PRODUCTION OF PASSIVE SENTENCES ACROSS DIFFERENT TASK TYPOLOGIES

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1. Introduction

This study investigates the production of passive sentences by school-aged Italian-speaking children and adults across four different experimental tasks, with two main purposes: first, we want to determine the best conditions that favor the production of passive sentences by speakers in structured contexts; second, by testing 6-to-10 y.o. children, we aim at finding out at what age child use of passive sentences becomes adult-like, and, if so, for which aspects.

Passive sentences have long been the focus of investigation in research on language acquisition. It has been held that the passive structure is mastered late in typical acquisition, around the age of 6. Children perform poorly in experimental tasks that assess comprehension of passive sentences with non actional/psychological verbs (Maratsos et al. 1985 on English; Driva & Terzi 2008 on Greek). Other relevant distinctions concern stative and resultative predicates vs. eventive predicates (Lima Júnior et al. 2018 on Brazilian Portuguese) and short passives, i.e. passives lacking the by-phrase, vs. long passives (Horgan 1978 on English; Rubin 2009 on Portuguese). Messenger et al. (2012) have proposed that although children develop an abstract representation of passive sentences very early, they keep experiencing some difficulties until age 6-7 because passives involve a non-canonical thematic-role mapping, with the constituent carrying the role of patient appearing before the (prepositional) agent, when the agent is expressed.

There have been studies advocating early competence of passive structures. Some evidence comes from priming studies. By conducting a syntactic-priming experiment, Bencini & Valian (2008) elicited passive sentences in 3 years-old English-speaking children. Besides, children exposed to languages where passive sentences are frequent in the input seem to handle passives very early (Demuth et al. 2010 for Sesotho; Lau 2011 for Cantonese). Further evidence for early competence is based on experimental factors: Crain et al. (1987/2009) and O' Brien et al. (2006) observed that when felicitous methodology is adopted and appropriate discourse conditions are satisfied, children as young as three are able to produce verbal passives and to comprehend passives of both actional and stative/psychological verbs. Specifically, in their experiments the production and the comprehension of long passives were facilitated by making potential patients the topic of discourse, and by providing contextual contrast between agents.

With regard to Italian, a few studies have shown that passive sentences are understood and produced accurately by preschool-aged children. Volpato et al. (2013) report that children aged 3;4-3;11 comprehend accurately verbal passives 80.5% of times in a sentence-picture matching task; specifically, a better comprehension of actional verbs is observed, as compared to non actional verbs, in children until 6;2 years; long passives do not differ significantly from short ones. As for the production modality, a picture-description task has elicited passives in children as young as 3;5 years (Volpato et al. 2014). The task consisted in asking patient-oriented questions to the children while they were looking at pairs of pictures: half trials aimed at eliciting long passives, whereby the agent was contrastively focalized and therefore necessary (e.g., *There are two pictures. In the former, Sara is pushing Marco. In the latter, the mum is pushing Marco. What's happening to Marco in the former picture?* ***Target answer:*** *Marco is being pushed by Sara*), the other half trials elicited passives where the agent could be omitted (e.g., *There are two pictures. In the former, Marco is pushing Sara. In the latter, Marco is pushing the mum. What's happening to Sara in the former picture?* ***Target answer:*** *Sara is being pushed (by Marco)*). It turned out that children aged 3;5 to

4;3 correctly produced 14% passives (111/816), both long and short. The study also compared the performance of two age-matched groups of children (5-6 years old): one group had previously been exposed to oral structured input, which was rich in passive sentences (reading aloud activities), while the other group had not been exposed to the same kind of input. Interestingly, the former group produced a considerably higher amount of passives (38%) with respect to the latter (0%).

By using a syntactic priming technique, Manetti (2013) showed that Italian-speaking children master long verbal passives by age 4. Indeed, children were reported to produce a higher amount of passive sentences after being exposed to passive primes (*Il re viene/è picchiato dalla rana*. The king is being hit by the frog) than after being exposed to active primes (*La rana picchia il re*. The frog is hitting the king), as previously found for English (Bencini & Valian 2008). When young children had to describe events in response to patient-oriented questions matched with single pictures (*Che cosa succede al re?* What is happening to the king?) they preferred active pronominal structures like (1). Child production differed from the adult one in this respect, as adults employed passive sentences instead (2). Indeed, the two types of structures share the same discourse-pragmatic properties, whereby the internal argument of the verb is topicalized.

1) (Il re), la mucca lo lecca.
   (The king), the cow is licking him.
2) (Il re) viene leccato dalla mucca.
   (The king) is being licked by the cow.

Children's preference for active pronominal structures in response to patient-oriented questions was also attested in Volpato et al. (2014). As soon as clitic pronouns start to be used consistently, children respond to the experimental question (*Cosa succede a Sara?* What is happening to Sara?) with an active pronominal structure (3b):

3) a. TARGET: (Sara) viene/è spinta da Marco[1].
   (Sara) is being pushed by Marco.
   b. Marco la spinge.
   Marco is pushing her.

Adults carrying out the same task preferably used the targeted passive sentence in place of a pronominal structure. Pivi & Del Puppo (2014) and Del Puppo & Pivi (2015) report similar results in an elicited production study conducted with school-aged children: when having to answer to patient-oriented questions, children preferred to use active pronominal sentences up to 10 years (on average across groups, 63.5% active sentences vs. 20% passive sentences), whereas the adults preferred passive sentences (17% active sentences vs. 67% passive sentences; see also Table 2, Section 3); notice that the experiment was designed to avoid production of active pronominal sentences in place of passive ones[2].

Such difference in performance could be explained in Crain et al.'s (1987/2009) words, by saying that children "evade" the passive unless they are pressed enough, i.e., unless an alternative construction is *not* permissible in the discourse settings.

