



Children's subjects in Clitic Left Dislocations in Italian

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Abstract

The study examined the production of subjects by Italian-speaking children in different pragmatic contexts which elicited the use of Clitic Left Dislocations (CLLD), pronoun structures and passives. The analysis takes into account the data from Belletti & Manetti (2019) and focuses on the use of lexical and null subjects on the basis of the discourse conditions provided in two elicited production experiments. The results showed that children are adult-like in their use of lexical and pronominal null subjects in different structures. Experiment 1 specifically confirms this ability as children mainly used overt lexical subjects in order to be completely informative about which character performed a given action on the object topic patient. In Experiment 2, however, children displayed a different choice in subject selection, overwhelmingly preferring null plural subjects with a generic interpretation in their CLLDs, resulting in Obj-pro.PL-Cl V sentences. Under the featural Relativized Minimality principle, we suggest that this choice, which led to overall felicitous answers, was preferred since it made the subject in their CLLDs somewhat lighter and created a feature disjunction configuration which is fully mastered by children. Overall, this study investigated how monolingual children deal with the use of different types of subjects in a production study and could provide a baseline measure to extend the analysis to bilingual or L2 production of overt lexical vs. null pronominal subjects in the specific context of CLLDs.

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KEYWORDS:

Italian; First language
acquisition; Subject; Clitic left
dislocation

TO CITE THIS ARTICLE:

Manetti, Claudia and Adriana
Belletti. 2021. Children's
subjects in Clitic Left
Dislocations in Italian. *Glossa:
a journal of general linguistics*
6(1): 48. 1–13. DOI: [https://doi.
org/10.5334/gjgl.995](https://doi.org/10.5334/gjgl.995)

1 Introduction

In this study we focus on the types of subject that Italian-speaking children produced in the context of an experiment eliciting Clitic Left Dislocations (henceforth CLD), with the left dislocated phrase corresponding to the direct object. In particular, we are interested in analyzing the nature of the subject in relation to the presence of the left peripheral object topic. The resulting sentences correspond to a $DP_1 DP_2 CL V$ structure, as illustrated in (1a, b), with both DPs lexically restricted:¹

- (1) a. DPOBJ DPSBJ CL V
 (a) Il cane il gatto lo lava.
 (to) the dog.OBJ the cat.SBJ him.CL washes
 ‘The dog, the cat is washing him.’
- b. DPSBJ DPOBJ CL V
 Il gatto (a) il cane lo lava.
 the cat.SBJ (to) the dog.OBJ him.CL washes
 ‘The dog, the cat is washing him.’

The data we will illustrate and discuss come from Belletti & Manetti’s (2019) work which precisely aimed at eliciting CLLDs of the type illustrated in (1), with pre-school children. In fact, the elicited structures could either contain an overtly expressed left peripheral direct object topic or no overtly expressed direct object topic, depending on discourse conditions. In the quoted work, the main results of the experiments showed that pre-school children, aged from 4- to 6-year-old, were able to produce CLLDs with an overtly expressed direct object topic in the appropriate discourse conditions, thus indicating that left-peripheral topic positions are available and accessible to young children when the appropriate context is provided.

In the present work, we provide a different perspective on Belletti & Manetti’s (2019) production data in order to zoom in on the nature of the subject used by children in the discourse conditions created by the experiments mentioned. Specifically, we analyze the different types of subject (lexical subject, null subject or overt pronominal subject) within sentences with no overtly expressed direct object topic (*Clitic Pronoun* structures) and with an overt left peripheral direct object topic (*CLLD* structures).

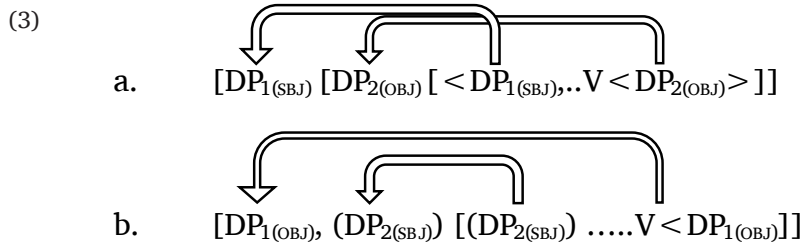
The reason why we focus our investigation on these productions is related to the role that different types of subject play in the computation of CLLDs when the overtly expressed object DP is lexical and left dislocated. Specifically, the CLLDs under investigation may instantiate an intervention configuration when the left dislocated object is overtly expressed and the subject is preverbal and lexical, intervening between the left-peripheral object topic and its clause internal merge position. For this reason, we will analyze the subject of CLLD structures in light of the grammatical principle featural Relativized Minimality (fRM), following Friedmann et al.’s (2009) account and its further elaboration (Belletti et al. 2012), in line with Belletti & Manetti (2019).

