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The development of narrative discourse in French by 5 to 10 years old children: Some insights from a conversational interaction method

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ABSTRACT

Children as young as 4-5 years can produce descriptive narratives but have been found to have difficulties to talk about causal and mind-oriented aspects of the story, such as the characters' intentions and beliefs, or their different viewpoints. This paper considers whether the first narrative produced by the children represents the developmental limit of their competencies or whether children can be brought to produce more complex mind-oriented narratives through a simple procedure by which children are requested to focus on the causes of the story events. This question was investigated by presenting a sequence of five wordless pictures (the "stone story") to 120 French-speaking children aged 5 to 10 years who narrated to the experimenter their *first narrative*. Then, 60 children participated in the causal-oriented conversation and 60 children served as control group and played a memory game with the story images. Results show that after the causal-oriented conversation, from 6 years on, children produced more coherent and mind-oriented narratives than they did in their first narrative. These improvements were not found in the control group. Pragmatic and cognitive aspects are discussed as possible causes of these improvements. We highlight the importance for assessment and remediation of the conversational procedure and of the resulting intra-individual variation.

Keywords: Narrative development, intervention, intra-individual variation, assessment, evaluative content,

1. Introduction

Liliana Tolchinsky has contributed very fine work in the domain of literacy development, from the early steps into the writing system to later development (Tolchinsky, 2003, 2004). In her work, she emphasizes that literacy encompasses a wide range of competencies (Ravid & Tolchinsky, 2002) that allow language users to draw, implicitly or consciously, on their own resources in a flexible way in order to produce behaviors well adapted to the communicative needs of the situation at hand. The basic hallmark of ‘proficient educated users of language’ is indeed the capacity to use linguistic resources differentially according to the genre of discourse (Tolchinsky et al. 2005).

The ability to produce good stories is part of literacy, considered in its broad sense (Ravid and Tolchinsky, 2002), and is related to the development of literacy, considered in its narrower sense. Indeed, narrative abilities are positively related to early literacy (e.g., Griffin et al. 2004; Dobson, 2005; Makdissi and Boisclair, 2006), show positive relations to reading comprehension and writing skills in school-aged children (e.g., Dickinson and Tabors, 2002; Oakhill et al. 2003; Whitehurst and Lonigan, 1998; Reese, Suggate et al. 2010). Moreover, they are related to school success (Snow, Burns, & Griffin, 1998) and to language development (e.g., Cooper et al. 1992; Mallan, 1991). Given these far-reaching implications, it is important to finely describe the course of development of the ability to produce connected and globally coherent narrative discourse in its multifaceted components, as well as to describe the conditions in which this competence can best be expressed.

Narrative Development

Story telling is a discourse activity that requires the use and the integration of cognitive, linguistic, discursive, and pragmatic abilities. Its development spans over a long time, from the beginnings when familiar partners scaffold children’s first references to the past (e.g., Miller and Sperry, 1988; Sachs, 1983; Veneziano and Sinclair, 1995) to the first simple narratives of recurrent events and of personal experience (e.g., Nelson, 1999; Peterson and McCabe, 1991), through child-initiated autonomous personal life and fictional narratives whose structural organization and linguistic expression develop through the school years up until adolescence and even adulthood (Berman and Slobin, 1994; Hickmann, 1995; Berman, 2009). Research has

shown that, at a given age, narrative competence may vary depending on the content and on the context in which children produce their narratives. For example, narratives of personal experience, particularly if relating recurrent events, seem better organized than children's construction of fictional stories (Nelson, 1999; Berman, 2004), and solicited and conversationally-framed narratives are likely to contain more explanations and references to internal states than monological narratives (e.g., Wellman and Bartsch, 1988; Eaton et al. 1999; Shiro, 2003; Berman, 2004). Moreover, variation exists also individually as well as across socio-economic variables, with children from low-income families producing less elaborate narratives compared to children from middle-income families (e.g., Peterson, 1994).

A major impulse to the study of narrative development was given by researchers who solicited fictional narratives based on wordless picture-books as, for example, the storybook *Frog where are you*, where the same story is elicited in the same way from children of different ages, speaking different languages (e.g., Berman and Slobin, 1994; Strömquist and Verhoeven, 2004). This research shows a general developmental trend of narrative organization, going from the temporal ordering of relatively isolated events to the overall hierarchical organization of the story at the macro-level. By age 9 to 10 years, most children produce all the components of the narrative structure (Mandler, 1978; Stein and Glenn, 1979): the initial setting (the characters and the location of the story), the complicating event that changes the initial setting, its elaboration, the resolution of the problem and sometimes a coda that provides a summary or a moral of the story (e.g., Berman and Slobin, 1994; Hickmann, 1995; Jisa, 2004; Hilaire-Debove and Kern, 2013). Pre-school children produce mostly descriptive narratives and it is from about 6-7 years of age that children begin to explain why events occur, an ability that improves progressively until 9-10 years (e.g., Bamberg, 1994; Bamberg and Damrad-Frye, 1991; Berman and Slobin, 1994; Berman, 2004). In addition, if children between 4 and 7 years old can attribute mental states to the characters of a picture-based fictional story (Bokus, 2004; Richner and Nicolopoulou, 2001), it is only around 8-9 years that they use these internal states to explain behaviors (Bamberg, 1994; Bamberg and Damrad-Frye, 1991; Berman and Slobin, 1994). It is even later that children express that different characters can have different perspectives on the same event, or that a character may

have a false belief about an event (Aksu-Koç and Tekdemir, 2004; Kielar-Turska, 1999; Bamberg and Damrad-Frye, 1991; Küntay and Nakamura, 2004).

