The Production of Clitic Left Dislocations by Italian-Speaking Children and the Role of Intervention

Claudia Manetti and Adriana Belletti

1. Introduction

The present study investigates the acquisition of Clitic Left Dislocation structures (ClLD) in Italian, in the context of an elicited production task aiming at testing the production of topicalized structures and precisely the use of left peripheral topic positions (e.g. Object-Subject-cl-V). In order to elicit such structures, we manipulated the discourse conditions to create a felicitous informational context for the use of overt left-dislocated object topics, namely, we adopted questions that introduced one or more patient characters in the discourse (e.g. What is happening to $X_{patient}$?). Patient-oriented questions provide a suitable context for eliciting a structure that topicalizes the patient referent of a transitive verb. In previous research, this type of experimental context has been used to test the production of passives and alternative topic structures, in English and other languages (*English*: Pinker Lebeaux & Frost, 1987, a.o.; *Sesotho*, Demuth, Monoi & Machobane, 2010; *Italian*, Del Puppo & Pivi, 2015, Manetti, 2013,Volpato, Verin & Cardinaletti, 2016; *Catalan*, Prat-Sala & Hahn, 2007).

As for Italian, the question in (1a), introducing the patient (the dog) in the discourse, gives rise to two felicitous answers, a passive (1b), or a sentence with an active verb and an object clitic referring to the topic patient (1c). This second option has been found to be the most typical answer in pre-school-aged and school-aged children, whose choice differs from the adults' overwhelming preference for the passive (Del Puppo & Pivi, 2015; Manetti, 2013; Volpato et al., 2016).

(1) (cat washing dog)
   a. Che cosa succede al cane?
      'What happens to the dog?'
   b. (Il cane) viene/è lavato dal gatto
      '(The dog) comes/is washed by the cat.'
   c. (Il cane) il gatto lo lava
      (The dog) the cat him.Cl washes
      '(The dog) the cat washes him.'

* Claudia Manetti, University of Siena, manetticlaudia@gmail.com. Adriana Belletti, University of Siena and University of Geneva. The research presented here was funded in part by the European Research Council/ERC Advanced Grant 340297 SynCart – "Syntactic cartography and locality in adult grammars and language acquisition".

 Proceedings of the 41st annual Boston University Conference on Language Development, ed. Maria LaMendola and Jennifer Scott, 443-451. Somerville, MA: Cascadilla Press.

In this study, we focus on children's most typical answer (Subject-cl-Verb) to further investigate the use of topicalized structures, containing an active verb and an object clitic. A common finding from the aforementioned studies is that, when Italian-speaking children produced such structure, they tended not to overtly express the topic referent in the answer, thus yielding a *Subject-cl-V* construction, as shown in (2). Notice that, in this context the topic patient is given in the immediate previous question and is also unique, hence the possibility of omitting the topic in the answer is fully appropriate (Rizzi 2005)[1].

(2) Il gatto lo lava.
the cat_{subj} him.Cl washes
'The cat washes him.'

Therefore, previous work (Del Puppo & Pivi, 2015; Manetti 2013; Volpato et al. 2016) adopting such patient-oriented context did not give us any evidence that children can master the use of left-peripheral object topics, since the experimental context was fully compatible with the omission of such topic in the answer.

In our study, we precisely built on this fact in order to tap into children's ability of dealing with different informational contexts, and the main and first aim of the study is to investigate whether children, from age 4, can produce left-dislocated object topics, whenever the discourse is appropriate.

To this aim, we manipulated the topic conditions, and differently from what has been done in previous work, we varied the number of patients in the question by adding a second topic patient: this creates a contrastive topic context (e.g. What happens to my friends, $X_{patient1}$ and $Y_{patient2}$?) which should facilitate the obligatory use of a left-dislocated topic, and conversely it should disfavor the optionality of expressing the patient referent. Notice that, in such contrastive context, if children relied on the use of a structure with the clitic pronoun, they would need to overtly express the patient they are referring to in order to convey a fully informative answer, possibly resulting in the production of ClLDs (e.g. Object-Subject-cl-V). However, if the left-dislocated topic patient were left unexpressed, as in condition 1, the answer would be only partially informative about the specific patient character undergoing the action, and this could indicate that the production of ClLD is not yet mastered at this age.

