On the production of passives in Italian: evidence from an elicited production task and a syntactic priming study with preschool children

Claudia Manetti
University of Siena

We present a study exploring the production of passives with Italian-speaking children, under priming and non-priming conditions. First, we will report the results from an elicited production task (Exp. 1), in which 3- and 4-year-olds exhibited a strong preference for pronominalised structures (e.g. *La mucca lo lecca* 'the cow him.Cl licks) to answer patient-oriented questions and produced no passives, in contrast to adult controls who opted for periphrastic passives under the same experimental condition. Then, two further groups of 3- and 4-year-olds (3;6 to 4;6) participated in a syntactic priming study (Exp. 2 and 3) in which they were first exposed to active and passive sentences in the prime and then described unrelated transitive actions. Results showed significant syntactic priming effect for active and passive sentences, both with verbal passive morphology (Exp. 2: passive auxiliary *venire* 'to come') and copular passive morphology (Exp. 3: passive auxiliary *essere* 'to be'). Taken together, our results indicate that Italian children preferentially use pronominalised structures to topicalise the patient in spontaneous production, in contrast to adults' use of passives. However, the syntactic priming study revealed that, under appropriate experimental conditions, Italian-speaking children can master long verbal passive syntax by age four, as previously found in English (e.g. Bencini and Valian 2008).

1. Introduction[1]

Extensive research on child language acquisition has shown that children attained adult-like competence of the passive around the age of 5 or 6. Further, comprehension studies have reported that children comprehended the passive of action verbs earlier than the passive of psychological verbs (e.g. Maratsos et al.1985; Hirsh and Wexler 2006); Spontaneous production analyses showed that in English early passive production consists of short *get*-passives of action verbs, and adult-like passive production emerged only at a later stage in development. These findings together have been interpreted as evidence that children, before the age of 5 or 6, do not possess adult-like competence of verbal passive syntax (e.g. Borer and Wexler 1987 and subsequent work; see also Hyams and Snyder 2005, 2006). The delay in acquiring the passive has been observed in a number of comprehension and production studies across languages (e.g English - Maratsos et al. 1985; Borer and Wexler 1987; Hirsh and Wexler 2006; German - De Villiers 1984, Spanish - Pierce 1992, Hebrew - Berman 1985; Greek - Terzi and Wexler 2002; Dutch - Verrips 1996; Japanese, Sugisaki 1997; Serbian - Djurkovic 2005; Italian - Volpato et al. 2011).

However, evidence about children's competence of passive syntax is not homogenous, in fact further comprehension and production studies have reported good competence with passive syntax, both in English (see O'Brien et al. 2006; Crain et al. 1987/2009) and in other languages (e.g. Sesotho, Demuth et al. 2010). First, there are some languages in which the passive emerges in spontaneous speech from a very early stage (e.g Sesotho - Kline and Demuth 2010; Zulu - Suzman, 1987; Inuktitut, Allen & Crago, 1996; Mayan K'iche, Pye, 1988; but see Crawford 2004 for an alternative analysis of Sesotho passive acquisition). The findings from spontaneous speech analysis in Sesotho were also confirmed by comprehension and elicited production data (Demuth et al. 2010), which showed that Sesotho-speaking children were able to comprehend and

---

produce the passive, by the age of three (see also Lau 2011 for early comprehension in Cantonese).

Moreover, further evidence in support of early passive competence also comes from studies with English-speaking children, who showed good performances in the comprehension and production of long passives from the age of three (O'Brien et al. 2006 for comprehension data; Crain et al. 1987/2009 for production data). Interestingly, in both studies, the experiments were designed with the aim of providing a felicitous discourse context for the use of the *by*-phrase; in particular English-speaking children were able to understand (see O'Brien et al 2006) and produce full verbal passive from the age of three (Crain et al. 1987/2009) in a context in which the *by*-phrase conveyed new/contrastive information focus.

Interestingly, findings from syntactic priming studies provide further evidence for early competence of passive in young children. This paradigm induced the production of passives by exploiting the speaker's tendency to reuse a structure previously experienced (Bock 1986). In syntactic priming experiments, English-speaking children were exposed to active and passive primes and then asked to describe transitive actions. The results showed that from the age of three children were able to produce passives after being exposed to passive primes (e.g. Whitehurst et al. 1974; Huttenlocher et al. 2004, Shimpi et al 2007; Bencini and Valian 2008; Messenger et al. 2011; Messenger et al. 2012; but see Savage et al. 2003 and Savage et al. 2006).

Taken together, these studies shed light on different aspects of children's linguistic knowledge of passives, showing that 3- and 4-year-olds were able to produce and comprehend long verbal passives, and were also sensitive to the pragmatic context in which the passive was either produced or comprehended (Crain et al 1987/2009; O'Brien et al 2006). In sum, children show to acquire the passive later than the active verb. However, a growing body of research has been throwing light on early syntactic competence providing evidence that, by age four, children possess some knowledge of verbal passive syntax.

As regards the acquisition of Italian passive, a series of studies has shown that Italian children attained adult-like comprehension of action verb passives around the age of 5, in line with cross-linguistic findings (Chilosi and Cipriani 1995; Ciccarelli 1998; Volpato et al. 2011). A recent study from Volpato et al. (2011) tested the comprehension of copular and periphrastic passive structures (*venire*-passive) using a picture-sentence matching task, and showed that children's comprehension improved with age, varying from 62% at 3 y.o to 87% at 5 y.o. Moreover, the comprehension was more accurate with passives of action verbs than with passives of non-action verbs in line with cross-linguistic results (e.g Greek, Driva and Terzi 2008; English, Hirsh and Wexler 2006). They also observed no significance difference in the comprehension of long and short passives; and no difference emerged between the comprehension of *venire* (to come) and *copular* passives.

