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On the Ability to Relate Events in Narrative

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The study concerns how children of different ages talk about events that form part of an ongoing narrative. The data base is a set of stories told by 112 Hebrew speakers—preschoolers aged 3 to 5, schoolchildren aged 7 to 12, and a group of adults—relating the contents of a picture booklet depicting the adventures of a boy and a dog in search of their missing frog. Analysis of text length, number of references to plot-advancing events and of plot summations, types of connectivity markers, and use of verb tense revealed that most 3- and 4-year-olds and some 5-year-olds described each picture in isolation, whereas older children chained the events sequentially in relation to an overall plot line. Descriptions at the micro-level of a single scene show similar developmental trends to those found at the macro-level of the overall story line. A major cutoff point emerges between the narratives of preschoolers and those of children from age 7 up. Narrators at the two extremes—immature 3-year-olds and fully mature adults—manifest distinct behaviors in several respects. This study shows that the development of narrative abilities can be characterized in terms of a three-phased model applied to describing the acquisition of morpho-lexical systems of Hebrew; and it confirms findings of other researchers on cognitive maturation, linguistic means of expression, and familiarity with narrative norms in a literate society.

1. Introduction

This study examines how children of different ages talk about events that form part of an ongoing narrative. It thus aims to add to the growing body of knowl-

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edge about the development of the ability to tell a story (as reviewed, for instance, in Bamberg, 1987; Peterson & McCabe, 1983; Shatz 1985).¹ Unlike in work that has focused on veridical narratives and children's recounting of personal experiences (e.g., French & Nelson, 1982; Kernan, 1977; Nelson & Gruendel, 1981; Preece, 1987; Umiker-Sebeok, 1979), how children cope with **fictive** narratives is examined—by means of a story based on an unfamiliar picture booklet. This work is thus closer to that of Hickmann (1980, 1982), which was based on film and picture sequences, and of Karmiloff-Smith (1980, 1981, 1984), who made use of specially devised picture stories. These important studies, however, have focused on **participants** in an event sequence, hence on use of pronouns, determiners, and other referential devices that function in object specification. This study, in contrast, centers on the ability to refer to **events** rather than to the people or objects participating in them.² In fact, the title of this paper is deliberately ambiguous, as between two dictionary definitions of the transitive verb *relate*: (a) to tell, recount, or narrate, that is, to give a verbal account of the contents of an event; and (b) to show or establish a logical or causal connection between events.

2. Method

In order to examine how children report on and express connections between events in a narrative, narratives based on a picture book that shows a fairly long and complicated sequence of events depicting the adventures of a boy and his dog in search of their missing frog were elicited.³ The plot described by the

¹Reference is not made here to the important work of Stein, Trabasso, and their associates (e.g., Mandl, Stein, & Trabasso 1984; Stein 1979; Stein & Glenn 1979; Stein & Trabasso 1982a, 1982b) or of Jean Mandler and her associates (Mandler & DeForest 1979; Mandler & Johnson 1979; Mandler, Scriber, Cole, & DeForest 1980) because these are largely concerned with comprehension and recall of stories. The focus here is on the linguistic expression of a child's ability to produce narrative text with a minimum of verbal input or scaffolding. That is also why I disregard, for present purposes, studies conducted within related frames of reference (story schemata or story grammars as reviewed by Mandler, 1982) that are oriented to psychological perspectives on the protagonists (e.g., Bizanz 1982; Newman 1980) or that deal with children's ability to summarize or judge stories (e.g., Johnson 1983; McConaughy, Fitzhenry-Coor, & Howell 1983; Stein 1984).

²An exception is the research of Michael Bamberg (1987). His work on German-speaking children's retelling of stories made use of the picture booklet that was subsequently adopted for eliciting stories from preschool and school-age children as well as adults in five different languages: English, German, Hebrew, Spanish, and Turkish (Berman et al., 1986; Berman & Slobin, 1987). In the original German study, Bamberg considers how reference to the protagonists participating in the events develops together with the ability to encode temporal features of the events themselves.