By contrast, passive sentences have frequently been obtained in experiments eliciting restrictive relative clauses; in such tasks, passive sentences are used in subject relative clauses like (4) in correspondence to stimuli designed to elicit gap object relatives (ORs), (5) (on Italian, Guasti & Cardinaletti 2003, Utzeri 2006,

[1] In Italian, two types of auxiliaries are available for an event passive in the present tense, namely *venire* (come) and *essere* (be); since *venire* is defective, only *essere* is legitimate for periphrastic tenses. Passive sentences formed with *venire* always imply an eventive reading, while predicates built with *essere* may also be interpreted as stative or resultative, unless a by-phrase is present. In Volpato et al. (2014)'s study, the auxiliary *venire* was largely preferred over *essere* in passive sentences, especially in children (*venire*: children 80% vs. adults 52%). In the group of adults, *essere* occurred more frequently than in children (*essere*: children 20% vs. adults 49%). See Volpato et al.'s study for more details.

[2] The task and its results are provided again in Section 3 in order to allow for a comparison with the findings from the other tasks.

2007; Belletti & Contemori 2010; Volpato 2010; Pivi & Del Puppo 2015; Pivi et al. 2016).

4) Mi piace l'elefante che viene sollevato dai nonni.
I like the elephant that is being lifted up by the grandparents.
5) TARGET: Mi piace l'elefante che (i nonni) sollevano (i nonni).
I like the elephant that the grandparents are lifting up.

This special use of passive relatives starts from around age 5, increases considerably around age 8, and becomes the predominant answering strategy in adolescence and adulthood. In addition, the comprehension of passive relative clauses is accurate in children aged 5 to 8, while comprehension of the correspondent object relatives by the very same children is more challenging (Contemori & Belletti 2014; see also Belletti & Guasti 2015).

A syntactic account in terms of avoidance of Relativized Minimality effects (Rizzi 1990, Rizzi 2004, Friedmann et al. 2009) has been proposed to explain why passive relatives are preferably adopted in production and easier to comprehend as compared to ORs in experimental settings (e.g., Belletti 2009, 2014; Belletti & Rizzi 2012, Contemori & Belletti 2014). In gap ORs, the presence of "similar" lexically restricted argument DPs (*Il bambino che la mamma abbraccia*; the child that the mother is hugging) induces a violation of Relativized Minimality (RM) in featural terms, in a stricter fashion in children than in adults. Indeed, the presence of a lexicalized NP (the subject of the relative clause) between the relative antecedent and the embedded position in which it is interpreted (Belletti 2009; Friedmann et al. 2009) would give rise to an intervention effect which makes the computation of object relatives with lexicalized subjects complex for children (4):

4) **Il bambino** [che **la mamma** abbraccia <**il bambino**>]
+R, +NP +NP +R, +NP

According to Belletti (2014), who applies Collins' (2005 and related work) analysis of standard passives in terms of *smuggling*[3], such intervention effect does not arise in passive relatives; for this reason, from an age at which the passive structure is available and mastered by children, passivization constitutes an avoidance strategy, i.e., an optimal way of avoiding intervention. This would explain why passive relatives are comprehended better than their corresponding ORs and are resorted to so widely in elicitation contexts; moreover, it would account for the fact that children make a consistent use of passive relatives instead of gap ORs as soon as the passive structure becomes fully available.

However, these data seem to contrast with data from spontaneous speech: Hamann and Tuller (2014, 2015) showed that a tendency to avoid intervention is in place in spontaneous production of French-speaking children and adolescents aged 6 to 14. In controlled conversations, they hardly ever pronounce non-subject relative clauses showing NP-restricted relative heads and NP-restricted, preverbal embedded subjects. Instead, the most frequent pattern collected in naturalistic speech is the one featuring an (inanimate) restricted relative head and a non-restricted, pronominal embedded subject (e.g., *I am going to watch a DVD that somebody loaned me*). Indeed, in Hamann and Tuller's (2015) oral speech corpus, passive relatives are almost absent; that is, children hardly ever turned a potential OR into a subject one by means of a passive in their spontaneous speech. This result is in line with Belletti and Chesi's (2011) corpus-based analysis of relative clauses, which reports that passive relatives are rarely found in spontaneous speech in Italian. Furthermore, one could hypothesize that the selection of a passive in a relative clause depends on discourse factors: indeed, adults and children tend to maintain the discourse topic introduced in the matrix clause, which always coincides with the relative head (*I like the elephant that...*), as the subject/topic of the subordinate clause (Mak et al. 2008); when the relativized constituent is the

[3] We refer the reader to the cited works for a comprehensive explanation of the smuggling approach to the passive structure.

internal argument of the relative verb, the passive structure allows speakers to realize such discourse function.

In light of these findings, in this work we analyze the use of passive sentences by school-aged children and adults in different experimental conditions and under different discourse and syntactic contexts, in order to evaluate under which circumstances the production of passive sentences is favored. In doing this, we focus on children older than 6 years, for whom less literature is available, and detect some subtle differences that are still in place, as compared to adults.

The paper is organized as follows. Section 2 describes the participants to the study and illustrates the general methodology employed; sections 3, 4, 5 and 6 present the four tasks and report the relative findings; section 7 compares the results obtained across tasks and participants; section 8 discusses the findings; section 9 provides the conclusions.

2. Participants and methods

2.1 Participants

115 typically-developing Italian-speaking children aged 6;3 to 10;4 years participated in a study aimed at eliciting passive sentences, relative clauses, cleft sentences and interrogative sentences (Pivi 2014, Pivi & Del Puppo 2014, Del Puppo & Pivi 2015, Del Puppo et al. 2015, 2016; Pivi et al. 2016). They attended three elementary schools in Venice at the time of testing. 11 university students from Venice and its surroundings took part in the same experiment as a control group. Table 1 reports the age groups involved in the study.