As concerns the production of passives in laboratory settings, another recent study from Volpato et al. (2012) tested the production of passives with Italian-speaking children aged from 3;5-6;2, using patient-oriented questions. The child was presented with two pictures, featuring the same patient but different agent characters; the aim was that of providing a felicitous context for the elicitation of a long verbal passive (in the spirit of Crain et al. 1987). The child was then asked to describe the picture in response to patient-oriented questions. Children's answers included SVO-active sentences, passives and structures with clitic pronouns. They also observed that those children that produced the passive did not use any of the other strategies, showing individual variability in the use of passives.

2. The present study

Our study aims at providing further insights into the acquisition of passives, by exploring the production of periphrastic passives with Italian preschool children, before the age of five. In particular, we report the results from three experiments conducted with Italian-speaking children, aged from 3;6 to 4;6, in which we examined the production of passives by using two picture-description tasks. The description of transitive actions was measured adopting the following designs: an elicited production task (Experiment 1) and a syntactic priming paradigm (Experiments 2 and 3).

In Experiment 1, children and adult controls described transitive actions, depicted on a set of cards, in response to neutral (*Che cosa succede*? 'What is happening?') and patient-oriented questions (*Che cosa succede a X*? 'What is happening to X*patient*?')[2]. In Italian, patient-oriented questions could elicit two felicitous structures, which both topicalise the internal argument (patient), a *passive* or a *pronominalised structure* (e.g. *clitic left dislocation*). To this respect, we were interested in examining children's and adults' answers in a neutral context and in the patient-oriented condition.

In Experiments 2 and 3, we aimed at examining the production of passives using a syntactic priming paradigm: children were first exposed to passive and active primes and then asked to describe transitive actions. We then analysed whether the exposure to passive primes would increase the likelihood of producing that structure in the following target descriptions, as previously emerged with English-speaking children (e.g. Bencini and Valian 2008).

3. Elicited Production Task: Experiment 1

3.1. Method
3.1.1 Participants

A group of 12 children, aged between 3;5 and 4;6 months (mean age = 4;0) participated in this study. The children were recruited in a nursery school in Montespertoli (Florence) and were all Italian monolingual, with no language or developmental impairment. A control group of 12 Italian-speaking adults was also tested. Adult participants were students of the university of Siena, aged from 20 to 27.

3.1.2 Materials

This study was carried out using a set of 24 cards representing 8 transitive actions performed by pairs of animal and human characters. The transitive verbs (*schiacciare* 'squash', *prendere* 'take', *mordere* 'bite', *lavare* 'wash', *catturare* 'catch', *graffiare* 'scratch', *spingere* 'push', *leccare* 'lick') were depicted three times each with different character pairs.[3] The characters consisted of 8 animals playing the agent role (*leone* 'lion', *cane* 'dog', *rana* 'frog', *cavallo* 'horse', *maiale* 'pig', *elefante* 'elephant', *tigre* 'tiger', *mucca* 'cow'), and 8 human beings playing the patient role (*fata* 'fairy', *strega* 'witch', *infermiera* 'nurse', *ladro* 'robber', *pompiere* 'fireman', re 'king', *dottore*

---

[2] As in previous studies, the elicitation of passives has been usually carried out by having participants describe a transitive action in a neutral context (see Horgan 1978), or asking to talk about the patient of a transitive action (e.g Turner and Rommetveit 1967; Pinker et al. 1987; Demuth et al. 2010). These experiments revealed that, by age four, English-speaking children tended to select the passive for talking about the patient; their early production mainly consisted of short *get*-passives (e.g Baldie 1976; Pinker et al. 1987) and the production converged to adult-like performance only at a later stage of their development, around the age of seven-eight years.

[3] These transitive verbs were also depicted in the target cards of the priming experiments (see paragraph 4.1.3), since we aimed at comparing children's descriptions of the same transitive verbs across two different experimental settings (presence vs. absence of syntactic priming).

'doctor', *clown* 'clown'). The cards were introduced by 24 questions, presented in individually randomised order.

The stimuli consisted of 8 neutral questions (*che cosa succede?* 'what is happening?'), 8 agent-oriented questions (*che cosa fa X*? 'what is X_{agent} doing?') and 8 patient-oriented questions (*che cosa succede a X*? what is happening to $X_{patient}$?). Neutral questions served as the baseline condition for the description of the scene in general (neutral context). In contrast, agent-oriented and patient-oriented questions respectively introduced the agent and the patient in the context, thus making the *agent* or the *patient* the topic. Agent-oriented questions aimed at eliciting an active (Subject)-Verb-Object structure. Instead, patient-oriented questions (1a) could induce the production of two possible answers, either a passive structure as in (1b), or an active structure with a clitic pronoun (see 1c and 1d). Notice that in the latter case, the topic object could be either overt (1c), giving rise to a clitic left dislocation (henceforth ClLD), or omitted as in (1d). Figure 1 shows an experimental card (a cow licking a king), and the examples (1b-1d) report the expected answers after a patient-oriented question (1a).

(1a) Question: Che cosa succede al re?
　　　　　　　What is happening to the king?
(1b)　Answer: (Il re) viene/è leccato dalla mucca
　　　　　　　(The king) comes/is licked by the cow
(1c)　Answer: Il re, la mucca lo lecca
　　　　　　　The king, the cow him.Cl licks
(1d)　Answer: La mucca lo lecca
　　　　　　　The cow him.Cl licks

Figure 1

We created three main lists in which each verbs was used under the three experimental conditions. Each child was asked 24 questions presented in random order. At the beginning of each session, we also included a warm-up phase, consisting of 4 trials.

3.1.3 Procedure

Children were tested individually in a quiet room at school, and each session lasted about six to eight minutes. Before starting the experiment, children were told to help the experimenter describe the pictures. Then, they were showed one picture at a time and asked to answer the experimenter's question. The session started with a warm-up phase for explaining the task and making the child feel comfortable. When children did not answer the question, the experimenter repeated the same question again. If no response was given, the experimenter continued with the following trial. Adults were tested in a quiet room of the university of Siena and each session lasted about three minutes. Adult participants were asked to look at each picture and then answer the experimenter's question. Children's and adults' productions were audio-recorded and then transcribed.