³The picture book, used in several projects referred to earlier, is "Frog, Where Are You?" by Mercer Mayer, New York: Dial Press, 1969. It consists of 24 black-and-white pictures in a small (5" by 7"), 15-page booklet. The numbers on each picture served in our analysis but do not appear in the original booklet shown to the children. The left and right pictures on a page were marked "a" and "b", except where there was only one side (Pictures 1 and 15, the first and last) or where the two sides were a single picture (e.g., 5-, 11-). For details, see Berman & Slobin (1987).

TABLE 1
Event Structure of Picture Book Story

Episode	Picture	Scene	Location
Stage Setting:	1-	Boy & dog look at frog in jar	Bedroom, night
Initial Event Chain:	2a	B & D asleep, Fr exits from jar	
	2b	B & D awaken, discover Fr gone	Bedroom, morning
Search at House:	3a	Search strts, B looks in boots Dog's head sticks in jar	
	3b	D looks out, B calls	At window
	4a	B looks out, D falls outside	From window
	4b	D in B's arms, jar shattered	Below window
Search Outdoors:	5-	B calling out, D looking round	In forest
	6a	B looks down gopher hole D barks at hanging beehive	At hole At tree
	6b	Gopher jumps out, D shakes tree	
	7a	Hive falls down, D looks round	
Adventures, Mishaps:	7b	B climbs up, peers inside hole	In another tree
	8a	Owl appears, B falls down	At tree
	8b	Bees chasing, D running away	
	9a	Owl swooshes off, B cowering	At rock
	9b	B on top, calling, holding on	On rock
	10a	B caught on antlers	Behind rock
	10b	Deer carries B off, D runs with	Near cliff
	11-	B and D fall down, Deer watches	At cliff edge
	12a	B and D plunged into water below	Inside marsh
Beginning of End:	12b	B attends to sound, D on his neck	Near log
	13-	B signals for quiet, follows sound	At log
	14-	B and D climb log, see frogs below	
	15-	B has a frog, waves goodbye to others	Leaving marsh

pictures can be broken down into the event structure depicted in Table 1, in which the item in bold print indicates a scene selected for more detailed analysis (described in section 3.2 later).

Subjects were asked to tell a story based on a booklet of pictures without words, with which they were not familiar. The subjects were 112 Hebrew speakers, 16 at each age-group, divided into preschoolers aged 3-4, 4-5, 5-6; second-, fourth-, and sixth-grade schoolchildren aged 7-8, 9-10, and 11-12 respectively; and college-educated adults 20-40 years old, as shown in Table 2. They were all second-generation native speakers of Hebrew, of middle-to-upper-middle-class backgrounds, divided fairly equally between the sexes thus: preschool-age, 28 boys and 20 girls; school-age, 18 boys and 30 girls; adults, 8 men and 8 women.

TABLE 2
Number and Age Range of Subjects in Each Group

	Age-Groups							
	3s	4s	5s	7s	9s	11s	Adults	
<i>N</i> =	16	16	16	16	16	16	16	112 (Total)
Schooling	Nursery	Pre-Kindergarten	Kindergarten	Grade II	IV	VI	College	
Age-Range (Yrs., Mos.)	3, 0-3, 11	4, 0-4, 11	5, 0-5, 10	7, 0-7, 11	9, 0-9, 10	11, 4-12, 3	20-41	
Mean Age (Yrs., Mos.)	3, 6	4, 5	5, 5	7, 7	9, 6	11, 7	24	

Subjects were told as follows, with slight changes in wording for different age-groups: "This is a book that tells a story about a boy and a frog. First look at all the pictures, look through the whole book, and afterwards you will tell me the story." Then, when they were finished going through the book, they were told "Now go back to the beginning, and you tell the story." Respondents had the book in front of them all the time, and they looked at the pictures as they turned the pages. They were thus not required to recall the contents of the pictures from memory. The youngest children were helped in turning the pages, as were some school-age children who started from the back of the book because Hebrew reads from right to left. Minimal verbal prompts were given, even in the youngest age-groups.