Table 1: Participants taking part in the four production tasks

Age groups	N Participants	Mean Age	SD (months)
G1 (6;3-6;11)	19	6;6	2
G2 (7-7;11)	32	7;4	3
G3 (8-8;11)	27	8;5	3
G4 (9-10;4)	37	9;6	4
G5 (19-30)	11	23;8	46

2.2. Methods

Every participant carried out four tasks. All sentences were elicited by means of a Power Point presentation delivered through a portable computer. Each slide showed one or more pictures, depending on the type of task, and was associated to an audio file to which participants had to reply. Pre-recorded audio material was employed to ensure that all speakers listened to identical oral stimuli uttered by the same speakers. The instructions and the procedure were the same for every participant, except for small practical adjustments that had to be made due to the different ages of our participants. Participants were tested in quiet rooms. Children participated in two experimental sessions, whereas adults were administered the tasks in one session. Passive sentences were collected together with cleft sentences;

relative clauses were collected together with interrogative sentences. The next sections describe each task in more detail and present the relative results.

3. Task 1: Hiding the agent

3.1 Materials and procedure

12 experimental stimuli elicited passives of the following actional verbs: *accarezzare* (caress), *pizzicare* (pinch), *mordere* (bite), *baciare* (kiss), *bagnare* (wet), *appendere* (hang), *fotografare* (photograph), *sgridare* (scold), *pettinare* (comb), *graffiare* (scratch), *strozzare* (strangle), *pescare* (fish). For each item, the participant was shown a coloured picture with the voice of a puppet commenting on it. The puppet asked what was happening to the character depicted in the drawing, which had the role of patient in the event. The agent character was either not visible or only partly depicted, while the ongoing action was clear (Pivi & Del Puppo 2014, Del Puppo & Pivi 2015). Fig. 1 shows an example.

Fig. 1: Sample of experimental picture from Task 1

PUPPET: Ora guarda qui, indovina! Cosa succede alla bambina?
Now look at this one, and guess! What's happening to the girl?
5) TARGET: (La bambina) viene/è sgridata.
(the girl) comes/is scolded
(The girl) is being scolded.

By hiding the agent, we aimed at preventing participants from uttering active sentence containing the agent-subject of the event and a clitic pronoun referring to the topicalized patient (6) (also (3b) in section 1), thus increasing the probabilities of collecting short passive sentences.

6) La maestra la sgrida.
The teacher is scolding her.

Specifically, we wanted to exploit a basic pragmatic function of the passive, namely focusing the agent while topicalizing the patient. After the child's response, he/she was shown the complete picture with the agent performing the action.

As will be explained in next section, however, many participants tried to guess who the agent depicted in the drawings was; as a consequence, a number of long passives and active sentences with overt subjects were collected as well.

3.2 Results

As reported in Table 2, the targeted short passives (e.g. *The girl/She is being scolded*) were collected in every age group in Task 1. Long passives were collected as well (*She is being scolded by the teacher*). Furthermore, active pronominal sentences, which we aimed to avoid, outnumbered passive sentences. Other types of responses concerned causative structures, simple active sentences, ungrammatical sentences, and other types of responses irrelevant for the purposes of this work.

Table 2: Percentages of short and long passives, active sentences with clitic pronouns and other typologies of answers collected in Task 1

Age groups	**Short passives**	**Long passives**	Active pronominal sentences	Other
G1 (6;3-6;11)	**9**	**3.5**	70	17.5
G2 (7-7;11)	**9.5**	**6.5**	62	22
G3 (8-8;11)	**13**	**10**	63	14
G4 (9-10;4)	**19.5**	**8.5**	59	13
G5 (19-30)	**31**	**36**	17	16

Following Dixon (2008) and Jaeger (2008), we analysed the data by means of a repeated-measure logistic regression analysis performed with the statistical software R (R Core Team 2013; version 3.2.1). First, we calculated the change in probability of producing a passive sentence rather than another type of response, by setting subjects and items as random factors and age as covariate. The analysis revealed that the groups of children did not differ from each other. Instead, they produced less short passives than adults, at any age (children vs. adults: 6 years, Wald Z=- 6.967, $p<0.001$; 7 years, Wald Z=- 5.935, $p<0.001$; 8 years, Wald Z=- 4.104, $p<0.001$; 9 years, Wald Z=- 3.732, $p<0.001$), and less long passives (6 years, Wald Z=- 4.009, $p<0.001$; 7 years, Wald Z=- 4.082, $p<0.001$; 8 years, Wald Z=- 3.150, $p=0.001$; 9 years, Wald Z=- 3.325, $p<0.001$).

All groups largely preferred the auxiliary *venire* (come) over *essere* (be) (children: 91% *venire*, 9% *essere*; adults: 87% *venire*, 13% *essere*, out of the total amount of passive structures collected); *essere* was used almost exclusively in the present perfect tense: more specifically, only the adults uttered passive sentences with the auxiliary *essere* in the present tense (7), while children always employed *essere* in periphrastic forms (8):

7) Il bambino è morso da un cane. (23;0)
The child is being bitten by a dog.

8) E' stato morso da un cane. (8;7)
(He) has been bitten by a dog.

Although in Task 1 we tried to avoid the elicitation of active sentences with clitic pronouns referring to the patient, the predominant answering strategy consisted just in such structures. These sentences can be classified into three groups, namely active sentences with lexically-restricted subjects (9), indefinite subjects (10), and third person plural null subjects (11):

9) La mamma la sgrida. (6;5)
Her mother is scolding her.
10) Qualcuno la sta sgridando. (8;8)
Someone is scolding her.
11) La sgridano. (6;8)
(They) are scolding her.

The elicitation of active, pronominal sentences with lexical subjects was probably due to the instructions (*guessing* what was happening to the characters) and to the lead-in uttered by the puppet (*Now look at this one, and guess! What's happening to …?*): such instructions may have induced some participants to guess who the mysterious agent depicted in the drawings was, and therefore to opt either for an active sentence with lexicalized subject, or for a long passive.

However, it was also acceptable to leave the (hidden) agent unspecified: this in turn could be done either by means of a passive lacking the *by*-phrase (the target

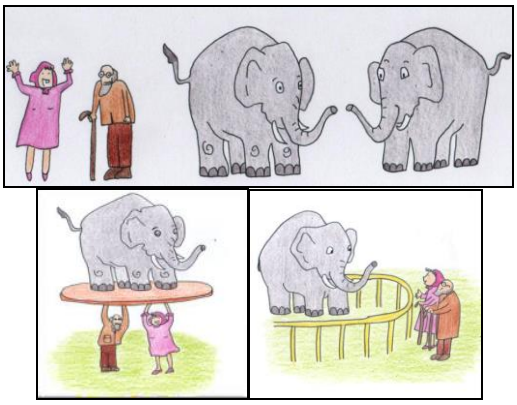
answer), or by resorting to an indefinite agent-subject or an arbitrary null subject, which requires third person plural inflection in Italian.