3.1.4 Coding

Children's and adults' responses were coded as a) *Active-(S)VO* if containing an overt or null subject + active transitive verb + direct object (full NP); b) *Pronominalised structures*, if containing an (direct or indirect) object clitic pronoun + active verb; c) *Passives* if containing a subject (patient) + passive auxiliary (*to come* or to *be*) + past participle + *da* (by) + oblique object (agent); finally the *Other* category included intransitive verbs, copulas, NPs.

3.2 Results

Children's responses consisted of 278 sentences: 135 *Active-(S)VO* responses, 119 *Pronominalised structures* and 24 *Other* responses. Ten answers were missing since children did not provide any response. Table 1 presents the children's answers after each question type:

QUESTION TYPE	Actives (S)VO	Pronominalised Structures	Passives	Other
Agent-oriented	61 (65%)	24 (25%)	0	9 (10%)
Patient-oriented	24 (26%)	62 (67%)	0	6 (7%)
Neutral	50 (54%)	33 (36%)	0	9 (10%)

Table 1: Children's production

After agent-oriented questions, children used 61 *active-(S)VO* structures (65%), 24 *pronominalised structures* (25%) and 9 *other* responses (10%). After patient-oriented questions, answers consisted of 24 *active-(S)VO* structures (26%), 62 *pronominalised structures* (67%) and 6 *other* responses (7%). Finally, neutral questions elicited 50 *active-(S)VO* structures (54%), 33 *pronominalised structures* (36%) and 9 *other* responses (10%). Thus, children preferred *active (S)VO* sentences to talk about the agent and the scene in general, in contrast they selected a pronominalised structure (clitic + verb) when the patient was the discourse topic, and produced no passives.

Adults produced 285 sentences: 174 *Active-(S)VO* responses, 3 *Pronominalised structures*, 99 *Passives*, and 9 *Other*. Three responses were discarded because of the experimenter's mistakes. Tables 2 shows how adult production was distributed across conditions:

QUESTION TYPE	Actives (S)VO	Pronominalised Structures	Passives	Other
Agent-oriented	92 (97%)	0	0	3 (3%)
Patient-oriented	5 (5%)	3 (3%)	85 (90%)	2 (2%)
Neutral	77 (81%)	0	14 (15%)	4 (4%)

Table 2: Adults' production

Adults chose active (S)VO sentences (92, 97%) after agent-oriented questions; 77 (81%) active SVO sentences and 14 (15%) passives were instead produced after neutral questions. In contrast to children, adults controls preferred the periphrastic passive (both copular and *venire*-passives) to answer patient-oriented questions (85, 90%), and we only found 3 pronominalised structures.

In sum, after the agent-oriented and neutral conditions, both Italian children and adults preferred active-(S)VO structures[4]. Notice that children also produced some

---

[4] Children tended to use null and overt subjects in an adult-like way: they tended to use null subjects in the agent-oriented condition (old information), and full NP subject in the neutral condition (new information) (see Serratrice's (2005) work on early mastery of null vs overt subjects in Italian).

pronominalised structures[5], and adults produced some passives when asked to describe the scene in general (15%).

The main result from this first experiment indicates that, in the attempt of eliciting the passive through patient-oriented questions, we observed two different structural choices in adults and children: children exhibited a strong preference for the structure with the clitic pronoun[6], whereas adults answered with passives. Graph 1 shows adult controls' and children's productions after patient-oriented questions (%).

Graph1: children's and adults' productions after patient-oriented questions (%)
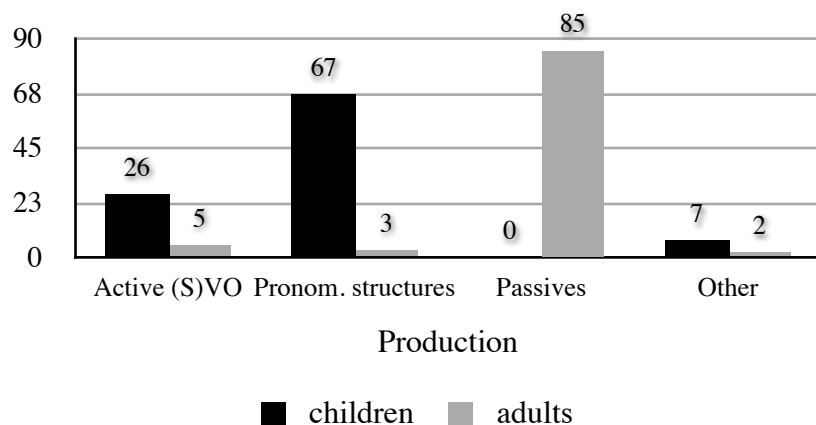
Under this condition, children's answers consisted of *subject+ clitic + verb* sentences (36 58%) (see 2a), 19 *clitic + verb* structures (30%) (see 2b), and 11 (12%) dislocated structures in which the object and the subject were both overt (2c - 2d).

    (2a) L'elefante lo spinge
        The elephant him.Cl pushes
    (2b) Lo spinge
       Him.Cl pushes
       'He pushes him'
    (2c) Il re, la tigre lo graffia
       The king, the tiger him.Cl scratches
    (2d) La tigre lo graffia, il re
       The tiger him.Cl scratches, the king

Adults mainly selected the auxiliary *venire* (75%), while *essere* was selected in only 25% of passives (3a)-(3b).

    (3a) Viene catturato dall'elefante
        Comes caught   by the elephant
    (3b) E' inseguita dal cane
       is chased by the dog

---

[5] Notice that we would expect an (S)VO structure in the agent-oriented condition, and SVO sentences in the neutral context: in both cases the object should be expressed as a full NP and not as a clitic. In contrast, children tended to omit new information and in particular they overused the object clitics, even when the object was not the topic. This might be related to experimental factors, in fact the card (the event) was shared and visible to both the experimenter and the child. This suggests that children tended to omit new information material which could be easily recovered from the extralinguistic context (the card) (see De Cat's 2009 proposal on the overuse of clitics instead of full NPs in French preschoolers's productions).