In this paper we will try to understand whether, for picture-based fictional stories that children are requested to narrate to an experimenter, the first narrative that children produce represent the developmental limit of the children's competencies or whether children can produce more elaborate contents via a conversational interaction that focuses children on the causes of events.

From earlier studies we know that some children produce more complex narrative contents when solicited by specific questions (e.g., Wellman and Bartsch 1988; Eaton et al. 1999; Shiro, 2003). In this case however children produce a fragmented narrative interspersed by the contributions of the adult. In this chapter we present data showing that after a conversational interaction with the children, several of them can also change their autonomous, monological narratives.

Here we will focus on the interpretative/evaluative component of the story: why things happen, what do the protagonists intend or believe, and how this affects their behavior. Such a causal network of relations among events and the account of the internal states of the characters, greatly contribute to the overall coherence of the story (e.g., Stein, 1988) and make it interesting and worth telling to a listener (Labov, 1972; Trabasso and Rodkin, 1994).

In our studies we have introduced two features intended to facilitate the expression of these aspects: a) The type of 'story' presented to the children; b) The introduction, between a first and a subsequent monological narrative, of a short conversational interaction making implicitly apparent to the child that the listener is interested to know about the causes of the events.

a) The "Stone Story"

This story consists of five pictures with no text (see appendix 1). This story is part of a collection of short wordless pictured stories destined to young children (Furnari, 1980). This sequence was chosen because it can be interpreted as a story of a misunderstanding between two characters and, as such, it might promote the expression of the internal states and the different points of view of the characters.

b) The conversational interaction

Using a child-centered, Piagetian-based clinical method of interrogation, that starts from what the child had said in his first narrative, and using the same way to refer to the story's characters as the child had done, the experimenter entertains a short conversation with the child, aiming to focus his/her attention on the causes of events and on the motivations of the characters' behavior, without providing answers to the questions or making explicit reference to the internal states of the characters. The causally-oriented conversation was held between the child's production of two narratives. Children narrated the first story spontaneously and autonomously, without any priming or questions. Then, after the conversational interaction, the same child produced a second story. The two stories were then compared to determine whether changes in coherence had occurred.

This method is very close to that used in our previous studies (Veneziano et al. 2009; Veneziano and Hudelot, 2009) where the narratives to be compared are produced by the same children and the stories are told while the children do not see the story pictures. The present study was meant to verify on a larger sample the positive effect of the causal-oriented conversational interaction on narrative coherence, and to show that the effect is specific to the interaction and is not obtained by the simple repetition of the narrative.

2. Method

Participants

120 French-speaking children between the ages of 5;6 and 10;8 years participated in the study. The children were interviewed in their school environment (kindergarten and primary schools in middle-class suburban Paris). Children whose parents had given permission were interviewed, corresponding to about 80% of the pupils in each class. The data will be presented for 6 age groups: 5 (5;2 to 5;11), 6 (6;2 to 6;11), 7 (7;1 to 7; 11), 8 (8;2 to 8;11), 9 (9;1 to 9;11) and 10 (10;1 to 10;11) years, with 20 children in each age group. Half of the children in each group participated in the conversational interaction between the first and the second narrative, and the other half served as control group (see below).

Material

- *The stone story*

The “stone story” was used already in previous studies (e.g., Veneziano and Hudelot, 2009). As mentioned above, it is a story of a misunderstanding between two characters (see Appendix 1). More specifically, the first picture sets the context where two characters, referred to here as P1 and P2, greet each other from a distance (the ‘greeting’). The second picture shows the accidental stumbling of P1 on the stone, leading P1 to push P2 (the complicating event: “first push”). The third picture shows P2 pushing P1 (the elaboration of the complicating event: ‘push back’). The fourth picture depicts P1 crying and pointing towards the stone (‘resolution attempt’). The fifth image shows P2 that help P1 to get up (‘the resolution’).

Procedure

The experimenter presented each child the five wordless pictures of the “stone story”, presented sequentially. She didn’t present the images as the ‘stone story’ but simply said that the five pictures made up a story. She added that when he was ready to tell the story the pictures would be removed. The reason for removing the pictures was to increase the likelihood that children will concentrate on the overall coherence of the story instead of paying attention attention on details present in the pictures. Once the child was ready to tell the experimenter the story, the pictures were removed and the child narrated ‘what s/he had understood of the story’. This is referred to as the ‘*first narrative*’, that is, the autonomously produced monological story produced in conditions similar to those of other studies of picture-based narratives.