Under the Relativized Minimality principle (Rizzi 1990; 2004), in a CLLD, the left dislocated object topic encounters the intervening lexical subject (Z) in the establishment of the dependency between its Target (X) position in the left-peripheral topic position and its Merge object position (Y) within the clause, as shown in (2):

- (2) $[\text{DP}_{1(\text{OBJ})}^? \text{X} \text{ } [\text{DP}_{2(\text{SBJ})} \text{Z} \text{ } \dots \text{ } \dots \text{ } V \text{ } < \text{DP}_{1(\text{OBJ})} > \text{Y}]]$

In Italian, which is a multiple topic language (Rizzi 1997), the $DP_1 DP_2 Cl V$ structure can correspond to two different word orders, either $DP_{\text{SBJ}} DP_{\text{OBJ}} Cl V$ (3a) with also DP_{SBJ} occupying a left-peripheral topic position, or $DP_{\text{OBJ}} DP_{\text{SBJ}} Cl V$ (3b), with DP_{SBJ} either in the left periphery or in the clause internal subject position (as given in 2 for illustration): both orders give rise to the locality problem:

¹ In children’s productions sometimes the left dislocated direct object is introduced by preposition ‘a’/to, yielding an a-Topic construction. See Belletti & Manetti (2019), Belletti (2018a; 2018b). In the present discussion we do not focus on this type of object topic (either a-topic or simple topic), unless otherwise specified.



Following from this, the role of the subject is crucial in this particular structure since it could yield different degrees of intervention. If the subject is lexical and preverbal and matches in number with the object, it leads to the intervention situation of (feature) *inclusion*, which is the most challenging for children as previously shown for other A-bar dependencies (e.g. Object relative clauses, Friedmann et al. 2009). In case of number mismatch between the subject and the object the structure corresponds to a different feature configuration, *intersection*, which is well mastered by children at age 5 (Belletti et al. 2012; Manetti et al. 2016 on CLD) and in the acquisition of other structures (e.g., object relative clauses, see Adani et al. 2010). In case the subject is pronominal (in fact null in Italian when not focal or otherwise prominent), this yields the most accessible structure from the perspective of intervention, since no lexical DP intervenes between the clause internal merge position of the object and its left dislocated position, giving rise to feature *disjunction*, hence no intervention.

To summarize, in the present study we aim at providing a baseline from the behavior of monolingual Italian-speaking young children in their mastering of the proper use of overt lexical subjects, null subjects and, possibly, overt pronominal subjects, in the specific discourse conditions investigated leading to the production of CLD, with a left dislocated direct object. The type of subject will be examined in relation to the intervention configurations arising in this specific clitic left dislocated discourse context, which may be particularly challenging for pre-school children.

2 The study

The data we will illustrate and analyze come from the study carried out by Belletti & Manetti (2019), which tested two groups of typically-developing pre-school children, aged from 4 to 6 years old. The production experiments were designed with the aim of eliciting structures with left dislocated object topics.² We will first summarize the method and materials adopted in the two experiments, in order to show the discourse contexts relevant for analyzing the different types of subject (lexical, pronominal null, pre- or post-verbal; see the quoted work for all relevant details), the central aim of the present work.

We will then focus on the analysis of the subjects actually produced by children in the context of *Clitic Pronoun* and clitic left-dislocated structures, *CLD*. The research questions we address are the following:

1. Did children produce the appropriate type of subject (expected to be lexical and preverbal) in their answers on the basis of the discourse condition?
2. In case children produced other types of subject (e.g. pronominal null, pronominal overt), what did they opt for?
3. Did the type of subject vary depending on the presence of a lexically expressed left dislocated object (i.e. in *CLDs*)?

2.1 Method and Materials

Belletti & Manetti (2019) carried out two experiments manipulating the discourse conditions in which children were asked to talk about the patient(s) of transitive verbs after hearing a patient-oriented question.

² This type of prompting question had been used in previous research to elicit structures in which the direct object is discourse given, hence a topic, leading to the production of passive sentences or active structures with a clitic pronoun (as for Italian, see Del Puppo & Pivi 2015; Volpato et al. 2016; Manetti 2017). Belletti and Manetti (2019) manipulated the number of patient topics in the question in order to elicit clitic left dislocations with the overt expression of the left-dislocated object, a structure which was not investigated in the aforementioned previous researches.

In Experiment 1, a group of children aged from 4;1 to 5;11 (N = 36; MA = 60 months; SD = 6.8 in months, of which 17 children aged from 4;1 to 4;11, and 19 children aged from 5;0 to 5;11) participated in a production study in which patient-oriented questions were asked containing either one topic patient (one-topic condition, *Figure 1*) or two topic patients (two-topic condition, *Figure 2*). The first condition aimed at eliciting an answer with an active verb and an object clitic pronoun, coded as *Clitic Pronoun*, e.g. Subject-CL-Verb;³ whereas the second condition would instead lead to the elicitation of a sentence containing an overt left-dislocated object, coded as *Clitic Left Dislocation (CLLD)*, e.g. Object-Subject-CL-Verb. Notice that in the one-topic condition the use of an overtly expressed left-peripheral object topic is not necessary, as only one referent (the object patient) is given in the question.