[6] Similar results emerged from a study with Brazilian Portuguese-speaking children, who selected topicalised structures to talk about the patient, instead of passive (Menuzzi 2001).

'she is chased by the dog'

These results enabled us to control for the use of passives in null and patient-oriented conditions and suggest that, under this experimental condition, the availability of clitic pronominalised structures allowed children to avoid the use of passive, which was instead the preferred option by adults.

4. Syntactic Priming Study: Experiments 2 and 3

In this section, we report two experiments that investigated the production of passive using a syntactic priming paradigm. The main goal of this study was to explore whether Italian-speaking children were able to produce verbal periphrastic passives by the age of 4 when they are first exposed to passive sentences.

Across the two experiments, we manipulated the passive auxiliary: in Exp. 2 we provided the *venire*-passive (*il re viene picchiato dalla rana* 'the king comes hit by the frog'), and in Exp. 3 the copular passive (*il re è picchiato dalla rana* 'the king is hit by the frog').[7] By manipulating the passive auxiliaries, our aim was that of exploring children's *passive* competence with both unambiguous verbal passive morphology (*venire*-passive) and copular passive morphology (*essere*-passive), in order to have more comprehensive insight into children's knowledge of Italian passive.

The syntactic priming task, as shown for instance in Bencini and Valian's (2008) work - has been found to be very effective for testing younger children's production, and in particular the picture-description design adopted here (*snap* game, Branigan et al. 2005) has been successfully applied to test 3-year-olds's passive production in English (Messenger et al. 2008; Messenger et al. 2011 and subsequent work). Crucially, in the priming paradigm, the exposure to the structure could enhance the possibility of producing the same structure in a subsequent utterance; thus the elicitation of passives, differently from the elicited production task, would follow from a facilitation effect. In the case of Italian, given the availability of alternative structures to the passive (e.g. ClLD), this design could help us avoid the difficulty of providing a discourse context in which the passive would be the only felicitous answer.

4.1 Method

4.1.2 Participants
36 Italian-speaking children, ranging in age between 3;6 to 4;6 months (mean age = 4;0), participated in the study: 18 children were tested in Experiment 2, and further 18 in Experiment 3. They were recruited in a kindergarden in Montespertoli (Florence), and they were all monolingual Italian, with no language or developmental impairment.

4.1.3 Materials
The syntactic priming test was adapted to Italian from Messenger et al.'s (2008) design to Italian. The experimental materials consisted of one set of 24 *prime* pictures and one of

---

[7] The use of *venire* auxiliary in Italian passive clearly indicates a verbal eventive passive, and is preferred when copular short passives could be ambiguous with an adjectival structure (stative meaning) (1a-1b):
    (1a) La porta è chiusa
       The door is closed
    (1b) La porta viene chiusa
       The door comes close
As for the copular passive structure, the eventive reading is also preferred when it is in the present perfect or past tense, or when the *by*-phrase is overt (Renzi et al. 1991).

24 *target* pictures, both of them depicting transitive actions featuring animate characters. Further 8 pairs of identical pictures were included as filler items (*snap* trials).

Target cards represented the following 12 transitive actions: *catturare* 'to capture', *baciare* 'to kiss', *abbracciare* 'to hug', *toccare* 'to touch', *schiacchiare* 'to squash', *inseguire/rincorrere* 'to chase', *graffiare* 'to scratch', *prendere* 'to catch', *lavare* 'to wash', *leccare* 'to lick', *mordere* 'to bite', *spingere* 'to push' . Each target verb was used twice, once it was preceded by an active prime and once by a passive prime; in total, target cards consisted of 24 pictures that children were asked to describe.

Prime cards depicted six different actional verbs (agent-patient verbs): *picchiare* 'to hit', *colpire* 'to kick', *sfiorare* 'to touch lightly', *accarezzare* 'to stroke', *portare* 'to carry', *tirare* 'to pull'. Each verb was used four times, twice in the active form and twice in the passive form, in order to create a list of 24 prime sentences.

Both prime and target cards represented a series of events performed by pairs of animals and humans: 12 animal characters were chosen for the agent role (*orso*/bear, *cane*/dog, *mucca*/cow, *cavallo*/horse, *coniglio*/rabbit, *rana*/frog, *pecora*/sheep, *gatto*/cat, *leone*/lion, *maiale*/pig, *tigre*/tiger, *elefante*/elephant); 12 human beings acted the patient role (*dottore*/doctor, *fata*/fairy, *pompiere*/fireman, *regina*/queen, *re*/king, *clown*/clown, *strega*/witch, *soldato*/soldier, *poliziotto*/policeman, *ladro*/robber, *bambino*/girl, *bambina*/boy). Primes and targets did not share any lexical content: prime and target verbs and the character pairs varied across prime and target pairs. Active primes consisted of active SVO sentences; passive primes were full periphrastic passive sentences. In Figures 2 and 3, we report examples of prime and target cards, and the corresponding prime sentences presented in Experiment 2 (see examples in 4) and Experiment 3 (see examples in 5):

Figure 2: Prime card   Figure 3: Target card

(4) *Experiment 2*:
Active Prime sentence: La rana picchia il re
                  The frog hits the king
Passive Prime sentence: Il re viene picchiato dalla rana
                  The king comes hit by the frog

(5) *Experiment 3*:
Active Prime sentence: La rana picchia il re
                  The frog hits the king
Passive Prime sentence: Il re è picchiato dalla rana
                  The king is hit by the frog

Each child thus heard 12 actives and 12 passives presented in individual randomised order: the effect of prime (active vs. passive) was measured on the description of the target card (Figure 3) on a trial-by-trial basis.

4.1.4 Procedure

Children were tested individually in a quiet room of the school and each session lasted about 10 minutes. The experimenter and the child played a card game (*Snap Game*, Branigan et al. 2005): a set of cards was placed in front of each player and children were given some instructions before starting the game. Children were told that they would play a game with cards of animal and human characters, in which players had to turn the card and describe it; they had to pay attention to the other player's card to win the game: if the pictures were identical the first player to shout '*tana*' would win the other player's card.