The subjects were thus telling a story strongly scaffolded by nonverbal input cues—the pictures as sequenced by the author. And they were explicitly told that the pictures represented a *story* (Hebrew *sipur*). On the other hand, the story depicted was of a length and complexity beyond what is generally used in picture-sequence elicitation tasks for children.⁴ Analysis of the overall structure of the children's narratives (section 3.1) was therefore supplemented later by a more detailed examination of one particular scene (section 3.2).

3. Results

All the children proved able to describe the contents of at least some of the pictures. And only a few of the 3-year-olds occasionally merely noted the existence of objects without any reference to related events, such as (3D:8a,#23) *hine yanshuf*, "here('s an) owl"; (3K:2a#1) *ze kelev, ve magafayim, ve kise*, "it's/ this is (a) dog, and boots, and (a) chair".⁵ That is, even the youngest children in the sample talked about happenings and activities in relation to the pictures they described. And, again, only a few 3- and 4-year-olds digressed here and there in a random or irrelevant fashion from the contents of the picture book; for example, (3D:1,#6-11) "I see that Ori and Michal [the child's own name] look at the frog. He lies on the little bed. But I've got a **big** bed, even bigger than my sister. And I've got a carrycot. Babies have a buggy and a carrycot". Or there was (3G:8b,#24-26) "And there's a dog that barks and goes. I've got a

⁴The terms used here distinguish between the *plot* or *plot line* intended by the author of the booklet, the *story* represented by the pictures (both specified in Table 1), and the oral *narratives* or *accounts* produced by respondents.

⁵Examples are cited by giving the identity for a particular text line in angled brackets, as follows: Child's age in years and place in that age-group: picture number, clause number(s). Thus, (03D:8a,#23) stands for: Child D = the fourth child in the 3-year-old group, the right side of Picture 8, the 23rd clause in that child's narrative; (05J:13b,#62) stands for: Child J = the 10th child in the 5-year-old group, the left side of Picture 13, the 62nd clause in that child's narrative; and (AdQ:15,#67-69) stands for: Adult Q = the 16th adult interviewed, the last picture (number 15) in the book, the 67th to 69th clauses in that narrative. Ages specified by earlier letters, from A through around H, generally indicate months zero through 6 for a given year-group, those from I to Q later ages (see Table 2).

TABLE 3
Range and Length of Narratives in Each Age-Group [*N* = 16 per group]

	Age-Groups						
	3s	4s	5s	7s	9s	11s	Adults
Total No. of Clauses:	544	691	745	996	954	933	1126
Mean No. of Clauses:	34.6	43.1	46.4	62.3	60.6	58.3	70.4
Range of Clauses:	15-74	19-116	27-83	48-81	42-95	40-78	35-160
Standard Deviation:	15.7	23.2	14.1	10.2	15.9	11.4	31.6

lotta strength [= I'm very strong]! And and a bird flies," and (3J:5-, #17-18) "and he [= the boy] put on the big shoes [= the boots], the ones that I saw." All the children, without exception, focused on the task at hand as requiring them to talk about what was in the pictures.

Moreover, as has been noted for children recounting the contents of this picture book in five different languages, the 3- to 4-year-olds already manifest command of a wide range of different simple-clause constructions, inflectional markers, and grammatical functors in their native tongue (Berman & Slobin, 1987; Slobin, 1986). In Hebrew, this means that the 3-year-olds' narratives contain appropriate markings on verbs for present, past, and future tense or infinitival mood, as well as gender, number, and person agreement on verbs and gender and number agreement on nouns and adjectives. On the other hand, as shown below, the 3- and 4-year-olds' narratives differ both globally and at the local level of individual scenes from those of 7- and 9-year-olds, and the latter are not the same as full-blown adult accounts of the events.