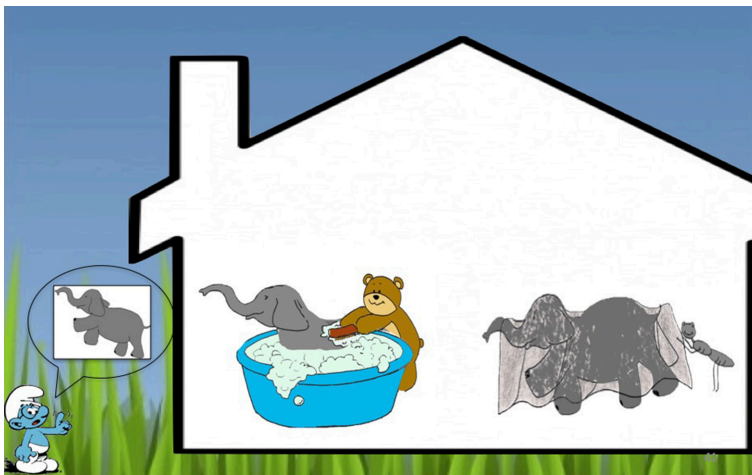


Figure 1 One-topic condition (One topic patient – Q: What is happening to my friend, the elephant?).

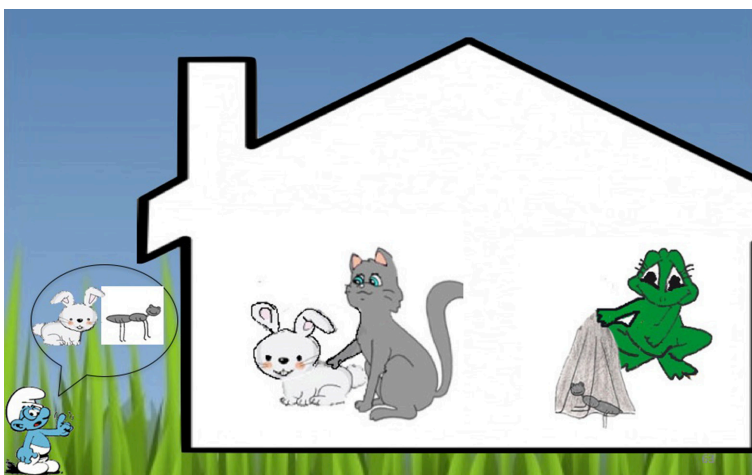


Figure 2 Two-topic condition (Two topic patients: Q: What is happening to my friends, the rabbit and the ant?).

Children were presented with eight questions (four in each condition), which in total led to the elicitation of eight answers. In each answer children described two actions, as shown in *Figure 1* and *2*, which were coded separately. For the full coding criteria, see Belletti & Manetti (2019). In this first experiment all pictures depicted actional verbs with a singular subject (the agent) and a singular object (the patient); all characters were introduced to the child by the experimenter prior to the eliciting question.

The second experiment replicated the same task of Experiment 1 with another group of children aged from 4;0 to 6;0 (N = 36; MA = 60 in months; SD = 3.8 in months; of which 18 children aged from 4;0 to 4;11 and 18 children aged from 5;0 to 6;0). Differently from Experiment 1, each transitive action involved a plural subject (two agents) and a singular object (one patient),

³ The category *Clitic Pronoun* was named as *Pronoun* in Belletti & Manetti (2019).

as shown in [Figure 3](#), [4](#).⁴ The eliciting questions aimed at drawing children's attention towards the patient(s), as in Experiment 1.

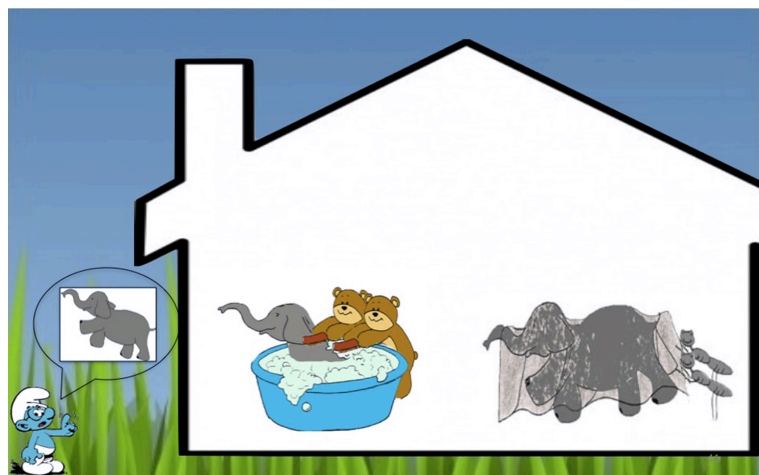


Figure 3 One-topic condition (One topic patient: Q: What is happening to my friend, the elephant?).

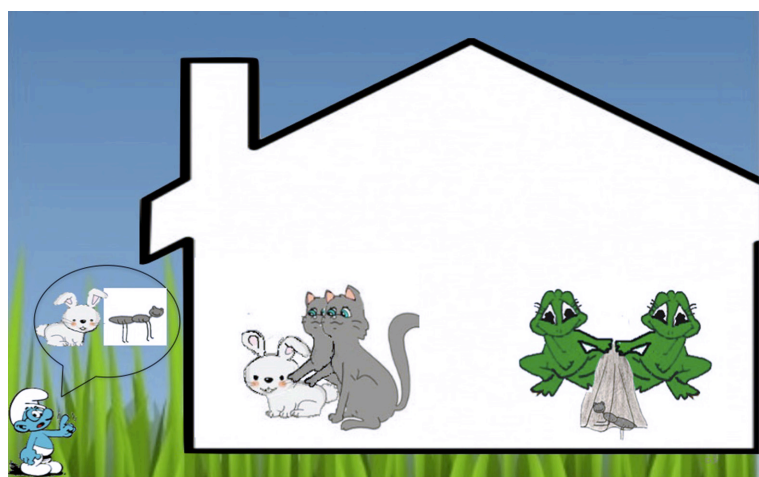


Figure 4 Two-topic condition (Two topic patients: Q: What is happening to my friends, the rabbit and the ant?).