After the *first narrative* the children assigned to the *experimental* group participated to a *causal-oriented conversational interaction* with the experimenter. The latter, starting from what the child had said in his first narrative, asked the child questions on the causes of the four main events, and this in the presence of the pictures of the story: “how come that? or why” 1. P1 pushes P2 (both P1 and P2 were named in the same way as the child had done in his first narrative); 2. P1 pushes P2; 3. P1 shows the stone; and 4. P2 helps P1 to get up. The children of the *control group* played instead a *Mémoire*¹ game with the images of the story and other similar drawings. In this way the children could familiarize themselves with the story pictures as much as the children in the experimental group, but they didn’t talk about the story.

¹ The cards are all in two exemplars and placed face down on the table. The aim of the game is to find the greatest number of pairs of identical pictures.

All the children were then asked to tell the story once again ('the *second narrative*'). As was the case for the first narrative, here also the children told their story without having the pictures in front of them. All the interviews were audio-recorded and were transcribed *verbatim*.

3. Data analysis and results

Structure of narratives

We first considered whether the children structured their narratives sequentially unfolding the main components of the story: the initial setting, the complicating event, its elaboration and the resolution that restores the initial equilibrium. Table 1 shows, for each age group, the percentage of children who organize their stories in this way, in the first narrative and in the second narrative, according to the group (experimental and control). To the exception of 5 year olds, the majority of children mention all the components of the story. No major differences between the first and the second narrative are observed, neither in the experimental nor in the control groups. From 6 years on, the majority of the children present the characters (for example *il y a deux garçons, il se disent bonjour* 'there are two boys, they say hallo to each other'); talk about the complicating event: the pushing of the two characters (e.g., *il le pousse et l'autre aussi* 'he pushes him and the other too'); elaborate the plot by talking about the fact that one of the characters cries, falls on the stone and/or shows the stone (e.g., *et puis après le petit garçon il pleure en montrant la pierre* 'and then the little boy he cries showing the stone'); and conclude the story (e.g., *et après il l'aide à se relever* 'and then he helps him to get up').

Table X.1 Percentage of children that structure the story according to story grammar organization, by age and narrative, for the experimental and control groups

group	Narrative	EXPERIMENTAL.		CONTROL.	
		1st	2nd	1st	2nd
Age					
5 yrs		30%	40%	40%	40%
6 yrs		70%	80%	60%	60%
7 yrs		60%	70%	60%	70%
8 yrs		70%	70%	80%	90%
9 yrs		60%	100%	70%	80%
10 yrs		80%	90%	80%	80%

There are however differences in the way children talk about these different components. Thus, concerning the complication, 5 and 6 year olds tend to talk about an undifferentiated pushing, or a fight (e.g., *ils se sont poussés* ‘they pushed each other’; or *après ils se sont bagarrés* ‘then they fought’) while older children tend to distinguish the two moments of the pushing, with one character pushing the other, and then the reverse. This can be expressed descriptively (e.g., *après le petit garçon pousse la fille et après c’est la fille qui pousse le garçon* ‘then the little boy pushes the girl and then it is the girl who pushes the boy’) or, at later ages, these events are explained (see below). Also the elaboration of the plot varies considerably: in the younger children’s narratives, it consists in the description of aspects of the depicted event (e.g., *il pleure* ‘he cries’ or *il tombe par terre et montre la pierre* ‘he falls on the ground and shows the stone’), while later children use the events depicted in the picture to talk about the resolution of the misunderstanding between the characters (e.g., *après il lui explique que c’était la pierre qui l’avait fait tomber* ‘then he tells him that it was the stone that caused his fall’). Also the end of the story can be mentioned in a way that simply describes the events depicted (e.g., *et ensuite il y a le garçon qui a attrapé l’autre garçon qui était tombé* ‘and then there is the boy who has caught the other boy who had fallen’) or else by introducing the narrator’s inferences about the internal state of P2 (e.g., *il comprend et alors il redeviennent amis* ‘he understands and so they become friends again’). As in other studies, only very rarely we find a general comment as a sort of coda (e.g. *et ils ne se disputeront plus jamais* ‘and they will not quarrel never again’). These different ways of telling the story will be analyzed in more detail in the sections below.

Table X.2 presents, for the conversational group, the percentage of children who mention each of the four components of the story structure, independently of how they talk about them, and that for their first and second narratives. From 6 years on, there are no differences in the types of component expressed, neither across age groups, nor between narratives. Only in the 5 years old group, a minority of children mention the setting and the complicating event in the first narrative; however, in the second narrative, after the conversational interaction, these components are mentioned by as many children as in the other age groups.

In what follows we will focus on the evaluative aspects of the stories, that is, on elements of coherence reflecting the inferential interpretations that children make of the sequence of pictures, interpretations that go beyond what is represented there. We will consider whether children: 1. explain the complicating events (first and second push) and how; 2. make reference to the internal states of the characters, with particular attention to the epistemic states and, if yes, for what purpose; 3. are able to let the listener understands that a character holds a false belief about the intentions of the other; and 4. are able to tell how the characters clear up the misunderstanding.