4. Task 2: The preference task

4.1. Materials and procedure

In order to elicit restrictive relative clauses, a preference task originally made up for Hebrew and adapted for Italian was employed (Novogrodsky & Friedmann 2006, Utzeri 2006, Belletti & Contemori 2010, Contemori & Garraffa 2010, Volpato 2010, Pivi 2014, Pivi & Del Puppo 2015, Pivi et al. 2016)[4]. 12 stimuli were designed to elicit subject relatives (SRs) and 12 to eliciting object relatives. For the present work, we will only refer to the latter, since only object relatives can be turned into passive relatives. The targeted ORs contained two lexically-restricted, animate DPs. Participants were shown a series of slides, each paired with two pictures. For every slide, the voice of a puppet first introduced the characters and then asked participants which character between two possible alternatives he/she liked best (Figg. 2 and 3). Children were told that a puppet that was present in the scenario wanted to know which characters children liked most, so they had to tell him. Following previous literature, two elicitation conditions were used: the "change of action" condition, in which the actions carried out by the same agent-characters were contrasted, as illustrated in Fig. 2 and (12), and the "change of agent" condition, in which the agent-characters performing an action on the patient were contrasted, as shown in Fig. 3 and (13):

Fig. 2. Sample of experimental picture from Task 2 – change of action condition

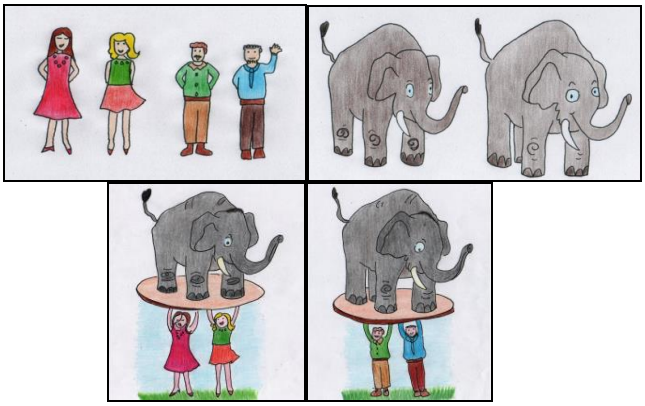


PUPPET: Ci sono due nonni e due elefanti. I nonni, sollevano un elefante, e guardano l'altro elefante. Quale elefante ti piace?
12) TARGET: Mi piace l'elefante che (i nonni) sollevano / guardano.

PUPPET: 'There are two grandparents and two elephants. The grandparents are lifting up one elephant, and staring at the other elephant. Which elephant do you like?'
TARGET: '(I like) the elephant that (the grandparents) are lifting up / staring at'.

Fig. 3. Sample of experimental picture from Task 2 – change of agent condition

4 See Pivi (2014), Pivi & Del Puppo (2015), Pivi et al. (2016) for more detailed information; here, we concentrate on data which are relevant for the present work.



PUPPET: Ci sono due mamme, due papà e due elefanti. Le mamme sollevano un elefante, i papà sollevano l'altro elefante. Quale elefante ti piace?
13) TARGET: (Mi piace) l'elefante che sollevano le mamme / i papà.

PUPPET: 'There are two mums, two dads and two elephants. The mums are lifting one elephant up, the dads are lifting the other elephant up. Which elephant do you like?'
TARGET: '(I like) the elephant that the mums/the dads are lifting up'.

With respect to the previous literature on Italian (Utzeri 2006, 2007; Belletti & Contemori 2010, 2012; Volpato 2010; Contemori & Garraffa 2010; Contemori 2011), we introduced changes in the methodology and in the discourse context (Pivi 2014: 59-66): first, we changed each character whose reference was about to be restricted through the use of a relative clause, picture by picture. In previous literature, the head of the relative clause is always the child. Furthermore, we introduced every character to the participants, as shown in the examples above. Such modifications were meant to avoid strong topicalization of the antecedent of the relative clause in the object condition, which we hypothesized, inspired by work by Mak et al. (2006, 2008), may encourage production of SRs (including passive relatives) instead of ORs in languages like Italian, where syntactic subjects are usually topical. On the contrary, what we tried to do was making the constituents carrying the role of agents more "topic-like", so as to encourage their realization as (embedded) syntactic subjects.

4.2 Results

Task 2 elicited a high amount of passives (14): as said above, passive relative clauses, in which the relative head is the grammatical subject of the passive sentence, often emerge in place of their object relative clauses counterparts (15).

14) Mi piace l'elefante che viene guardato dai nonni. (6;9)
I like the elephant that is being looked at by the grandparents.
15) A me piace l'elefante che i nonni guardano. (7;11)
I like the elephant that the grandparents are looking at.

Other types of responses concerned resumptive relatives, causative relatives, subject relatives, and other answering strategies which are not relevant for the present purposes.