2.2 Zooming on the subject of *Clitic Pronoun* and *CLLD* structures

We now turn our attention to the focus of the present study which is the type of subject used in children's *Clitic Pronoun* and *CLLD* structures.

As mentioned above, all characters, namely the subject and the object referents of each action, were introduced by the experimenter to the child for each trial before the eliciting question. Moreover, each question required an answer which described two distinct actions, for instance, in the one-topic condition the slide showed the following two actions, e.g. bear(s) washing elephant, ant(s) covering elephant (see [Figure 1](#), [3](#)); in the two-topic condition the slide showed e.g. cat(s) caressing rabbit, frog(s) covering ant (see [Figure 2](#), [4](#)).

Given the discourse conditions explained above, the eliciting questions (see 4a and 5a) should lead to the production of an overt preverbal lexical subject conveying the information on the two specific agent(s) acting on the topic patient.⁵

⁴ The original purpose of this manipulation in Belletti & Manetti (2019) was to investigate whether the production of $DP_1 DP_2 Cl V$ would benefit from the number mismatch created between the subject and the object. As reported in Manetti et al. (2016), the number mismatch between the DPs of a CLLD significantly improves the comprehension of such structure, in contrast with another type of featural mismatch, namely gender mismatch, which children are not able to understand at the age of 5–6. The result is in line with previous independent findings (Adani et al. 2010; Belletti et al. 2012) on the different role of the same morphosyntactic features in modulating comprehension in the context of Featural Relativized Minimality (Rizzi 1990; 2004; Starke 2001). No similar improvement was found in production as reported in Belletti & Manetti (2019), since the number mismatch condition with the plural subject favoured the production of a completely different structure with the generic plural null subject which will be discussed in detail momentarily (Section 2.3).

⁵ Under this discourse condition, postverbal subjects, which are characteristically available in Italian in new information contexts (Belletti 2004), were not expected since the subject referents were already given in the discourse through the presentation of the characters.

Recall that in Experiment 1 the subject should be singular (4b and 5b), whereas in Experiment 2 the subject should be in the plural form given that the pictures depicted two agents, as shown in (4c) and (5c):

- (4) a. *Question (One-topic condition):*
 Che cosa succede al mio amico, l'elefante?
 'What is happening to my friend, the elephant?'
- b. *Expected answer in Experiment 1 (Clitic Pronoun):*
 L'orso lo lava e la formica lo copre.
 the bear.SBJ him.CL washes and the ant.SBJ him.CL covers
 'The bear is washing him and the ant is covering him.'
- c. *Expected answer in Experiment 2 (Clitic Pronoun):*
 Gli orsi lo lavano e le formiche lo coprono.
 the bears.SBJ him.CL wash and the ants.SBJ him.CL cover
 'The bears are washing him, and the ants are covering him.'
- (5) a. *Question (Two-topic condition):*
 Che cosa succede ai miei amici, il coniglio e la formica?
 'What is happening to my friends, the rabbit and the ant?'
- b. *Expected answer in Experiment 1 (CLLD):*
 Il coniglio il gatto lo accarezza e la formica la rana la copre.
 the rabbit.OBJ the cat.SBJ him.CL caresses and the ant.OBJ the frog.SBJ her.CL covers
 'The rabbit, the cat is caressing him, and the ant, the frog is covering her.'
- c. *Expected answer in Experiment 2 (CLLD):*
 Il coniglio i gatti lo accarezzano e la formica le rane la coprono.
 the rabbit.OBJ the cats.SBJ him.CL caress and the ant.OBJ the frogs.SBJ her.CL cover
 'The rabbit, the cats are caressing him, and the ant, the frogs are covering her.'

The one-topic and the two-topic conditions require the same type of subject in *Clitic Pronoun* and *CLLDs*, which should be lexical and preverbal.

As mentioned in the Introduction, under the fRM approach the production of a lexically expressed preverbal subject in *CLLDs* with number match between the left dislocated object and the preverbal subject leads to a structure in which the subject intervenes between the left-dislocated object and its original clause internal position (indicated as <_>), see (6). Recall that this type of configuration is known to be the hardest intervention configuration since it creates a relation of feature *inclusion* (relevant features: +TOP, +NP):

- (6) DP.OBJ DP.SBJ CL V <_>
 Il coniglio il gatto lo accarezza
 the rabbit.OBJ the cat.SBJ him.CL caresses
 +TOP +NP +NP

In Experiment 2, the number mismatch between the subject (plural) and the left-dislocated object (singular) could modulate intervention giving rise to an *intersection* configuration (relevant features: +TOP, +NP, +PL, +SG; see footnote 4 and references cited there):

- (7) DP.OBJ DP.SBJ CL V <_>
 Il coniglio i gatti lo accarezzano
 the rabbit.OBJ the cats.SBJ him.CL caress
 +TOP +NP +SG +NP +PL