Table X.2 Percentage of children that express each of the four components of the structure the story, by age and narrative, for the group conversation

age in yrs	5		6		7		8		9		10	
	narrative/ 1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
components												
setting	40%	90%	90%	90%	70%	90%	100%	80%	100%	100%	100%	90%
completion	40%	90%	90%	100%	90%	80%	100%	80%	80%	90%	100%	100%
elaboration	80%	80%	100%	100%	80%	90%	100%	100%	90%	100%	80%	100%
conclusion	80%	90%	80%	90%	100%	80%	90%	90%	80%	90%	90%	100%

Beyond structure: the content of the stories

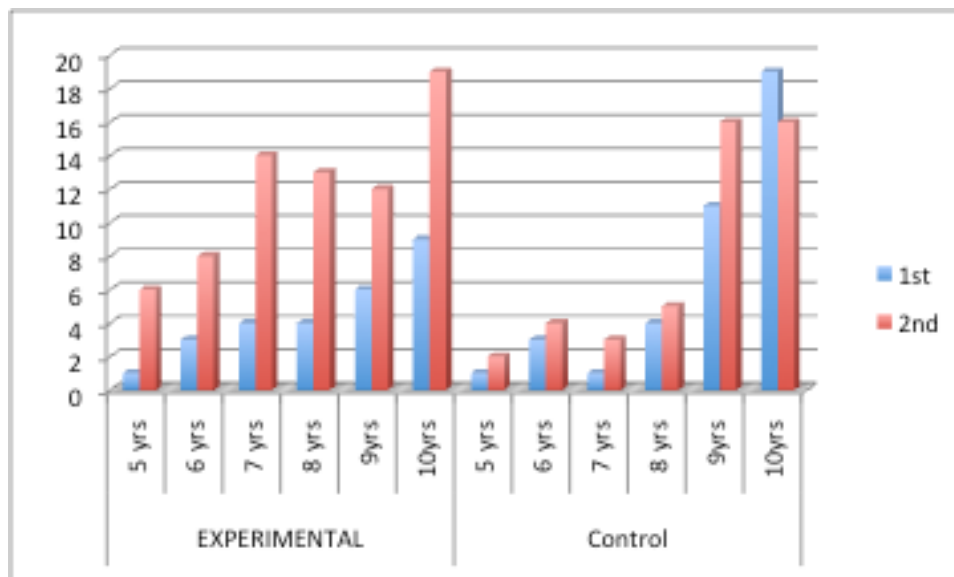
I. Explanation of the complicating events

We considered that an event was accounted for when a) a causal marker was present (e.g., *parce que* ‘because’ *donc* ‘therefore’, *pour* ‘in order to, so as to’, *à cause de* ‘because of’); b) the relation was presented retroactively, from the event to its cause (e.g., *il est tombé, il y avait une pierre* ‘he fell, there was a stone’). If the relation was presented proactively (from the cause to the consequence), and no causal marker was present, other criteria were needed, such as c) the antecedent or the consequent of the

causal relation was an internal state - that is, a non perceptible aspect, introduced by the child; or d) the events mentioned were inherently linked one to the other (for example, *il trébuche et il pousse son copain* ‘he stumbles and pushes his pal’) (for more details, see Veneziano and Hudelot, 2009).

Figure X.1 shows the number of explanations of the complicating event, by age group, by condition (experimental or control) and by narrative (first and second narrative). Each child could explain from 0 (neither push nor push back) to 2 events (both push and push back). Children can explain the undifferentiated pushing or, more frequently, the first and the ensuing push. The first push is seen to be caused by the stumbling of P1 on the stone (e.g., *il y a un qui trébuche sur la pierre donc il pousse l'autre* ‘there is one who stumbles on the stone and so he pushes the other one’), while the second push is either explained by the belief that the previous push was done intentionally (e.g., *il pousse l'autre parce qu'il a cru qu'il l'avait fait exprès* ‘he pushes the other because he thought he had done it on purpose) or, more simply, by a socially accepted reaction to the first push (e.g., *et donc il le repousse parce que l'autre il l'a poussé* ‘and so he pushes him because the other one had pushed him’).

Fig. X.1 Number of push and push back complicating events that are explained (from 0 to 2 per child), by age and narrative, for the experimental and control groups



Explanations of these two core events in their first narratives vary with age (chi-square applied to presence vs. absence of explanations, per age: χ^2 (5, N=240) = 59.68, $p < .001$) with an increase for 9 and 10 year olds. Moreover, children in the

conversational interaction group produce a significantly higher number of explanations in their second than in their first narrative (t-test for paired samples applied to data of the experimental group: $t = 7.56$, $p < .001$, $df=5$). The increase in the number of explanations is statistically significant for children 7 years and older, but not for 5 and 6 year olds (tested by chi-square tests at each age level for presence vs. absence of explanations of the two core events²). The increase is not found for children in the control group (t-test for paired samples: $t = 1.11$, $p=0.31$, $df=5$).