The session then started with four warm-up trials to help children familiarise with the task and feel comfortable. The experimenter turned over her card, describing it either in the passive or active form. The child was then asked to turn over her own card and describe it. When prime and target cards were identical, players were supposed to shout "*tana!*" (snap) as quick as possible in order to win the other player's cards. The game continued until each card was turned over and described by each player. If children did not provide any description or expressively said 'I don't know', the experiment kept playing the game by turning over the next card. Children's productions were audio recorder and then transcribed. The experimenter did not take any notes during the session, and she followed a script - listing the prime items - placed on her side of the table.

4.1.5 Coding

The first utterance that children produced after hearing the prime was coded under the categories of *Active-(S)VO* responses; *Pronominalised structures* including (subject) + object clitic pronoun + active verb; *Passives* including any adult-like full passive structures in the form of NP$_{patient}$ + passive auxiliary (venire/essere 'to come/to be') + past participle + da ('by') + NP$_{agent}$; under the category of *Other* we grouped together short, incomplete, non-adult-like passives (e.g. reversed passives, passives with morphosyntactic errors), intransitive verbs, copular structures and NPs.

4.2 Results

a) Experiment 2 (*Venire*-passives)

After being exposed to active and *venire*-passive primes, children produced 420 descriptions. 12 utterances (3%) were discarded for the experimenter's mistakes or because children did not provide any descriptions. Children described the pictures using the following structures: 232 *active SVO* sentences (55%), 22 *pronominalised structures* (5%), 70 passives (17%) and 96 (23%) '*Other*' responses. Table 3 shows the productions after active and *venire*-passive primes.

Prime	Actives SVO	Pronominalised Structures- OVS	Passives	Other	Total
Active Prime	151	11	15	34	211
Passive Prime	81	11	55	62	209
Difference	+70	0	+40	+28	

Table 3: Experiment 2 - Children's production after active and passive primes (raw data)

b) Experiment 3 (Copular passives)

The exposure to active and *essere*-passive primes led to the production of 418 utterances; 14 descriptions (3%) were discarded because children did not describe the pictures or the experimenter presented the wrong prime card. Overall, children produced 228 *Active SVO* sentences, 42 *Pronominalised structures* (10%), 33 *Passives* (8%), 115 *Other* responses

(28%). Below, Table 4 presents the number of structures produced following active and *essere*-passive primes.

Prime	Actives SVO	Pronominalised Structures- OVS	Passives	Other	Total
Active Prime	136	18	2	52	208
Passive Prime	92	24	31	63	210
Difference	+44	+6	+29	+11	

Table 4: Experiment 3 - Children's production after active and passive primes (raw data)

4.3 Analysis of Priming Effect

Tables 5 and 6 present the percentages of Active-SVO sentences, Pronominalised Structures, Passives and Other responses, produced after active and passive primes. The percentage was calculated as the proportion of Active-SVO sentences, Pronominalised Structures- OVS, Passives and Other responses out of all descriptions following active and passive primes.

The following analyses (ANOVAs) investigated the effect of *active* vs *passive* primes on the production of *Active-(S)VO* sentences, *Pronominalised Structures* and *Passives* in Experiments 2 and 3 separately (*Other* responses were excluded from the analysis). The repeated measure ANOVAs were carried out on the arc-sine transformed proportions, treating participants (F1) and items (F2) as random effects. We first report the results for Experiment 2 and Experiment 3 separately; we then compared the effect of prime across the two experiments and ran a two-way mixed ANOVA, with *prime* (active vs passive) as a within-items and within-subjects factor, and *auxiliary (venire vs. essere)* as between-subjects factor.

a) Experiment 2 (*venire*-passive)

Prime	Actives (S)VO	Pronominalised Structures	Passives	Other	Total
Active Prime	72%	5%	7%	16%	100%
Passive Prime	39%	5%	26%	30%	100%
Priming Effect	+33%	0%	+19%	+14%	

Table 5: Experiment 2

The exposure to active primes elicited 72% *active-(S)VO* sentences after active primes and 39% after passive primes, leading to +33% increase of active-(S)VO sentences. The analyses revealed a significant main effect of *prime* on the production of active-(S)VO sentences, both in by-participants (F_1 (1, 17)=26.98, p< .001) and by-items analyses ($F_2(1,23) = 29.37$, p < .001).

Passive production amounts to 7% after active primes and 26% after passive primes: the effect of prime (+19%) was found to be significant at the participant and item levels (F_1 (1, 17)= 25.65, p< .001; $F_2(1,23) = 24.68$, p< .001).

Finally, children produced the same amount of pronominalised structures after active (5%) and passive primes (5%). The analyses revealed no significant effect of prime ($F_s <$ 1, p >.5).

b) Experiment 3 (*essere*-passive)

Prime	Actives SVO	Pronominalised Structures- OVS	Passives	Other	Total
Active Prime	65%	9%	1%	25%	100%
Passive Prime	43%	11%	15%	31%	100%
Priming Effect	22%	+2%	+14%	+6%	

Table 6: Experiment 3

Active primes led to the production of 65% of actives and passive primes to 43% of actives. The priming effect after active primes (+22%) reached significance in both analyses (F_1 (1, 17)= 10.98, p= .004; F_2(1,23) =15.83, p < .001).

As for the production of passives the analyses also showed a significant increase of passive production after passive primes (+14%), both in the analysis by-participants and by-items (F_1 (1, 17)= 8.13, p = .01; F_2(1,23) = 74.67, p < .001).

Children produced 9% of pronominalised structures after actives and 11% after passives : the effect of prime (+2%) was not significant (F_1 (1, 17)= 1.29, p = .27; F_2<1, p >.4).

c) Experiments 2 and 3

By comparing the results of the two priming experiments, the two-way mixed ANOVAs showed a main effect of *prime* for active-(S)VO (F_1 (1, 34)= 35.66, p < .001; F_2(1,46) = 44.91, p <.001) and passives (F_1 (1,34)= 27.7, p < .001; F_2 (1,46) = 74.67, p <.001). We found no significant *prime by auxiliary* interaction effect, neither for active-(S)VO production (F_s<1, p >.5), nor for passives (F_s<1, p >.5).

