 ***
Age (Children vs. Adults)	4.178	0.597	6.994	<.001 ***
Age (Age 3 vs. Age 4)	1.318	0.249	5.296	<.001 ***
Age (Age 4 vs. Age 5)	1.498	0.259	5.787	<.001 ***
Scenario	-0.134	0.159	-0.844	.400
Extraction Site	-0.776	0.160	-4.841	<.001 ***
Number	0.331	0.160	2.071	.038 *
Extraction Site * Number	0.729	0.320	2.281	.023 *

(Full Model Summary: N=2496; AIC=1950.4; BIC=2008.6; LogLik=-965.2; Dev = 1930.4)

C) Selected References: Belletti, A., Friedmann, N., Brunato, D., & Rizzi, L. (2012). Does gender make a difference? Comparing the effect of gender on children's comprehension of relative clauses in Hebrew and Italian. *Lingua*, 122(10), 1053-1069; Friedmann, N., Belletti, A., & Rizzi, L. (2009). Relativized relatives: Types of intervention in the acquisition of A-bar dependencies. *Lingua*, 119(1), 67-88; Liu, M., Hyams, N., & Mateu, V. (2020). Late intervention effects in the Acquisition of Mandarin Sluice-like Constructions. In *Proceedings of the 44th annual Boston university conference on language development [BUCLD 44]*, edited by Megan M. Brown and Alexandra Kohut (pp. 322-35); Mateu, V., & Hyams, N. (2021). Structural intervention effects in the acquisition of sluicing. *Language Acquisition*, 28(1), 6-38; Merchant, J. (2001). *The syntax of silence: Sluicing, islands, and the theory of ellipsis*. Oxford: Oxford University Press; Rizzi, L. (2013). Locality. *Lingua*, 130, 169-186.