II. References to the characters' internal states

Talking about the internal states of the characters provides an important evaluative ingredient to the stories. We distinguished here three main kinds of internal states: a) physical (e.g., *il a pas vu qu'il y a une pierre* 'he didn't see that there is a stone') and emotional states (e.g., *il y en a un qui est fâché* 'there is one who is angry'; *ils sont contents* 'they are happy'), referred to as 'phem'; b) intentional states (e.g., *sans faire exprès* 'without doing it on purpose' *il y avait un qui ne voulait pas pousser* 'there was one who didn't want to push'); and c) epistemic states, referring to the states of knowledge or belief of the characters (e.g. *il ne savait pas qu'il y avait une pierre* 'he didn't know that there was a stone; *il croit qu'il l'a poussé exprès* 'he believes that he pushed him on purpose'; *et finalement il avait compris* 'and finally he understood'; *il croit qu'il est gentil* 'he believes that he is nice').

Figure X.2 shows the overall number of internal states attributed to the characters of the story by age group, by condition (experimental or control) and by narrative (first and second narrative). In their first narrative, it is at 9 years that children refer more widely to the characters' internal states. The one-sample chi-square, applied to the first narratives of experimental and control groups, shows that the first significant change occurs at 9 years: $\chi^2(4, N=110) = 30.27$, $p < .001$). In the second narrative of the experimental group the change occurs at 7 years. The t-test for paired samples shows that children of the experimental group attribute internal states to the characters significantly more in the second compared to the first narrative (t-test

² for 5 year olds : $\chi^2(1, N=240) = 2.35$, $p = 0.12$; ² for 6 year olds : $\chi^2(1, N=240) = 1.52$, $p = 0.21$; for 7 year olds : $\chi^2(1, N=240) = 4.86$, $p = \mathbf{0.027}$; for 8 year olds : $\chi^2(1, N=240) = 4.05$, $p = \mathbf{0.044}$; for 9 - 10 year olds : $\chi^2(1, N=240) = 6.05$, $p = \mathbf{0.01}$.

for paired samples: $t = 6.42$ $p < .001$, $df=5$). Instead, in the control group, first and second narratives do not differ significantly ($t = 0.48$ $p=0.65$, $df=5$).

Looking in particular at epistemic states, we observe that their number increases considerably between the first and the second narrative in the experimental group (t-test for paired samples: $t=8.17$, $p<.001$, $df=5$), but doesn't change in any significant way in the control group (t-test for paired samples: $t=1.23$, $p=0.27$, $df=5$). Moreover, while very few children attribute epistemic states to the characters before 9 years, in the experimental group after the conversational interaction, 7 year olds can do it as much as 9 years old in their first narrative (see Figure X.3).

Fig. X.2 Overall number of internal states attributed to the characters of the story, by age and narrative, for the experimental and control groups

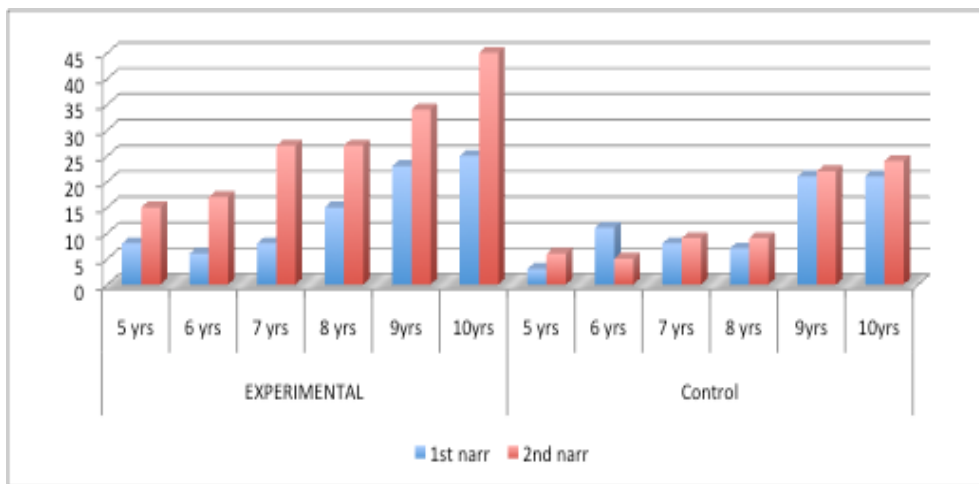
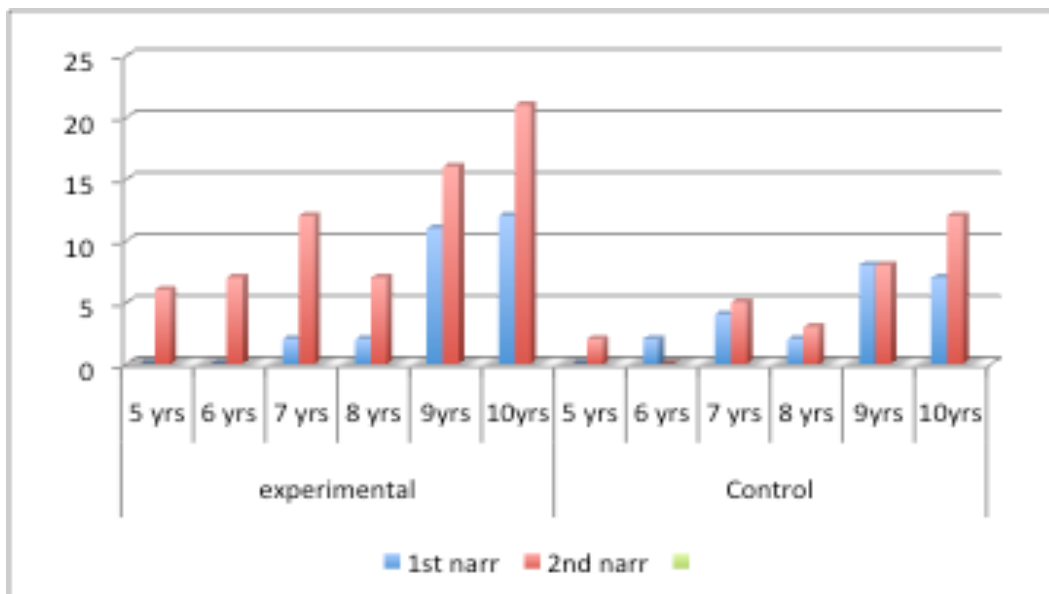