In case of a *CLLD* with a null pronominal subject, as in (8), the structure is accessible to children since no lexical DP intervenes yielding a configuration of *disjunction*:

- (8) DP.OBJ *pro*.PL CL V <_>
 Il coniglio *pro*.PL lo accarezzano
 the rabbit.OBJ *pro*.PL him.CL caress
 +TOP +NP

As for the production of *Clitic Pronoun* (i.e. structures with no overtly expressed left dislocated object) we do not expect any difficulty in the production of lexical preverbal subjects, since no intervention configuration is present:

- (9) DP.SBJ CL V
 L'orso lo lava
 the bear.SBJ him.CL washes

We analyzed the nature of the subjects, in *Clitic Pronoun* and *CLLD* structures, which were coded as a) lexical and overt subject (distinguishing between preverbal or postverbal position), b) null pronominal subject (singular or plural) and c) overt pronominal subject (e.g. lui/he, lei/she).

2.3 Results: Types of subject in Experiment 1 and in Experiment 2

The subject was analyzed in 774 sentences (294 in Experiment 1, 480 in Experiment 2). The results highlighted the production of two types of subject in children’s answers, namely lexical subjects and null subjects (see [Table 1](#)).

	Expected	Experiment 1	Experiment 2
Lexical Subject	yes	81% (239)	33% (160)
Pronominal Null Subject	no	19% (55)	67% (320)
Pronominal Overt Subject	no	–	–

Table 1 Types of subject in Experiment 1 and 2 (in *Clitic Pronoun* and *CLLDs* together).

As for Experiment 1, the analysis shows that, as the context required, children mainly opted for overt lexical subjects (81%), leading to *Clitic Pronoun* sentences in the form of Subject-CL-Verb (4b) or to *CLLDs*, e.g. in the form of Object-Subject-CL-Verb (5b);⁶ null subject is the least preferred choice (19%). Moreover, when the subject was lexical it was preverbal in 92% (n = 219) of the sentences, as required in the given discourse conditions.⁷

In contrast, if we consider Experiment 2, children were more likely to produce null subjects (67%) than lexical subjects (33%); the latter, when present, were mostly in preverbal position (n = 128, 80%), as required by the discourse conditions.

The presence of null subjects was not expected given that two agents were depicted on the images hence requiring the explicit realization of a lexical subject for conveying a fully informative answer.

Interestingly, in Experiment 2 the null subjects produced by children were overwhelmingly in the plural form,⁸ as shown in (10) and (11):

- (10) a. Question (One-topic condition):
 Che cosa succede al mio amico, l’elefante?
 ‘What is happening to my friend, the elephant?’
- b. Lo lavano e lo asciugano.
pro.PL him.CL are washing and pro.PL him.CL are drying.
 ‘(They) are washing him and (they) are drying him.’
- (11) a. Question (Two-topic condition):
 Che cosa succede ai miei amici, il coniglio e la formica?
 ‘What is happening to my friends, the rabbit and the ant?’
- b. (A)l coniglio lo toccano e (al)la formica la coprono.
 (to) the rabbit.OBJ him.CL *pro.PL are touching and (to) the ant.OBJ her.CL pro.PL are covering*
 ‘The rabbit, (they) are touching him and the ant (they) are covering her.’

⁶ In the two-topic condition, the presence of a lexical (preverbal) subject in *CLLDs* creates the intervention configuration on which *fRM* directly bears. Most of the object topics were introduced by ‘a’/to in this condition, (an *a-Topic*, as a way to modulate intervention, see Belletti & Manetti 2019; see also references in Footnote 1).

(i) (a)Object Subject CL-Verb
 (a)Il coniglio.OBJ il gatto.SBJ lo tocca
 (To) The rabbit the cat him.CL touches

⁷ The adult-like behavior shown by children in Experiment 1 was confirmed in the productions of the few passive sentences produced by children, as already reported in Belletti & Manetti (2019). In a passive sentence, the subject refers to the topic patient(s) given in the question: appropriately to the discourse conditions, it tended to be null in the one-topic condition (94%), and overt and lexical in the two-topic condition where the identification of the two topic patients was required to provide a fully informative answer (Belletti & Manetti 2019: 164, examples 18 and 19).

⁸ For a comparison with Experiment 2, in which the null subject was always plural, in Experiment 1 null subjects were used both in the singular form (n = 32) and in the plural form (n = 23). The fact that null subjects were also in the plural form, although the picture depicted a singular subject, supports the interpretation of the plural null subject as a generic plural, to be discussed in Section 3 (surrounding the examples 14 and 15).

We also looked at 4 year-olds and 5-year-olds separately to check whether the use of null and lexical subjects varied by age. In Experiment 1, children aged 4 produced 41 null subjects (28%) and 104 lexical subjects (72%); compared to the younger group, children aged 5 produced less null subjects (14, 9%) and a higher number of lexical subjects (135, 91%). To anticipate, although 4-year-olds used less lexical subjects than 5-year-olds, this difference is not significant as shown in the following section.

In Experiment 2, 4-year-olds produced 151 null subjects (65%) and 82 lexical subjects (35%); very similarly 5 year-olds used 169 null subjects (68%) and 78 lexical subjects (32%).