The elicitation of ClLD structures would also allow us to address the issue of how children deal with an intervention configuration involving left-peripheral topics (Rizzi 1990, 2004). Note that a ClLD structure, in the form of DP_1 DP_2 cl V, could instantiate a configuration of intervention when both DPs (subject and

[1] The optionality of expressing the patient also holds in the passive answer, which can have a null pronominal subject as in (1):
1) *pro* viene/è lavato dal gatto.
pro comes/is washed by the cat
'He is washed by the cat.'

object) are overt and lexical: as shown in example (3), the DP-subject intervenes between the left peripheral DP-object and its Merge position in the clause.

In the experiment, the DPs of the verb are given in a situation of number mismatch, being the agent in the plural form and the patient in the singular form, as shown in (3):

(3) (cats washing dog)
Il cane i gatti lo lavano.
the $dog_{obj.sing}$ the $cats_{subj.plu}$ him.Cl wash
'The dog the cats wash him.'

The rationale for using the number mismatch condition follows from previous results on the comprehension of ClLDs, in which Italian-speaking children showed better comprehension of DP_1 DP_2 cl V structures when the two DPs (the subject and the object) mismatched in number (Manetti et al., 2016), as in (3); and more generally, from further findings reporting that the role of number mismatch enhanced the comprehension of A'-dependencies (Adani et al., 2010).

This particular issue will be addressed in terms of featural Relativized Minimality/fRM (along the lines of Friedmann, Belletti & Rizzi, 2009 and much related work). Stemming from the results in comprehension for number mismatch, we will then explore whether there is a comparable effect in production.

2. Experiment: Elicited Production Task

2.1. Participants

A group of 36 Italian-speaking children, ranging in age from 4;0 to 6;0 (MA= 60 in months; SD= 3.8 in months) took part in the study; they were recruited in two kindergartens, in Florence and in the province of Florence. The children were divided in two age groups: Group A including 18 children aged from 4;0 to 4;11 y.o. (MA= 55 months, SD= 2.9), and Group B including 18 children aged from 5;0 to 6;0 y.o. (MA= 65 months; SD= 3.6 in months)

2.2. Method and Materials

The elicited production task consisted of a short story in which there is a smurf who is very curious and needs children's help to answer all his questions. The material was presented in a power point presentation. Each trial consisted of three main steps which corresponded to three slides: in the first one, all characters of the events were presented by the experimenter; in the second one, the experimenter explained to the child that the smurf was curious about one or two of them (depending on the conditions); and finally, the smurf asked the question to the child. The experimental items corresponded to patient-oriented questions, which varied across two conditions: in condition 1, the question is about one single patient (one topic condition); in condition 2, the question is about two distinct patients (two topic conditions). This manipulation was

presented within-subjects. The following examples illustrate the events depicted on the last slide of the two experimental trials and the related questions.

Condition 1 presents two separate events (4a) in which the patient is only one, in this case *the cat,* and the question is shown in (4b):

(4) a. Cows licking *cat*; Hedgehogs caressing *cat*
b. Che cosa succede alla mia amica, la gatta?
'What happens to my friend, the cat?'

This context should lead to the production of *Subject-Clitic-Verb* structures with no explicit mention of the topic patient, as already shown in previous research, and we consider this condition our baseline.

In condition 2, the question is about two distinct patients, e.g. *the dog* and *the bear,* and again elicits the descriptions of two separate events (given in 5a), reported in the example below (5b):

(5) a. Cats washing *dog*; Rabbits dressing *bear*
b. Che cosa succede ai miei amici, il cane e l'orso?
'What happens to my friends, the dog and the bear?'

The contrastive context in (5) should favor the use of ClLDs with overt left dislocated objects (e.g. *Object-Subject-Clitic-verb*), in order to explicitly talk about one or the other patient.

The pictures depicted human and animal characters, and eight actional verbs (*lavare* 'wash', *pettinare* 'comb', *fotografare* 'photograph', *vestire* 'dress', *accarezzare* 'caress', *spingere* 'push', *coprire* 'cover', *leccare* 'lick'). The number mismatch between the agent and the patient characters is created by representing two agents and one patient for each action.

Overall, the task consisted of eight experimental items (eight experimental questions), four in each condition: notice that each question elicited an answer containing two distinct descriptions of the events, as shown in (4) and (5). It follows that, in total, we collected 16 descriptions/sentences for each participant.

The test also included five warm-up trials and eight filler questions: we created a pseudo-randomized list, in which each experimental question was followed by a filler. The test was run individually in a quiet room at the kindergarten, and lasted about ten minutes. Children's productions were audio-recorded.