Fig. X.3 Number of epistemic states attributed to the characters of the story, by age and narrative, for the experimental and control groups



But what is more impressive is the change in the function for which internal states are mentioned (see Table X.3). While in the first narrative children of the experimental group use them very little to account for events, in the second narrative even 5 year olds start to do it. From 6 years on, the majority of the internal states are used with this function, and more than even 10 year olds did in the first narratives. This change between the first and the second narrative is not observed for children in the control group. Also, while there is no difference between the experimental and the control group in the number of internal states mentioned to explain events in the first narrative (two-tailed t-test for paired samples: $t=1.65$, $p=0.16$, $df=5$), there is a significant difference between the two groups in the second narrative (two-tailed t-test for paired samples: $t=5.80$, $p<.001$, $df=5$).

Table X.3 Percentage of internal states used to explain events: by age and narrative, for the group conversation

age/ Narrative	EXPERIMENTAL.		CONTROL.	
	1st narr	2nd narr	1st narr	2nd narr
5 yrs	13%	40%	0%	17%
6 yrs	17%	76%	27%	40%
7 yrs	25%	74%	38%	33%
8 yrs	40%	78%	67%	67%
9yrs	52%	62%	62%	64%
10yrs	52%	71%	81%	67%

III. The expression of False belief

Practically no child in the study expressed the state of false belief of P2 in meta-cognitive terms (e.g., he believes falsely that...). However, some of the children expressed the belief P2 together with the conditions by which the belief appears clearly to be false (FB). This is the case when children expressed the unintentional and/or physical cause of the first push (e.g., *il a trébuché sur une pierre et il l'a poussé* 'he stumbled on a stone and pushed him') AND attributed to P2 the belief that the push was intentional (e.g., *l'autre croit qu'il l'a fait exprès* 'the other one believes he did it on purpose'). In other cases children seemed to understand that there was a problem between the characters but could not express it as clearly. In these last cases, coded as prefigurations of false belief (PFB), children talked either about the unintentional push of P1 (e.g., *il pousse l'autre sans faire exprès à cause de la pierre*

‘he pushed the other one without doing it on purpose because of the stone’), OR about the state of ignorance of P2 (e.g., *son ami n’a pas vu qu’il avait trébuché sur la pierre* ‘his friend hasn’t seen that he stumbled on the stone’).

Table X.4 presents the number of children who express the false belief, by age, narrative and condition. The results follow the same trend as those presented previously for the other measures. In the first narrative of the experimental group, it is not before 9 years that a sizeable number of children express clearly the false belief of P1, whereas in the second narrative, children do it from 7 years on. The change in the expression of the false belief between first and second narratives is significant for the experimental group (paired samples t-test: $t = 4.04$, $p=0.009$, $df=5$). Instead, no change between the two narratives is found in the control group (paired samples t-test: $t = 1.35$, $p=0.235$, $df=5$).