Interestingly, the numerical difference in the number of passives produced in the two experiments (70 passives in Exp.2 vs 33 passives in Exp.3) also reached significance, showing that children produced more passives when exposed to *venire*-passive primes, compared to *essere*-passive primes (F_1 (1,34)=5.58, p = .02; F_2 (1,46) = 27.30, p <.001).

Finally, the production of pronominalised structures produced after *essere*-passives was higher than after *venire*-passive primes (42 vs. 22); this difference reached significance in the by-items production only (F_2 (1,46) =5.49, p = .02) but not at the participant level (F_1 (1,34)=1.29, p=.26). The analyses showed no other significant effects for pronominalised structures.

4.4 Children's passives

In this section, we provide a more general description of children's passives, irrespective of the prime manipulation. To this aim, we coded children's utterances again, by adopting more lax criteria: we counted all target (short and long) passives that children produced during the first description after hearing the prime, and also when they corrected themselves after an incomplete or incorrect utterance[8]. We then grouped passive structures into three main categories: a) *Adult-like passives*, including short and long target passives; b) *Reversed Passives* including those sentences with periphrastic passive morphology and the reversed order of thematic roles; c) *Deviant passives* which instead included those passives with non-adult-like passives morphology (e.g selection of the wrong preposition in the prepositional phrase).

Overall, children' passives amounted to 19% of the overall production (166 out of 838 utterances): 65% were Adult-like passives, 25% were Reversed passives and 9% were Other passives.

---

[8] Note that in the first analysis we scored as *passives* only long target passives produced during the first description after the prime; those passives that followed the first utterance (e.g. child's corrections) were not included in the analysis reported above (see Section 4.1.5).

In *Experiment 2*, 15 children (83%) produced at least one adult-like passive, starting from the age of 3;6. The exposure to *venire*-passive primes (e.g. *il re viene picchiato dalla pecora* 'the king comes hit by the sheep') led to the production of 105 passive structures, which we scored as 76 *Adult-like passives* (72%), 24 *Reversed passives* (23%) and 5 *Deviant passives* (5%). Adult-like passives consisted of 73 long passives (94%) and 3 short passives (4%). As regards the selection of the auxiliary, children used the same auxiliary presented in the prime (*venire*), and we only found some sentences in which they selected the auxiliary *essere* 'to be', both in the present and perfect tense.

The most frequent error concerns the mapping of thematic roles, which occurred in 24 passive sentences (23%). In those cases, the subject of the passive sentences was the agent, and the patient was expressed through the prepositional phrase. [9] In the remaining 5 passives, which were coded as *Deviant Passives*, children used non-adult-like passive morphology, and in specific they selected a different preposition in the *by*-phrase (e.g. *sotto* 'under') for introducing the agent role. Below we report some examples of *Adult-like passive* (6a), *Reversed Passive* (6b), and *Deviant passive* (6c).

(6a) Il re viene leccato dalla mucca   (E 3;6)
     The king comes licked by the cow
(6b) Il leone.agent viene graffiato dalla fatina.patient   (A 3;8)
     The lion comes scratched by the fairy
(6c) L'uomo viene annaffiato *sotto* la ranocchia   (F 4;4)
     The man comes watered *under* the frog

In *Experiment 3*, the exposure to *copular passive* primes (e.g. *Il re è picchiato dalla rana* 'The king is hit by the frog) elicited 61 passive structures, of which 36 were *Adult-like passives* (59%), 15 were *Reversed passives* (25%), and 10 were *Deviant passives* (16%). As in Experiment 2, children tended to reuse the passive auxiliary given in the passive prime, but we also found some copular passives at the perfect tense and *venire*-passives. Adult-like passives were produced by 10 children out of 18 (56%).

The errors children made were due to the incorrect thematic mapping (15 reversal errors, 25%), or to non-target morphology (10, 16%). As in Experiment 2, children sometimes selected the wrong preposition in the *by*-phrase (e.g. *a* 'to', *con* 'with'). Interestingly, one child (aged 4;1) consistently produced the impersonal SI-passive followed by the *by*-phrase (see example 7d), a structure that is not admitted in adult grammar, in which the impersonal SI-passive does not allow the external argument to be overt and the external thematic role receives an impersonal and non-generic interpretation. Below we report some examples of children's passives.

(7a) La regina è baciata dalla pecora   (G. 3;9)
     The queen is kissed by the sheep
(7b) La mucca è leccata dal re   (M. 4;5)
     The cow.agent is licked by the king.patient
(7c) L'infermiere *si è preso dalla tigre*   (A. 4;1)
     The nurse himself.Cl is taken by the tiger

Finally, in the analysis of lexical choices we observed that children produced 25 different transitive verbs in the passive voice. The most frequent verbs in the passive form were *prendere* 'to take', *leccare* 'lick' and *graffiare* 'scratch'. Children also passivised novel

---

[9] Note that under this category, children produced reversed passives with target-like (18/24, 75%) and non-target-like passive morphology (6/24, 25%). Non-target morphology included 3 reversed passives with the preposition *a* 'to' instead of *da*; one reversed passive with gender agreement error between the subject and the past participle; one passive where the preposition "da" (by) was omitted.

verbs (8a), or overgeneralised the passivisation to non-passivisable verbs (e.g. intransitive verbs), as in (8b) and (8c):

(8a) Il pagliaccio viene *soffeso* dal maiale
     The clown comes 'soffeso' by the pig
(8b) Il pagliaccio è *inciampato* dal maiale
     The clown is stumbled by the pig
(8c) Il bambino viene *corso* dal cavallo
     The boy comes run by the horse

5. Summary and discussion

The three experiments reported here have investigated Italian children's production of passives in an elicited production task (Exp. 1) and in a syntactic priming study (Exp.2 and 3). First, Experiment 1 enabled us to compare children's and adult descriptions of transitive actions, under different discourse conditions. The results showed an interesting picture: in response to patient oriented questions, adults selected the periphrastic passives; in contrast, children relied on pronominalised structures (e.g. *'(subject) + clitic + verb')*. On the one hand, this design helped us elicit the passive in adult controls; on the other, it did not allow us to tackle children's passive knowledge given their strong preference for alternative topicalised structures.