Table 3 compares the amount of passive relative clauses and object relatives produced by participants in the two elicitation conditions (change of action and change of agent) grouped together[5]:

[5] The proportions and typologies of passive relatives employed by participants do not vary with respect to the elicitation condition, except for the use of the by-phrase. In the change of agent condition, which is based on a contrast between agent-characters, the by-phrase is

Table 3: Percentages of passive relative clauses, gap ORs and other types of responses elicited in the preference task, out of the total amount of stimuli

Age groups	**Passive relatives**	Object relatives	Other
G1 (6;3-6;11)	**18**	18	64
G2 (7-7;11)	**20**	28	52
G3 (8-8;11)	**41**	14	45
G4 (9-10;4)	**36**	32	32
G5 (19-30)	**94.5**	2	3.5

Differently from the findings in Task 1, a significant increase in the amount of passives occurred with age in the preference task: specifically, the younger groups of children, namely G1 and G2, did not differentiate from each other, but produced a lower number of passive relatives than G3 and G4 (6 years vs. 8 years: Wald $Z=2.709$, $p<0.01$; 7 years vs. 8 years: Wald $Z=2.403$, $p=0.01$; 6 years vs. 9 years: Wald $Z=2.512$, $p=0.01$; 7 years vs. 9 years: Wald $Z=2.180$, $p<0.05$). The amount of passive relatives produced by the two older groups of children is comparable. Altogether, the data replicate a boost in production of passive relatives around the age of 8 years (Belletti & Contemori 2010, Contemori & Belletti 2014, a.o.). Furthermore, as before, every group of children differs from the adult group in having uttered a lower number of passive relatives (6 years: Wald $Z=-5.084$, $p<0.001$; 7 years: Wald $Z=-4.960$, $p<0.001$; 8 years: Wald $Z=-3.662$, $p<0.001$; 9 years: Wald $Z=-4.041$, $p<0.001$). Note that at the age of 9/10 years, an adult-like performance has not been reached yet. In particular, reduced passive relatives like the one reported in (16) were collected mostly in the adult corpus (adults 22.5%, children 2%).

16) Quello sollevato dalle mamme. (8;8)
The one lifted up by the mothers.

Besides, the choice of the auxiliary verb distinguishes adult from child production: although all groups of participants preferred the auxiliary *venire* over *essere* (children: 25% *venire*, 2% *essere*; adults: 53% *venire*, 19% *essere*, out of the total amount of responses collected), the adults made use of *essere* more frequently, both in the past and in the present tense; children, instead, systematically adopted it for the past tense only. These data are resemble the ones collected in Task 1.

5. Task 3: The correction task

5.1 Materials and procedure

The very same participants have been presented with a correction task eliciting 12 subject and 12 object contrastive cleft sentences, presented in (17a) and (18a), respectively (Hupet and Tilmant 1989; Del Puppo et al. 2015; Del Puppo 2016). Participants were asked to correct the puppets' claims. The puppets provided wrong descriptions of the events depicted in the drawings, either by replacing the agent/subject (Fig. 4) or by replacing the patient/object (Fig. 5) with a character which was not involved in the events.

obligatory (99.5%), whereas in the change of action condition it is not (long passives collected from children: 67%; long passives collected from adults: 89%).

Fig. 4: Sample of experimental picture and stimulus from Task 3 – subject condition

PUPPET A: Qui ci sono tre animali pazzerelli: un uccellino, un elefante e una farfalla.

PUPPET B: E la farfalla solleva l'elefante!

17) TARGET: No, è L'UCCELLINO che solleva l'elefante!

PUPPET A: Here, there are three funny animals: a little bird, an elephant and a butterfly.

PUPPET B: And the butterfly is lifting the elephant up!

TARGET: No, it is THE BIRD that is lifting the elephant up!

Fig. 5: Sample of experimental picture and stimulus from task 3 – object condition

PUPPET A: Qui ci sono tre animali birichini: una capra, un gatto e un pulcino.

PUPPET B: E il gatto spinge il pulcino!

18) TARGET: No, è LA CAPRA che il gatto spinge!

PUPPET A: Here, there are three naughty animals: a goat, a cat and a chick.

PUPPET B: And the cat is pushing the chick!

TARGET: No, it is THE GOAT that the cat is pushing!

Notice that in such contexts, the use of non-cleft sentences with corrective focalization are also available in Italian, as in (17b) and (18b)[6].

(…)

[6] For this reason, in order to encourage speakers to produce contrastive cleft sentences as opposed to non-cleft focalization structures, we manipulated the elicitation technique by having half participants per each age-group listen to additional cleft primes; specifically, puppet A replied to puppet B by using an emphatic cleft sentence:

(…)

PUPPET B: And the butterfly is lifting the elephant up!

PUPPET A: Yes, it is the butterfly that is lifting the elephant up!

TARGET: No, it is THE BIRD that is lifting the elephant up!

(…)

PUPPET B: And the cat is pushing the chick!

PUPPET A: Yes, it is the chick that the cat is pushing!

TARGET: No, it is THE GOAT that the cat is pushing!

In the end, we came up with two slightly different versions of the same task, namely the "priming" and the "non priming" versions. In this paper, we provide the general results of Task 3 without distinguishing between the productions of the two groups of participants (but see footnote 7 and 8).

PUPPET B: And the butterfly is lifting the elephant up!
17b) No, THE BIRD is lifting the elephant up!
TARGET: No, it is THE BIRD that is lifting the elephant up!
(…)
PUPPET B: And the cat is pushing the chick!
18b) No, the cat is pushing THE GOAT!
TARGET: No, it is THE GOAT that the cat is pushing!

In this type of context, passive structures are acceptable in both the subject and the object condition, with some relevant differences. In the former case, non-cleft passives allow one to focalize the agent by means of a *by*-phrase, while the patient is a topicalized subject:

(…)
PUPPET B: E la farfalla solleva l'elefante!
19) PASSIVE CORRECTION: No, l'elefante viene sollevato dall'uccellino!

(…)
PUPPET B: And the butterfly is lifting the elephant up!
PASSIVE CORRECTION: No, the elephant is being lifted up by the bird!

In the latter condition, it is the patient that needs to be focalized; in a passive structure, this can only be done by turning the focalized patient into a subject, passivized constituent; in Italian, this can be realized in both a cleft and a non-cleft sentence:

(…)
PUPPET B: E il gatto spinge il pulcino!
20) PASSIVE CLEFT CORRECTION: No, è LA CAPRA che viene spinta dal gatto!
21) PASSIVE NON CLEFT CORRECTION: No, LA CAPRA viene spinta dal gatto!

(…)
PUPPET B: And the cat is pushing the chick!
PASSIVE CLEFT CORRECTION: No, it is THE GOAT that is being pushed by the cat!
PASSIVE NON-CLEFT CORRECTION: No, THE GOAT is being pushed by the cat!