2.3.1 Analysis of the subjects with respect to the overtness of the left dislocated object

We now focus on children’s productions in order to compare the two experiments and check whether children’s subjects varied depending on the overtness of the left dislocated object (*Clitic Pronoun* vs. *CLLDs*); see [Table 2](#):

	Experiment 1		Experiment 2	
	Lexical Subject	Pronominal Null Subject	Lexical Subject	Pronominal Null Subject
<i>Clitic Pronoun</i> (with no overtly expressed left dislocated object)	83% (177)	17% (36)	42% (121)	58% (168)
<i>CLLD</i> (with overtly expressed left dislocated object)	76% (62)	24% (19)	20% (39)	80% (152)
Mean	81% (239)	19% (55)	33% (160)	67% (320)

Table 2 Types of subject in *Clitic Pronoun* and *CLLD* structures.

We first ran a between-subject analysis comparing the use of null and lexical subjects across experiments (Experiment 1 vs. Experiment 2); and we also controlled whether the production of null vs. lexical subjects differed when the left-dislocated object topic was overtly expressed (*CLLDs*) or not (*Clitic Pronoun* structures). Mixed-effects logistic regression was used (Jaeger, 2008) and in each model the random effect structure was simplified until convergence was reached (Barr et al. 2013); we used *glmer* in *lme4* library (Bates et al. 2015).

We considered *Type of Subject* (null subjects vs. lexical subjects, coded as 0 and 1) as our dependent variable. The fixed factors were *Structure* (*Clitic Pronoun* = 0, *CLLD* = 1) and *Experiment* (Experiment 1 = 0 and Experiment 2 = 1); moreover, we checked whether age group differences could improve the model thus we compare 4-year-olds and 5-year-olds (*Age group*: 4-year-olds = 0, 5-year-olds = 1): all factors were centered. The final best-fit model included *Structure* and *Experiment* as main fixed effects, by-subject and by-item intercept and by-subject random slope for the factor *Structure*. *Age group* was not included since it did not improve the model ($p > 0.5$). The analysis reveals a significant main effect of *Experiment* ($\beta = -5.70$, $SE = 1.19$, $t = -4.76$, $p < .001$; Intercept: $\beta = -1.36$, $SE = 0.57$, $t = 2.36$, $p = .01$) in that lexical subjects were significantly less used in Experiment 2 (160, 33%) compared to Experiment 1 (239, 81%); and a significant main effect of *Structure* also emerged ($\beta = -2.09$, $SE = 0.58$, $t = -3.60$, $p < .001$; Intercept: $\beta = -1.36$, $SE = 0.57$, $t = 2.36$, $p = .01$): overall lexical subjects were more often used in *Clitic Pronoun* structures (298/502, 59%) than in *CLLDs* (101/272, 37%).

In two subsequent analyses we checked whether the use of subjects differed in *Clitic Pronoun* and *CLLDs*, in Experiment 1 and Experiment 2 separately. In each analysis, we included *Type of Subject* (null subjects vs. lexical subjects, coded as 0 and 1) as our dependent variable. The fixed factor was *Structure* (*Clitic Pronoun* = 0, *CLLD* = 1); in addition, we checked whether the production of subjects differed by age group.

In Experiment 1, the best-fit model included *Structure* (*Clitic Pronoun* = 0, *CLLD* = 1) as fixed factor, by-subject intercept. *Age group* did not improve the model hence it was not included ($p > .5$). The analysis revealed a significant effect of *Structure* ($\beta = -1.57$, $SE = 0.63$, $t = -2.47$, $p = .013$; Intercept: $\beta = -7.50$, $SE = 1.95$, $t = 3.83$, $p = .0001$): more null subjects were produced in *CLLDs* (23%) than in *Clitic Pronoun* (17%).

In Experiment 2, the best-fit model included *Structure* (*Clitic Pronoun* = 0, *CLLD* = 1) as fixed factor, by-subject and by-item intercepts. The analysis showed that this difference reached significance ($\beta = -2.22$, $SE = 0.58$, $t = -3.82$, $p < .001$; Intercept: $\beta = -1.45$, $SE = 0.62$, $t = -2.33$, $p = .019$): children were more likely to use null subjects in *CLLDs*, namely when the left-dislocated object was overt (152, 80%), compared to *Clitic Pronoun* structures (168, 58%). [Figure 5](#) shows the production of null and lexical subjects in *Clitic Pronoun* and *CLLDs* in each experiment:

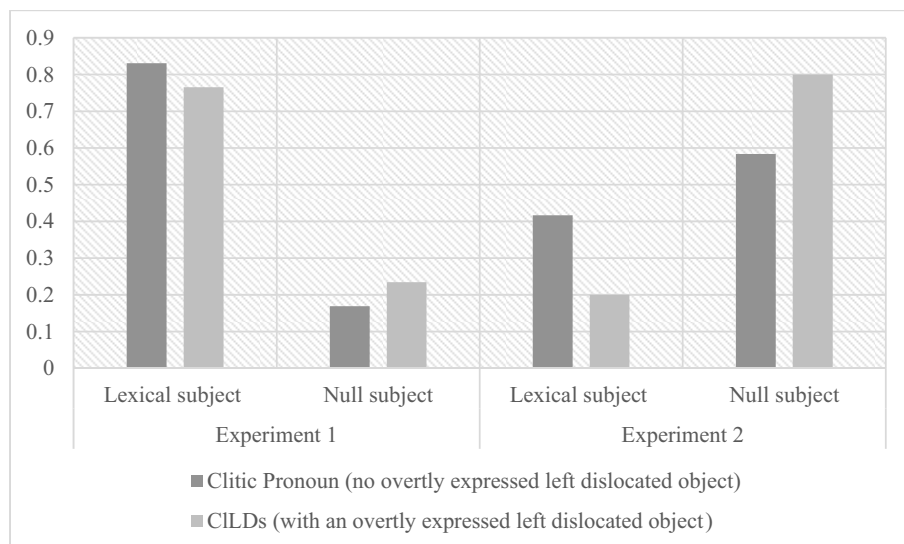


Figure 5 Production of null and lexical subjects in *Clitic Pronoun* and *CLLDs* in Experiment 1 and 2.

We underline the zero occurrence of overt pronominal subjects in both experiments.

3 Discussion

In this study we analyzed the data from Belletti & Manetti (2019) in the aim of highlighting what type of subject children produced when answering to patient-oriented questions. We focused our analyses on *CLLDs* and *Clitic Pronoun* structures and examined whether the subject of children's answers was appropriate to the discourse conditions set up through the prompting questions. As for our first research question (Q1: Did children produce the appropriate type of subject (expected to be lexical and preverbal) in their answers?), different results emerged in the two experiments.

In Experiment 1, children showed to master the use of the appropriate expected type of subject: they preferred lexical subjects which were correctly informative as to who performed the actions on the patients in *Clitic Pronoun* and *CLLD* structures and privileged the preverbal position of the subject since the referents were already given in the discourse context.⁹ This shows that at age 4, children already master appropriate production of (lexical vs. null referential) subjects in general confirming previous findings (see Belletti & Guasti 2015: Chapter 7 for a review; Manetti 2017; De Cat 2009 for French). In addition, the absence of pronominal overt subjects (e.g. lui/he; lei/she), which would be appropriate in different contexts (e.g. with focal interpretation) given their status of strong pronouns (see Cardinaletti & Starke 1999) highlights that at this age monolingual Italian-speaking children properly master the distinction and production of null pronominal vs. overt pronominal subjects in the elicited production contexts, in line with previous research from spontaneous production studies (e.g. Serratrice 2005). This result could constitute a baseline measure for testing other populations, such as L2 or multilingual speakers, who instead are known to find difficulty in the acquisition of the use of subject pronouns in relation to different pragmatic discourse properties (see Serratrice 2005, 2007; Sorace & Filiaci 2006; Belletti et al. 2007; Belletti & Guasti 2015: Chapter 7, for a summary on the acquisition of subjects across different populations).

⁹ Notice that in Italian pronominal subjects, already present in the context as in our experiments, are generally null. This was precisely the case of null subjects used in (the few) passive sentences in the one-topic condition. See Footnote 7. Overt pronominal subjects are typically focal or anyway prominent in Italian. See the following remarks in the text.

Differently from Experiment 1, in Experiment 2 which should have elicited the same type of subject (namely, lexical and preverbal), children diverged from the expected pattern. Our second research question (Q2: In case children produced other types of subjects (e.g. pronominal null, pronominal overt), what did they opt for?) precisely aimed at analyzing children's alternative choice which mainly consisted of null subjects, which were overwhelmingly in the plural form, as illustrated in (12).

- (12) a. Lo toccano
 pro.PL him.CL touch
 ‘(They) are touching him.’
 b. (A)l coniglio lo toccano
 (to) the rabbit.OBJ *pro*.PL him.CL touch
 ‘The rabbit, (they) are touching him.’

The plural null option was only seldom used in Experiment 1 (footnote 8), where the referent of the subject was always a singular character in the stimuli (cf. *Figure 1* and *2*) and the subject was mostly overt in children's CLDs answers, as discussed. Notice that the sentences containing null subjects were not specific but rather remain vague about the two agent referents. This tendency to overuse subject pronouns instead of lexical DPs also emerged in previous studies investigating children's acquisition of subjects (e.g. Karmiloff-Smith 1981; Koster, Hoeks & Hendriks 2011; among others). Notice, however, that in the two experiments the information about the agent referents could be easily recovered from the context since both the experimenter and the child could see the images on the screen. Thus this experimental factor could have favored the overuse of subject null pronouns instead of referential lexical subjects, in that children are also known to be more likely to use ambiguous subject pronouns in place of referential lexical subjects when the information is recoverable in a shared context (e.g. Serratrice 2008; De Cat 2009; among others).

Through our third research question (Q3: Did the type of subject vary depending on the presence of a lexically expressed left dislocated object (in CLDs)?), we further analyzed the production of null subjects by investigating the possible relationship between the subject and the presence of the overtly expressed left dislocated object.