2.3. Coding Criteria

Each question elicited two descriptions which were coded separately, following the criteria listed below. Three main categories were identified: *Pronoun*, ClLD and *Other*.

Under the category '*Pronoun'* we coded all sentences having an active verb and an object clitic referring to the patient, with no overt object topic, as in (6); the subject could be either preverbal (6a), postverbal (6b) or null (6c):

(6) a. I gatti lo lavano
the $cats_{subj}$ him.Cl wash
'The cats wash him'
b. Lo lavano i gatti
him.Cl wash the $cats_{subj}$
'The cats wash him'
c. Lo lavano
pro him.Cl wash
'They wash him'

The second category is 'ClLD', which includes all sentences with an active verb, an object clitic and an overt left-dislocated DP referring to the patient of the question. Note that the subject could appear preverbally (Subj-Obj-cl-V; Obj-Subj-cl-V in (7a)), postverbally (Obj-cl-V-Subj) or could be null (Obj-cl-V), as in (7b):

(7) a. Il cane i gatti lo lavano.
the dog the cats him.Cl wash
'The dog_{obj} the $cats_{subj}$ wash him'
b. Il cane lo lavano.
The dog_{obj} *pro* him.Cl wash
'The dog they wash him'

'Other' contains any other production (such as intransitive verbs, passive, active SVO, etc.).

2.4. Results and Analysis

Children produced 284 utterances in the first condition, and 286 in the second condition. Our main focus is to compare the production of *Pronoun* structures, in which the object topic is not overtly produced, with the production of ClLDs with a left-dislocated object topic.

Table 1 reports the results of *Pronoun*, ClLD, and *Other* for each condition.

Table 1: Children's production by topic conditions (% and numbers)

	Condition 1 (1 topic)	**Condition 2 (2 topics)**
Pronoun	**89%** (253)	13% (37)
ClLD	4% (11)	**64%** (182)
Other	7% (20)	23% (6)
Total	100% (284)	100% (286)

In both conditions children mainly relied on the use of the active verb and the object clitic to topicalize the patient, but an important difference arises across conditions: in condition 1 (one topic) children's most typical answer was *Subject-cl-V,* labeled as *Pronoun* (253, 89%); and very little overt expression of

the topic patient was found (11 ClLDs, 4%). On the contrary, the opposite pattern emerged in condition 2 (two different topics) which favored the production of ClLDs with an overt left-dislocated object (182, 64%), and disfavored the use of *Pronoun* (37, 13%). In both conditions, children also answered with other structures, including SVO active sentences, intransitive verbs, and marginally passives, classified as *Other* (7% in condition 1 and 23% in condition 2; for detailed comparisons and related interpretation of the various different productions see Belletti & Manetti (2017), under submission).

The following analysis focuses on the use of structures with object clitics (*Pronoun* and ClLD), which constitutes 85% of children's production (483/570 utterances), and examines whether the use of *Pronoun* (covert topic) vs. ClLD (overt left dislocated topic) varies across conditions. We ran logistic mixed effect models (Jaeger, 2008), using the software R (R Development Core Team, 2008) and the lme4 package (Bates et al., 2014). The dependent variable entered in the model was the production of clitic structures with covert vs. overt left dislocated topics (*Pronoun*= 0; ClLD= 1); the fixed effects were *Topic condition* (one topic patient vs. two topic patients) and *Age group* (Group A: 4;0-4;11 vs. Group B: 5;0-6;0). The random effects included items and subjects. The final best-fit model, reported below in Table 2, only includes *Topic condition* as the fixed effect; by-items and by-subjects random intercept and the random slope parameter was added for *Topic condition* for subjects only.

Table 2: Linear mixed effects model on the production of *Pronoun* vs. ClLD

	Estimate	Std. Error	z value	Pr(>|z|)
(Intercept)	-4.8030	0.6776	-7.088	< .0001 ***
Topic condition	8.4507	1.0137	8.336	< .0001 ***

To summarize, the analysis revealed a significant main effect of *Topic condition,* showing that children were more likely to produce a ClLD with an overt left dislocated topic in the second condition, when the question presented two distinct topic patients. No difference emerged between age groups.

3. Children's Clitic Left Dislocations and the Role of Intervention

Overall, children produced 193 ClLDs, of which 11 (6%) in condition 1 and 182 (94%) in condition 2. Hence, when they used a clitic structure the object topic was predominantly overt and left-dislocated after questions introducing two patients (condition 2), namely only when the context requires the topic to be explicit in order to refer to two potential referents.