5.2 Results

Table 4 and Table 5 summarize the findings of Task 3, for the subject and the object condition, respectively.

Table 4: Percentages and typologies of sentences collected in Task 3; subject condition.

Age groups	Cleft sentences	Focalization in main clauses	**Passive corrections**	Other
G1 (6;3-6;11)	46	46	**0**	8
G2 (7-7;11)	53	36	**0**	11
G3 (8-8;11)	48	42	**0**	10
G4 (9-10;4)	60	30	**0**	10
G5 (19-30)	54	35	**5**	6

Table 5: Percentages and typologies of sentences collected in Task 3; object condition.

Age groups	Cleft sentences	Focalization in main clauses	**Passive corrections**	Other
G1 (6;3-6;11)	1	87	**0**	12
G2 (7-7;11)	1	84	**0**	15
G3 (8-8;11)	1	86	**0**	13
G4 (9-10;4)	1.5	85	**1**	12.5
G5 (19-30)	0	95	**0**	5

Corrections in passive sentences were exploited very rarely by speakers. Children between 6 and 8 years did not produce any passive at all in Task 3. Three older children used passives sporadically and exclusively in the object condition (1%)[7]. As a whole, 4 passive clefts (22) and 2 passive sentences in main clauses (23) were uttered by children.

(…)
PUPPET A: Eh sì, sono proprio gli scoiattoli che la giraffa pettina!
22) No, sono GLI ORSI che vengono pettinati dalla giraffa! (9;6)

PUPPET A: Yes, it is the squirrels that the giraffe is combing!
No, it is the BEARS that are being combed by the giraffe!

PUPPET A: Eh sì, è proprio il pulcino che il gatto spinge!
23) LA CAPRA viene spinta dal gatto. (10;4)

PUPPET A: Yes, it is the chick that the cat is pushing!
THE GOAT is being pushed by the cat.

Conversely, adults did not produce any passive correction in the object condition, while they produced passive sentences 5% of times in the subject condition (24)[8]:
(…)
PUPPET B: E le farfalle colpiscono la pecora.
24) No, la pecora viene colpita dai gatti. (21;0)

PUPPET B: And the butterflies hit the sheep.
No, the sheep is being hit by the cats.

As for the auxiliary verb, *essere* never appeared in passive corrections.

Despite the similarities shared by relative clauses and cleft sentences (presence of the complementizer *che*, antecedent related to a gap in the subordinate clause, presence of a lexicalized NP (the subject of the cleft clause) between the antecedent and the embedded position in which it is interpreted in object clefts, giving rise to potential RM effects), the very same participants who produced passive relative clauses instead of object relatives did not utter any passive cleft sentence in place

[7] Passive corrections were uttered by three children who had taken part to the "priming" version of Task 3 (cf. footnote 6).
[8] Two adults produced passive corrections. They belonged to the "non priming" version of Task 3 (cf. footnote 6).

of its correspondent object cleft. In fact, participants largely preferred to use their non-cleft, active, SVO counterpart (18b) to carry out the correction task. In the subject condition, they employed either subject cleft sentences or their non cleft counterparts (17b).

6. Task 4: Asking a question

6.1 Materials and procedure

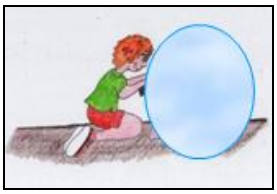
In order to elicit interrogative sentences, participants were administered a task adapted from Guasti et al. (2012), which induces production of subject and object *who*-questions (Del Puppo 2016; Del Puppo et al. 2016). The targeted questions (Wh V DP questions) are potentially ambiguous in Italian, because they contain a singular verb agreeing with either the *wh*-element, thus giving rise to a subject question (25), or a singular postverbal DP, thus giving rise to an object question with postverbal subject (26). Participants had to ask a question to a foreign puppet that was present in the experimental setting, in order to discover who was hidden behind some coloured circles/ellipses; the puppet was the only one to know the answers. Each participant was exposed to 6 stimuli belonging to the subject condition (Fig. 6) and to 6 stimuli belonging to the object condition (Fig. 7).

Fig 6: Sample of experimental picture from the task eliciting questions - subject condition

PUPPET: Qui qualcuno sta pettinando un bambino, e forse Poldo sa chi. Chiedilo a lui.
25) TARGET: Chi sta pettinando il bambino?

PUPPET: Here, someone is combing a boy, and maybe Poldo knows who. Ask him who!
TARGET: Who is combing the boy?

Fig 7: Sample of experimental picture from the task eliciting questions - object condition



PUPPET: Qui un bambino sta pettinando qualcuno, e forse Poldo sa chi. Chiedilo a lui.
26) TARGET: Chi sta pettinando il bambino?

PUPPET: Here, a boy is combing someone, and maybe Poldo knows whom. Ask him whom!
TARGET: Whom is the boy combing?

In this task, passive questions may be employed in both the subject (27) and the object condition (28), in questions with different properties (e.g., questions with dislocated DP, cleft questions).

TARGET: Chi sta pettinando il bambino?
27a) PASSIVE QUESTION: Da chi viene pettinato il bambino?
27b) PASSIVE QUESTION WITH LEFT-DISLOCATION: Il bambino, da chi viene pettinato?

TARGET: Who is combing the boy?
PASSIVE QUESTION: By whom is the boy being combed?
PASSIVE QUESTION WITH LEFT-DISLOCATION: The boy, by whom is (he) being combed?

TARGET: Chi sta pettinando il bambino?
28a) PASSIVE QUESTION: Chi viene pettinato dal bambino?
28b) PASSIVE CLEFT QUESTION: Chi è che viene pettinato dal bambino?

TARGET: Whom is the boy combing?
PASSIVE QUESTION: Who is being combed by the boy?
PASSIVE CLEFT QUESTION: Who is it that is being combed by the boy?