Overall, in both experiments, children relied on null subjects more often when the object topic was overtly realized in the left periphery: this suggests that in both experiments CLDs with preverbal lexical subjects were challenging and hence avoided in different ways. This difficulty is expected under the featural Relativized Minimality principle (Friedmann et al. 2009; Belletti et al. 2012; Belletti 2017), which analyzes DP_{OBJ} DP_{SUBJ} Cl V structures as creating the hardest intervention configuration for children when both DPs are lexical, since the (preverbal) lexical subject intervenes between the left-peripheral object topic and its clausal internal merge position. Hence having a null subject could constitute a way to avoid intervention, as it eliminates the lexically restricted intervener. This is illustrated in (13a) and (13b):

- (13) a. Il coniglio il gatto lo lava
 the rabbit.OBJ the cat.SBJ him.CL washes
 +TOP +NP +NP
 b. Il coniglio *pro*.PL lo lavano
 the rabbit.OBJ *pro*.PL him.CL wash
 +TOP +NP

In (13a) there is inclusion of [+NP] feature corresponding to the lexical restriction, which is the hardest structure for young children. In contrast, in (13b) there is no lexical restriction feature on the pronominal null subject, thus creating a feature disjunction relation that can be computed by young children (see Belletti & Manetti 2019 and references quoted there for all relevant details).

As mentioned earlier, in Experiment 1 the null subject was very seldom produced by children, who instead adopted other strategies to modulate the intervention configuration in CLDs, for example through the *a*-marking of left dislocated object topics (see Belletti 2018a,b for a detailed discussion on *a*-Topics). It is worth highlighting that when children opted for null subjects they used both the singular and plural forms (cf. footnote 8), and singular null subjects were very rare in their production. This indicates that, in Experiment 1, children were consistent

in conveying the information about the subject referents and tried to handle the grammatical pressure of the intervention configuration instantiated by the *CILDs* (see 13a).

In Experiment 2, in contrast, children overwhelmingly relied on the production of plural null subjects both in *Clitic Pronoun* and *CILD* structures, but significantly more often in *CILDs*: we interpret this result as a possible way to avoid the intervention configuration, resulting in feature disjunction configuration illustrated in (13b). Building on the evidence from Experiment 1, in which children produced few (singular) null subjects and more consistently used referential lexical subjects, we suggest that the plural null subject found in Experiment 2 was not referential but rather generic. Possibly the plural nature of the null subject, rarely present in Experiment 1 where the agent referent was always singular, could be triggered by the fact that the images in Experiment 2 featured a plural subject, thus constituting a kind of priming for the use of the (generic) plural null subject. Notice that this type of answer containing a plural null subject, as in (13b), is an appropriate answering strategy to the patient-oriented question, as it conveys the information about the topic patient which the question is about and just remains vague about the agent referents. That the plural null subject is likely to be interpreted as a generic (plural) subject is supported by the fact that this interpretation is a possible option in several languages, including standard Italian, as shown in (14) (example 26 from Belletti & Manetti 2019 and related discussion), where the null pronominal subject can correspond to either a singular or a plural referent:

- (14) a. Hanno bussato.
 ‘(They) have knocked at the door.’
 b. Deve essere Gianni.
 ‘(It) must be Gianni.’
 c. Devono essere gli invitati.
 ‘(They) must be the guests.’

We further suggest that children’s reliance on the *pro_{PL}* in *CILDs*, with the generic interpretation of the subject, may be a suitable alternative to the passive, which was the much preferred answer by adults. Indeed, the structures in (15a), typical children’s production, and in (15b), typical adults’ production, can be considered closely related to each other: They are judged as appropriate in the same discourse context, and crosslinguistic evidence indicates that languages which do not have (a productive use of) passive may resort to active sentences with the generic plural subject instead (Belletti & Manetti 2019: 167 and footnote 25). The fact that children largely preferred (15a) over (15b) indicates that the computation for passive is still not adequately mastered at this age.

- (15) a. Il cane lo lavano.
 the dog. OBJ *pro*.PL him.CL wash
 ‘The dog, (they) are washing him.’
 b. Il cane viene lavato (dal gatto).
 the dog.SBJ comes washed (by the cat)
 ‘The dog is being washed (by the cat).’

4 Conclusion

In conclusion, our study presented an overview on the production of subjects in relation to the structural and discourse related properties of *Clitic Pronoun* and *CILD* sentences. Importantly, we underline that children never used an overt pronominal subject in compliance with the discourse conditions provided by our experiments: this shows that they were aware of the distribution of overt vs. null pronominal subjects. This result is consistent with the another important finding of our work that indicated appropriate mastery in the production of overt lexical subjects vs. null pronominal subjects. We conclude by pointing out that children properly produced null and lexical subjects depending both on the discourse conditions and on their grammatical competence. In particular, children adopted appropriate discourse related options available in Italian such as the use of the plural null subject with the generic interpretation. This helped them cope with the grammatical pressure otherwise arising in *CILDs* in which both the left dislocated object topic and the preverbal subject were lexically restricted.


Acknowledgements


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”.

Competing interests

The authors have no competing interests to declare.

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TO CITE THIS ARTICLE:

Manetti, Claudia and Adriana Belletti. 2021. Children's subjects in Clitic Left Dislocations in Italian. *Glossa: a journal of general linguistics* 6(1): 48. 1–13. DOI: <https://doi.org/10.5334/gjgl.995>

Submitted: 04 May 2019

Accepted: 18 March 2020

Published: 13 April 2021

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