As already mentioned in the Introduction, this type of structure could generate a situation of intervention when both DPs (DP_1 DP_2 cl V) are overt. Hence we are now providing further details on the production of ClLDs with respect to this aspect, in order to check how children dealt with such structures and the intervention configuration, which is known to be problematic in the

acquisition of other A'- dependencies (e.g. Object Relative Clauses: Friedmann et al. 2009, a.o.). Specifically, at this point of our analysis we examine the type of subjects (lexical vs. null) and type of object topics in ClLDs.

As for the type of subject, children mainly produced ClLDs with a null plural subject (154/193, 80%), having the form of *Object-cl-V*, as indicated in (8):

(8) Il cane lo lavano
the dog_{obj} him.Cl wash
'The dog they wash him.'

The subject was instead lexical in 39 ClLDs (20%), of which only 24 sentences had a preverbal subject (12%, cfr. (9); and 15 sentences (8%) a postverbal subject:

(9) Alla mucca le giraffe la leccano.
to the cow the giraffes her.Cl lick
'The cow, the giraffes lick her.'

The object topic was often realized in the form of an a-Topic as in the example in (9). This way of expressing the pre-posed Topic could be a way used by children to deal with the intervention configuration. For space reasons we do not develop this point any further here (Belletti & Manetti 2017 for detailed discussion).

We rather focus on the production that children overwhelming preferred: use of pro_{plu} subject in the sentence following the left dislocated object. Indeed, the strong tendency to drop the subject in ClLDs creates a situation as in (10), in which only one lexical DP (the left-dislocated object) is present in the structure and the subject is instead pronominal and null:

(10) DP_{obj} pro_{plu} Cl V_{plu}
Il cane lo lavano
The dog him.Cl wash

Most likely, the use of such plural null subject is here compatible with an arbitrary/generic interpretation of the subject, which is a possible option in similar contexts in standard Italian. Thus, despite the agent characters were represented on the pictures and were clearly referential, children avoided the production of a lexical DP subject and exploited a possibility that the language offers, namely the null plural subject, plausibly interpreted as arbitrary and generic.

We propose that children's preference for a DP_{obj} pro_{plu} cl V_{plu} structure could constitute a way of avoiding the intervention configuration (see 11a) which the lexical intervening subject would instantiate between the dislocated object and the internal Merge position of the object. In contrast to the

predominant use of a pronominal null plural subject (11b), the DP_1 DP_2 cl V structure was highly disfavored in children's answers (11c):

(11) a. O S [<S> - cl - V <O>]
b. $O_{.lex}$ [$pro_{.plu}$ cl $V_{.plu}$ <_>] : non lexically restricted intervener
c. $O_{.lex}$ [($S_{.lex}$) cl V <_>] : lexically restricted intervener

The overwhelming children's preference for the $pro_{.plu}$ option does not allow us to disentangle the possible role of the number feature mismatch as a way to modulate intervention in their productions of ClLD in which both DPs, subject and object, are lexical. The crucial role is clearly played here by the lack of a lexical restriction in both DPs, in line with the system proposed in Friedman el al. (2009) (Belletti & Manetti 2017 for further detailed discussion).

4. Conclusion

The most relevant result of our study is that children modulated their topicalized structures depending on the discourse topic conditions. First, we replicated the results found in previous studies when they had to talk about one single patient: this context elicited *Subject-cl-V* sentences with no overt expression of the topic. The new result emerged in the two topics condition, which was added to provide a felicitous context for making the patient topic explicit; in this condition, children produced ClLD and showed to master left-peripheral topic positions from the age of 4 (in line with the results from De Cat (2009) for left-dislocated subject in French).

The study also enabled us to investigate how children deal with the production of a construction that could create an intervention configuration with left-peripheral topics, when both DPs are overt and lexical, as in DP_1 DP_2 cl V. Children showed to prefer ClLDs, in which the subject was null and plural, (Object-cl-V_{plu}) to the production of ClLD with two overt lexical DPs (e.g. Subject-Object-cl-V). We proposed that the use of a null plural subject, which is compatible with an arbitrary/generic interpretation, allowed children to eliminate the intervention effect.

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Proceedings of the 41st annual Boston University Conference on Language Development

edited by Maria LaMendola
and Jennifer Scott

Cascadilla Press Somerville, MA 2017

ISSN 1080-692X
ISBN 978-1-57473-076-0 (2 volume set, paperback)
ISBN 978-1-57473-176-7 (2 volume set, library binding)

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