Similarly to the correction task, in the subject condition the agent is expressed by a focalized *by*-phrase, which gets questioned; in the object condition, it is the patient that gets questioned by being turned into a subject.

6.2 Results

The main findings from Task 4 are illustrated in Table 6 and Table 7, for the subject and the object condition, respectively.

Table 6: Percentages and typologies of answers in Task 4, subject condition

Age groups	Wh V DP	Cleft questions	**Passive questions**	Other
G1 (6;3-6;11)	51	40	**0**	9
G2 (7-7;11)	47	25	**0**	28
G3 (8-8;11)	42	32	**2**	24
G4 (9-10;4)	40	45	**0**	15
G5 (19-30)	68	9	**23**	0

Table 7: Percentages and typologies of answers in Task 4, object condition

Age groups	Wh V DP	Cleft questions	**Passive questions**	Other
G1 (6;3-6;11)	40	21	**0**	39
G2 (7-7;11)	28.5	13	**2**	56.5
G3 (8-8;11)	30	16	**1**	53
G4 (9-10;4)	35	26	**5**	34
G5 (19-30)	86	0	**3**	11

The amount of passive questions collected is low. The youngest children did not produce any passive in their questions, whereas children from 7 years on did, albeit rarely, in both experimental conditions, as in the following examples.

29) Il bambino, da chi viene pettinato? (8;1)
The child, by whom is (he) being combed?
TARGET: Who is combing the child?

30) Chi viene accarezzato dal bambino? (9;6)
Who is being caressed by the boy?
TARGET: Whom is the child combing?

As a whole, adults used passive interrogative sentences 13% of times, much more frequently in the subject condition (23%) than in the object condition (3%).

As regards the type of auxiliary verb employed, *venire* was again highly predominant, in both children and adults. Just like what we found in Task 1 and Task 2, the auxiliary *essere* was adopted in the present tense exclusively by adults, and by one single child in the periphrastic form of the past tense.

In addition to the targeted "Wh V DP" interrogative sentences and passive questions, participants have frequently used cleft questions (31); other responses were embedded questions (32) and questions with topicalized (33) or null (34) subjects, or responses that we considered incorrect.

31) Chi è che pettina il bambino? (6;5)
Who is it that is combing the child?
32) Sai chi sta pettinando il bambino? (7;11)
Do you know who is combing the child?
33) Il bambino, chi saluta? (7;0)
The child, whom is he greeting?
34) Chi sta inseguendo? (7;3)
Whom is (he) chasing?

7. Summarizing the results. A look at the single participants.

In this section, we first summarize the results of the four tasks, focusing on the production of passive sentences. Then, we analyse the production of passive sentences by the single participants taking part in the experiment.

Table 8 compares the total amount of passive sentences collected in the four tasks: it collapses the findings of the various experimental conditions and considers only the conditions where a passive sentence could be employed.

Table 8: Percentages of passive sentences collected in the four tasks

Age groups	Task 1 Hiding the agent	Task 2 Preference Task	Task 3 Correction Task	Task 4 Asking a question
G1 (6;3-6;11)	12.5	18	0	0
G2 (7-7;11)	16	20	0	1
G3 (8-8;11)	23	41	0	1
G4 (9-10;4)	28	36	1	2
G5 (19-30)	67	94.5	3	13

The highest amount of passive sentences was collected in Task 2, which is followed by Task 1; Task 4 and Task 3 provided a very small amount of passive sentences.

More specifically, within-groups statistical analyses reveal that the probability of producing a passive sentence rather than another type of response is higher in the preference task as compared to the task on the hidden agent (Wald Z=3.743, p<0.001); this is borne out for all groups, except for G2 (G1: Wald Z=2.270, p<0.05; G3: Wald Z=4.628, p<0.001; G4: Wald Z=2.860, p<0.01; G5: Wald Z=3.971, p<0.001); G2 produced a comparable amount of passives in the two tasks.

Having tested the very same speakers in different tasks, it is possible to investigate how the single speakers behaved across tasks, as concerns the production of passive structures. By analysing the productions of every child, we found out that those children who produced passive questions and passive corrections also exploited passives in other structures, when carrying out the other tasks. Table 9 illustrates the number of passive structures elicited by these 10 children.

Table 9: Raw numbers of passives elicited in the tasks by the same children

Children	Age	Task 1 Hiding the agent (N 12)	Task 2 Preference Task (N 12)	Task 3 Correction Task (N 24)	Task 4 Asking a question (N 12)
C1	7;6	12	11	0	3
C2	8;1	0	6	0	1
C3	8;1	10	12	0	3
C4	8;0	3	11	0	1
C5	8;8	1	11	0	1
C6	9;2	1	11	0	3
C7	9;6	1	12	3	3
C8	9;6	12	8	1	2
C9	10;0	12	11	0	1
C10	10;4	9	10	2	1

Interestingly, some sort of implication relation can be detected: the only three children that produced passive corrections in Task 3 also produced passive interrogative sentences in Task 4. In turn, the ten children that employed at least one passive interrogative sentence in Task 4 consistently employed passive relatives in the Preference Task. By contrast, the use of a passive sentence in Task 1 does not seem to hinge upon using a passive structure in other contexts. Moreover, 45 children adopted passive structures only in Task 2, which suggests that the preference task was the best one to elicit passive sentences.

Adults behaved similarly: those speakers who produced passive corrections in Task 3 also produced passive structures in all the other tasks. The speakers that employed passive interrogative sentences in Task 4 uttered passive sentences in Task 1 and Task 2. The only adult participant who produced passive structures in one single task, did so in Task 2.