Experiment 2 and 3 analysed children's descriptions of transitive actions after hearing active and passive primes. In this case, the exposure to the structure led to the production of passives in the children's productions and in line with English results (e.g. Bencini and Valian 2008; Huttenlocher et al. 2004; Messenger et al. 2012), the results showed significant syntactic priming effect for active and passive productions in both experiments. More specifically, in Experiment 2 we observed significant priming effect on actives (+33%) and passives (+19%). Likewise, the exposure to copular passives (Experiment 3) led to a significant increase of *active* production after actives (+22%) and of *passive* production after passive primes (+14%). Children also produced some pronominalised structures, for which the analyses showed no significant effect of *prime* manipulation. Our results differ from Gámez et al.'s (2009) and Vasilyeva and Waterfall's (2012) priming studies, which instead reported that Spanish and Russian-speaking children tended to produce structures foregrounding the patient (*Se*-passive in Spanish, and OVS structures in Russian) after hearing passive primes. In our study, despite the availability of other topicalised structures (e.g. ClLD) emerged in Experiment 1, Italian children showed syntactic priming effect for the production of actives and periphrastic/ copular passives only, on a par with English-speaking children.

Thus, the syntactic priming experiments revealed that Italian children can produce long verbal passives, from the age of 3;6, suggesting early master of verbal passive morphosyntax. However, it is worth noticing that children's productions included adult-like as well as non-adult-like passive structures, and the main error consisted of the reversed order of thematic roles (see Messenger et al. 2012 for similar results in English). This confirms the complexity of passive syntax already reported in previous cross-linguistic research and in comprehension studies. From the two experiments, results also showed that children exposed to *venire*-passives produced more passives, compared to the other group exposed to copular passives. This result adds further evidence that, at least in Italian, children are able to produce (and comprehend, see Volpato et al. 2011) verbal passives with the auxiliary *venire* 'to come', which clearly differs from adjectival/ copular structures. As Volpato et al. (2011) already suggested, this stands in contrast with the adjectival or resultative strategy proposed for English passive acquisition (see Borer and Wexler 1987; Hirsch and Wexler 2006), and instead gives support to the hypothesis that early passives in child language correspond to adult-like verbal passive.

In conclusion, our study shed some light on different aspects of Italian children's syntactic competence. First, 3- and 4-year-olds preferred pronominalised structures and

did not use any passives in spontaneous production, in contrast adult production. Despite this strong preference, under different and appropriate experimental conditions, 3- and 4-year-olds Italian children can also master and produce long verbal passives (with the auxiliaries *essere* and *venire*), in line with English findings (e.g. Crain et al. 1987/2009; Bencini and Valian 2008).

References

Allen, S. Crago, M. (1996). Early passive acquisition in Inuktitut. *Journal of Child Language*, 23, 129-155.

Baldie, B.J. (1976). The acquisition of passive voice. *Journal of Child Language*, 3, 331-348.

Bencini, G.M.L., & Valian, V. (2008). Abstract sentence representation in 3-year-olds: evidence from comprehension and production. *Journal of Memory and Language*, 59, 97–113.

Berman, R. (1985). The acquisition of Hebrew. In Dan Slobin (ed.), The cross-linguistic study of language acquisition 1, 255–371. Hillsdale, NJ: Erlbaum.

Bock, J. K. (1986). Syntactic persistence in language production. *Cognitive Psychology*, 18, 355–387.

Borer, H. & Wexler, K. (1987). The maturation of syntax. In Parameter setting, ed. Thomas Roeper and Edwin Williams, 123-172. Dordrecht: Reidel.

Branigan, H., McLean, J. & Jones, M. (2005). A Blue cat or a cat that is blue? evidence for abstract syntax in young children's noun phrases, in A. Brugos, M. Clark-Cotton & S. Ha, eds, 'The Proceedings of the Twenty-Ninth Boston University Conference on Language Development', Cascadilla Press, Somerville, MA, pp. 109–121.

Ciccarelli, L. (1998). *Comprensione del linguaggio, dei processi di elaborazione e memoria di lavoro: uno studio in età prescolare*. Tesi di dottorato, Università di Padova, Padova. Quoted in Guasti (2007).

Cipriani, P., Chilosi, A.M., Bottari, P., & Pfanner, L. (1993). *L'acquisizione della morfosintassi in italiano: fasi e processi*, Unipress, Padova.

Crain, S., Thornton, R. & Murasugi, K. (1987). Capturing the evasive passive. Paper presented at 12th Annual BUCLD 1987, Boston, MA.

Crain, S., Thornton, R., & Murasugi, K. 2009. Capturing the evasive passive. *Language Acquisition*, 16(2), 123-133.

Crawford, J. (2004). "An Adversity Analysis of Sesotho Child Passives: Reanalyzing a Counterexample to Maturation". Poster presentation at GALANA I, University of Hawaii, Honolulu/Manoa.

De Cat, C. (2009). 'Experimental evidence for preschooler's mastery of topics.' Language Acquisition, 16, 224-239.

Demuth, K., Moloi, F., & Machobane, M. (2010). Three-year-olds' comprehension, production,and generalization of Sesotho passives. *Cognition*, 115(2), 238-251.

Djurkovic, M. (2005) Structural vs. frequency effects in L1 acquisition of the passive and impersonal in Serbian. Paper presented at the 27th Conference on Germanic Linguistics, Workshop on Frequency effects in language acquisition.