Table X.4 Number of children expressing the false belief of one character -P1 -, by age and narrative, for the experimental and control groups

group	Narrative	EXPERIMENTAL.		CONTROL.	
		1st.	2nd.	1st.	2nd.
Age					
5 yrs		0	2	0	0
6 yrs		0	1	1	0
7 yrs		0	5	0	1
8 yrs		0	3	1	1
9 yrs		5	6	2	4
10 yrs		4	7	2	4
Total		9	24	6	10

IV. The Resolution of the Misunderstanding

Children who express the resolution of the misunderstanding between the two characters usually say that P1 explains to P2 that the first push was not intentional, or was caused by his stumbling on the stone (e.g., *il disait que c’est à cause de ce caillou que je t’ai poussé et l’autre comprend et ils font la paix* ‘he said that it is because of this stone that I pushed you ; *montre la pierre pour dire que ce n’est pas sa faute* ‘shows the stone to say that it is not his fault’); moreover they mention that P2

understands, thus clearing the misunderstanding (e.g., *après il le relève parce qu'il a compris* ‘then he gets him up because he has understood’).

Table X.5 presents the number of children who express the resolution of the misunderstanding, by age, narrative and condition. In the first narrative, only few children talk about the resolution of the misunderstanding, and rarely before 9 years. In the second narrative, the children of the experimental group mention aspects of the resolution of the misunderstanding from 6 years on. The increase between the first and the second narrative in the number of children who express the resolution of the misunderstanding is significant (paired samples t-test: $t = 3.8$, $p < 0.01$, $df = 5$). Instead, no change at all between the two narratives is found in the control group.

Table X.5 Number of children expressing the resolution of the misunderstanding, by age and narrative, for the experimental and control groups

group	EXPERIMENTAL.		CONTROL.	
	1st	2nd	1st	2nd
Narrative				
Age				
5 yrs	0	0	0	0
6 yrs	0	5	0	0
7 yrs	1	7	1	1
8 yrs	0	5	1	1
9 yrs	3	5	3	3
10 yrs	4	7	3	3
Total	8	29	8	8

V. Markers of causality

Not only the content, but also the linguistic expression of the stories changes. As children talk more about the causes of events and express the false belief and the resolution of the misunderstanding between the characters, they introduce into their stories more explicit markers of causality (e.g., *à cause de* ‘because of’; *alors* ‘then’; *donc pour ça* ‘so for that’; *parce que* ‘because’; *vu que...eh ben* ‘given that...and then’). Table X.6 shows the number of markers of causality produced by children in the two narratives, by age and condition. From 6 years on, children of the experimental group produce, in their second narrative, about as many markers as 10 year olds do in their first narrative. The increase in the explicit use of markers between the first and the second narrative is significant for the experimental group

(paired samples t-test: $t = 7.26$, $p < 0.001$, $df = 5$). Instead, no significant changes occur between the two narratives in the control group (paired samples t-test: $t = 0.63$, $p = 0.55$, $df = 5$).

Table X.6 Number of markers of causality, by age and narrative, for the experimental and control groups

group	Narrative	EXPERIMENTAL.		CONTROL.	
		1st	2nd	1st	2nd
Age					
5 yrs		5	11	2	6
6 yrs		8	23	4	5
7 yrs		14	24	6	5
8 yrs		7	23	6	3
9 yrs		13	31	19	19
10 yrs		25	38	23	26
Total		72	150	60	64

4. Discussion and conclusions

The results of the first narrative confirm those of other studies of narrative development showing that coherent evaluative stories are quite rarely produced by children younger than 8-9 years (e.g. Aksu-Koç and Tekdemir, 2004; Berman 2009; Veneziano and Hudelot, 2009). Thus, the nature of the story -- interpretable in terms of a misunderstanding between the characters -- doesn't lead children to produce, spontaneously, more evaluative and mind-oriented narratives. The increase in coherence in the second narrative for the conversational group is in agreement with studies of interactive book-reading (e.g., Makdissi and Boisclair, 2006) or of questions-answers interaction (e.g., Silva et al. 2014). They confirm also results obtained in earlier intervention studies using a very similar method (Veneziano & Hudelot, 2009; Veneziano et al., 2009). In the present study, after the conversational interaction, some children explain the complicating events, attribute more internal states to the characters of the story and use them more often to explain the events, express the false belief of one of the characters and resolve the misunderstanding between them, more and at an earlier age compared to their first narrative to. Together with changes in content there are also changes in the use of explicit markers of

causality. The effect is observable from 6 years onwards, and it appears stronger for 6 to 8 years old children. Moreover, this study shows that the effect is specific to the conversational interaction and it is not obtained in the control group where children were simply familiarized, in the same way as the experimental group was, with the story pictures. Instead, simple retelling the story doesn't produce a considerable change in storytelling.

When children are stimulated to think about the causes of the events and understand that the listener (the experimenter in this case) wants to hear about the explanation of the events, some children reveal unexpected competencies in mind-oriented talk, in the expression of causal links, as well in the linguistic form with which these are expressed.

How to explain the increase in evaluative and mind oriented content in children's narratives produced after the conversational interaction? And what is the importance of these results for development, assessment and remediation?

There are several reasons for which the conversational interaction may change the way children tell a fictional story, and this for the *same child* confronted with the *same task*.