8. Discussion

All experimental tasks considered in this study allow one to employ a passive structure. When a patient-oriented question is asked (Task 1), children rely on short passives (*The girl/She is being scolded*) to describe events where the agent is unknown. However, the very same pragmatic function is realized in Italian by two other types of active sentences, namely sentences with indefinite agents/subjects (*Someone is scolding her*) and sentences with 3rd person plural arbitrary null subjects (*They are scolding her*). Children carrying out the experiment have correctly exploited both types of answers; in doing so, they used a clitic pronoun

referring to the topicalized patient constituent, thus showing to possess fine discourse-pragmatic abilities. Nevertheless, the task instructions could be interpreted in a different way: having to guess what was happening to a character involved in an event where the action was clear but the agent was hidden, many participants tried to guess who the mysterious agent carrying out the action was. In such cases, children and adults have used two additional types of sentence, namely long passives (*The girl is being scolded by the teacher*) and active sentences containing a lexicalized agent and a clitic pronoun referring to the patient (*The teacher is scolding her*). As before, such productions indicate that children from at least 6 y.o. are very sensitive to the discourse context and are aware of the fine properties of passives: long passives, just like clitic pronouns in active sentences, can be conceived as a means to maintain topic continuity while at the same time placing the agent, which represents new information, in sentence-final position, where new information is typically encoded in Italian. Thus, school-aged children exhibit knowledge of different properties of passives, depending on how they understand the task, and employ the same answering strategies utilized by adults. Yet, at 10 y.o. they still overall prefer active alternatives to passive structures, just like younger children (Manetti 2013; Volpato et al 2014), while the opposite pattern characterizes adults' responses.

In the preference task, passives are employed to a greater extent by the same participants and show development. As attested in the literature, passive relative clauses (*I like the elephant that is being lifted up by the grandparents)* are frequently used in experimental tasks where object relatives are expected (*I like the elephant that the grandparents are lifting up*). The higher amount of passives collected in Task 2 as compared to Task 1 could be ascribed to different factors, namely syntactic factors, and/or discourse/pragmatic factors. From a syntactic point of view, the use of a passive sentence in place of an OR in Task 2 avoids a Relativized Minimality violation, caused by the presence of a lexicalized NP (the subject of the relative clause) between the relative antecedent and the embedded position in which it is interpreted (Belletti 2009; Friedmann et al. 2009). Such intervention effect is absent in passive relatives; therefore, children would predominantly resort to passive relatives in Task 2 as an answering strategy to avoid intervention effects; such an avoidance strategy is not needed in Task 1. From a pragmatic point of view, though, Task 2 satisfies the best discursive conditions for passive sentences, by inducing, in embedded contexts, the production of sentences containing patient discourse topics, and by providing contextual contrast between agents in the change of agent condition, where long passives are indeed more frequently exploited (cf. footnote 5) (Crain et al. 1987/2009, O' Brien et al. 2006, Mak et al. 2008); in the change of action condition, the agent can be omitted, such that short passives are suitable. These findings might indicate that the high amounts of passive relatives usually collected in elicited production experiments on relative clauses are at least in part a by-product of the discourse settings. Such approach is supported by the rarity with which passive relatives occur in spontaneous language (Belletti & Chesi 2011, Hamann and Tuller 2015).

Cleft sentences structurally behave like relative clauses, especially as far as the object condition is concerned. In object clefts with preverbal lexicalized subjects, like those targeted in the correction task (*It is THE GOAT that the cat is pushing!*), the very same interference effect characterizing object relatives occurs. Nevertheless, the passivization strategy (*It is THE GOAT that is being pushed by the cat!*) has hardly ever been used in the correction task eliciting clefts. Moreover, participants employed the passive structure in the subject condition, where intervention does not occur at all, to contrastively focalize the agent (long passive: *The elephant is being lifted up by the bird!* rather than *It is THE BIRD that is lifting the elephant up!*). We attribute the almost total absence of object and passive cleft sentences collected in this task to two factors: first, structural competition, given the availability of simpler, canonical SVO sentences to be used instead of object clefts; second, the preference for passivizing discourse-topic antecedents (as in Task 1 and Task 2) as compared to focused antecedents, which could explain why participants produced more passive sentences in the subject condition in Task 3, where the subject is topicalized and the *by*-phrase contains the (correction) focus.

Likewise, passives were rarely used in the task eliciting who-questions: they occurred in both experimental conditions, more frequently to question a by-phrase in the subject condition and predominantly by adults (subject condition: *By whom is the child being combed?* Object condition: *Who is being combed by the child?*). Again, the rarity with which passive questions were produced could hinge upon the availability of active structures in main clauses (simple Wh V DP questions, questions with null or dislocated subjects), and, in the object condition, upon the presence of a focused, questioned antecedent for the passive predicate.

Across tasks, the groups of children differed from the adults quantitatively and qualitatively, since adults exploited passive structures more frequently and flexibly: in particular, they made use of passives in various circumstances (the subject conditions in Task 3 and Task 4), they often employed reduced passives in Task 2, and, finally, they selected the auxiliary *essere* more frequently than children, also in the present tense.

Therefore, we could state that at 9-10 years, children's performance still subtly deviates from the adult one, despite the fact that children already have knowledge and competence of passive structures from both a syntactic and a pragmatic point of view.

Finally, we pointed out that some older children correctly employed passive structures in every task, and that the participants that employed passive structures in correction sentences and in interrogative sentences also did so in relative clauses, while the opposite is not mandatory, i.e., some participants employed passive structures only in Task 2. These data further prove that eliciting object restricted relative clauses is the best instrument to collect passive sentences.

9. Conclusions

In structured experimental tasks, the choice of a passive sentence depends on various factors. The elicitation of a passive structure is favoured in subordinate contexts provided a simpler, canonical alternative is not available. Specifically, passivization is predominant in relative clauses, when the antecedent is the internal argument of the embedded verb and the discourse topic. In matrix clauses, a plausible passive sentence is often replaced by other types of active sentences, depending on the task and its discourse settings. Situations in which the passive is uniquely felicitous are rare and whenever a passive sentence is a matrix clause, it is possible to find an acceptable active counterpart in the Italian language. Among the four tasks described in the present work, this is particularly evident in the one with the hidden agent, where the choice between using a passive sentence or not was arbitrary. However, adults employ passive structures more frequently than school-aged children, and more often as compared to the active counterparts when a patient-oriented question is presented to them. Overall, whenever school-aged children until 9-10 years can exploit an active sentence, this is preferred over a passive one, with some exceptions for the case of relative clauses.

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