Gámez, P., Shimpi, P., Waterfall, H. & Hutteloncher, J. (2009), Priming a perspective in Spanish monolingual children: The use of syntactic alternatives, *Journal of Child Language* 36, 269-290.

Hirsch, C. & Wexler, K. (2006). Children's passive and their resulting interpretation. Paper presented at Generative Approaches to Language Acquisition North America (GALANA). University of Hawai'i at Manoa.

Hyams, N. & W. Snyder. (2005). Young children never smuggle: Reflexive clitics and the universal freezing hypothesis. Paper presented at the 30th Annual Boston University Conference on Language Development.

Hyams, N. & Snyder, W. (2006). Young children are frozen: Reflexive clitics and the Universal Freezing Hypothesis. Ms. UCLA / UConn.

Huttenlocher, J., Vasilyeva, M., & Shimpi, P. (2004). Syntactic priming in young children. *Journal of Memory and Language*, 50, 182–195.

Kline, M. & Demuth, K. (2010) 'Factors Facilitating Implicit Learning: The Case of the Sesotho Passive', *Language Acquisition*, 17: 4, 220 - 234-

Lau, E. (2011). Obligatory agent promotes cue validity: Early acquisition of passive in cantonese. In Proceedings of the 35th annual Boston University Conference on Language Development.

Maratsos, M., Fox, Becker, D. & Chalkley, J. (1985). "Semantic restriction on children's passive". *Cognition* ,19,167-191.

Menuzzi, S. (2001). The Acquisition of Passives in English and Brazilian Portuguese: Regularities despite the Input. Presented at GALA 2001, Palmela, Portugal.

Messenger, K., Branigan, H., McLean, J. & Sorace, A. (2008). English-Speaking Children's Early Passives: Evidence from Syntactic Priming. In H. Chan, H. Jacob, & E. Kapia, (Eds.) BUCLD 32: Proceedings of the 32nd annual Boston University Conference on Language Development. Cascadilla Press: 275-286.

Messenger, K., Branigan, H.P., & McLean, J.F. (2011). Evidence for (shared) abstract structure underlying children's short and full passives. *Cognition*, 121, 268-274.

Messenger, K., Branigan, H.P., & McLean, J.F. (2012). Is children's acquisition of the passive a staged process? Evidence from six and nine-year-olds' production of passives. *Journal of Child Language*.

Messenger, K., Branigan, H.P., McLean, J.F., & Sorace, A. (2012). Are children's early passives semantically constrained? Evidence from syntactic priming. Journal of Memory and Language.

Mills, Anne E. (1985). The acquisition of German. In D.I. Slobin (ed.) The Crosslinguistic Study of Language Acquisition, Volume 1: The Data, 141–254. Hillsdale, NJ: Lawrence Erlbaum Associates.

O'Brien, K., Grolla, E. & Lillo-Martin, D. (2006). Long passive are understood by young children". Paper presented at the 30th Annual Boston University Conference on Language Development, Boston.

Pinker, S., Lebeaux, D.S., Frost, L.A. (1987). "Productivity and constraints in the acquisition of the passive". *Cognition* 26: 195-267.

Pierce, A. (1992). "The acquisition of passives in Spanish and the question of A-chain maturation". Language Acquisition 2: 55-81.

Pye, C. & Quixtan Poz, P. (1988), 'Precocious passives (and antipassives) in Quiche Mayan', Papers and Reports on Child Language Development, Stanford 27, 71–80

Renzi L., Salvi G., Cardinaletti A. (1991). *Grande grammatica italiana di consultazione. I sintagmi verbale, aggettivale, avverbiale. La subordinazione*. (Vol. II). Il Mulino: Bologna.

Savage, C., Lieven, H., Theakston, A., & Tomasello, M. (2003). Testing the abstractness of children's linguistic representa- tions: Lexical and structural priming of syntactic construc- tions. *Developmental Science*, 6, 557–567.

Savage, C., Lieven, H., Theakston, A., & Tomasello, M. (2006). Structural priming as implicit learning in language acquisi- tion: The persistence of lexical and structural priming in 4-year-olds. *Language Learning and Development*, 2, 27–49.

Serratrice, L. (2005). 'The role of discourse pragmatics in the acquisition of subjects in Italian.' *Applied Psycholinguistics*, 26, 437-462.

Shimpi, P., Gamez, P., Huttenlocher, J., & Vasilyeva, M. (2007). Syntactic priming in 3- and 4-year-old children: Evidence for abstract representations of transitive and dative forms. *Developmental Psychology*, 43, 1334–1346.

Sugisaki, Koji (1997) Japanese passives in acquisition. Paper presented at the 12th annual meeting of the Sophia Linguistic Society, Sophia University, Tokyo, Japan.

Suzman, Susan (1985). Learning the passive in Zulu. Papers and Reports on Child Language Development 24. 131–137.

Terzi, A. & Wexler, K. (2002). A-chains and S-homophones in children's grammar: Evidence from Greek passives. Proceedings of NELS 32: 519-537.

Turner, E. & Rommetveit, R. (1967). Experimental manipulation of the production of active and passive voice in children. *Language and Speech,* 10, 169–180.

Vasilyeva, V. & Waterfall, H. (2012). Beyond syntactic priming: Evidence for activation of alternative syntactic structures. Journal of Child Language 39(02), 258-283.

Verrips, M. (1996). Potatoes Must Peel: The Acquisition of the Dutch Passive. The Hague: Holland Academic Graphics.

Volpato, F., Verin, L. & Cardinaletti, A., (2011). The comprehension of passive sentences by Italian preschool age children, Paper presented at IGG XXXVII, University of Rome

Volpato, F., Verin, L. & Cardinaletti, A., (2012).The acquisition of passives in Italian: Auxiliaries and answering strategies in an experiment of elicited production. Paper presented at The Romance Turn V, Universidade Nova de Lisboa.

Whitehurst, G., Ironsmith, M. & Goldfein, M. (1974), 'Selective imitation of the passive construction through modeling. *Journal of Experimental Child Psychology,* 17, 288–302.