First, the causal-oriented conversational interaction can help young children understand that the listener wants to hear a story that not only describes what happens but also tells how things happen. In this way, the conversational interaction renders more apparent the 'tellability' requirements of a narrative (Labov, 1972), namely, the communicative requirement of telling a story that is of interest to the listener, a pragmatic obligation that is implicit in older child-adult and adult-adult interactions (Hausendorf & Quasthoff, 1992). According to this interpretation, from 6 years onwards, some children have the abilities necessary to express the causes of events and the mental aspects of the story, but they do not consider these components relevant for narrative purposes. One reason for the effects of the causal-oriented conversation may thus be due to children's understanding the pragmatics of storytelling.

Second, the causal-oriented conversational interaction may help children lower the cognitive and linguistic loads involved in the task. Indeed, telling an autonomous, monological, story on the basis of a sequence of pictures, is a complex task requiring cognitive and linguistic resources at different levels. The sequence of

pictures needs to be interpreted as a unique story having thematic coherence and linguistic cohesion (e.g., Hickmann, 1995). Thus children need not only to conceptualize the story but also to think about it with a view to speaking. As Slobin has argued (1987, 2003) ‘thinking for speaking’ mobilizes itself further resources that interfere with the conceptual elaboration of the narrative. Also, a story is narrated to a listener, adding to the cognitive and linguistic constraints also the communicative requirements of taking into account the interlocutor’s needs. Moreover, children have no personal involvement in the fictional story and thus need to attribute to the characters motivations and beliefs that are other-oriented, something that is more difficult for children to do compared to talking about their own mental world. Young children who have not yet well mastered the various competencies required by the task, may have difficulties in bringing to bear all of them, simultaneously, to their storytelling and may thus give the impression of not having the cognitive and linguistic resources necessary to tell a coherent story, particularly when this involves talking about the characters’ internal states, their beliefs or their different viewpoints on the same situation (e.g., Aksu-Koç and Tekdemir, 2004; Veneziano and Hudelot, 2009). The conversational interaction, using the same wordings that the children had used spontaneously in their first narrative, brings children to focus their attention on individual moments of the story chunking, in this way, the global picture into a sequence of specific and local moments that are treated one after the other in the appropriate temporal order. The child can thus attend, and get a clearer idea about, each of the steps in the sequence reducing so the cognitive load of taking into account simultaneously the different aspects of the task.

The two facilitating components of the causal-oriented conversation method used here can operate in tandem, particularly for older children. In fact, it shouldn’t be underestimated that also children of the older age groups produce more coherent and mind-oriented stories and include more causal explanations of the core events than in their first narratives. The conversational interaction seems to help children to draw from deep inside their resources to adjust to the requirements of the situation and so become more proficient speakers (Tolchinsky et al, 2005).

The facilitating characteristics of the conversational interaction have however a developmental limit. On the one hand, 5 year olds change their stories very little after the conversational intervention. On the other, 6 year olds change their stories,

but less than do the 7 and 8 year olds. Intervention profits most to children that potentially have the cognitive and linguistic abilities to tell coherent, evaluative stories, but cannot do it due to difficulties in integrating the various cognitive, linguistic and pragmatic aspects of the task, or for not having yet mastered the obligatory constraints inherent to storytelling. It is however of little help to those children who do not have yet enough resources to narrate, in an autonomous way, a fictional story whose structure and meaning needs to be interpreted from a sequence of pictures.

What can be drawn from these results? First, they can help writing a somewhat different story of the course of narrative development in typically developing children. If the method used here, and in similar studies, is integrated to the procedures usually used to trace the development of monological fictional narratives, we could obtain a much richer view of narrative development, with a lower and an upper bound of capacities for each child, facing the *same* task, and thus beyond the variation already observed for types of narrative, of stimuli and conditions in which stories are told (e.g., Berman, 2004).

The conversational interaction could also be useful for assessment purposes. Indeed, the production of an initial narrative doesn't seem to reflect the whole range of competencies for all children. The conversational interaction is a simple method, easy to administer, that could be used to reveal children's underlying competencies in a more effective way.

Finally, together with other dialogical intervention procedures (e.g., Lever and Sénéchal 2011; Makdissi and Boisclair, 2006; Silva et al., 2014), the causal-oriented conversational interaction used in our studies could also be used effectively, over a longer period of time, for remediation purposes, with SLI and autistic children (see, LeNormand, Veneziano et al., 2011, for some preliminary results with SLI children).

Several questions remain for future research. For example, are the effects found immediately after the conversational interaction stable over time? Results obtained with a small sample suggest that they are stable one week after (Veneziano, 2010), but this result should be confirmed with a more systematic study on a larger sample. Can they be generalized to a new story presenting analogous features or to stories that are quite different from the original one? Are there deeper changes at the syntactic level as well and, if yes, how are they related to changes in

content? On another ground, a future study should relate the changes observed to the answers children provide to the causal questions asked in the conversational interaction. Some preliminary results suggest that the relationship between what children say during the conversational interaction and their subsequent monological narrative are not simple (Veneziano, 2010). suggesting that the production of a monological narrative has its own specific constraints and complexities that go beyond both comprehension, even when this is expressed linguistically, and the production of a fragmented story that the child tells while participating in scaffolding conversation.

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