3.1 Overall Structure of the Narratives

A number of criteria were established to characterize the overall structure of the narratives elicited. These include length of narratives at each age-group (Table 3); reference to an overall plot line and to a sustained search as an organizing framework (Tables 4 and 5); and use of linguistic devices suited to the narrative genre: deictic, sequential, or subordinating markers of relations between events in the ongoing narrative (Table 6).

The first analysis was of text length, set by the number of clauses per narrative, where a **clause** refers to "any unit that contains a unified predicate . . . (that is) a predicate that expresses a single situation (activity, event, state" (Berman, Slobin, et al., 1986, p. 37). It was assumed that, faced with such a long and detailed set of pictures, younger, pre-school-age children would produce much shorter narratives than would schoolgoers and that the latter would

TABLE 4
Mean Number of References to 6 Plot Line Components and Number of Subjects Mentioning 5-6 of these Components in Each Age-Group [N = 16 per group]

	Age Groups						
	3s	4s	5s	7s	9s	11s	Adults
Mean No. of Components Mentioned	1.7	3.1	4.7	5.2	5.7	5.6	5.7
No. of Subjects Mentioning 5 or 6 Components	1	2	8	14	16	15	16

TABLE 5
 Number of Narratives with Explicit Reference to Initiation, Sustaining, and Encapsulating
 Progress of Search in Each Age-Group [$N = 16$ per group]

	Age Groups						
	3s	4s	5s	7s	9s	11s	Adults
Initiation Explicit	—	1	8	13	16	16	16
Sustained Search	1	5	9	14	16	15	16
Progress Encapsulated	—	—	—	— +(1)	2 +(2)	1 +(1)	8

show greater individual variation in the length and detail of their narratives. The first part of this hypothesis was confirmed: Table 3 shows a steady rise in mean number of clauses with age, with preschoolers averaging 41 clauses across 48 children, compared with school-age children and adults, who averaged 60 and 70 clauses per text, respectively. A one-way analysis of variance reveals a significant effect of age-group on number of clauses ($F_{(6,105)} = 7.03, p < .001$). Individual between-group differences calculated by the Duncan Multiple Range test were also significant at the .05 level, yielding three homogeneous subsets of (a) preschoolers (ages 3, 4, and 5), (b) all other respondents (ages 7, 9, 11, and adult), and (c) 5-, 9-, and 11-year-olds. Yet the school-age children showed a smaller overall range in length of narratives, from a minimum 40 clauses to a ceiling of less than 100, whereas the adults showed the greatest variability, from less than 40 clauses to over 150.

These findings show that sheer overall length of narratives is not necessarily a valid criterion for evaluating their quality. If the adult versions of this story reflect end-state narrative ability (and the 16 respondents were college educated and of middle-class background), then they cover a very wide range, from a short, concise narrative of one or two clauses per picture to a very detailed version four times its length. A more qualitative analysis was undertaken in terms of how far respondents gave explicit verbal expression to the story line implied by the pictures. It was assumed that younger children would treat each picture in isolation, without any overall frame of reference to a unified plot line with an onset, an unfolding, and a resolution. Five-year-olds, who in this sample already attended kindergartens with a state-approved curriculum (though ones that did not include reading and writing), were expected to relate to an overall plot line more than would 3-to-4-year-old preschoolers, but it was expected that only schoolchildren and adults would be able to describe the story in terms of a unified thematic organization.

Reference to an overall plot line was measured as explicit mention of three

crucial parts of the story outlined in Table 1, each with two subcomponents, shown in (1) here.⁶

- (1) *Initial Event Chain*: [Onset of Problem]
 (1) *Frog leaves jar*
 + (2) *Protagonist(s) discover that frog has gone*
Search Motif: [Goal]
 (3) *Initial search inside house*
 + (4) *Search continued outside*
End: [Resolution of Problem]
 (5) *Boy finds/takes a frog*
 + (6) *Frog is same as or substitute for missing pet*

A total of six elements were taken as outline of the overall plot, and each respondent was given a score from 0 to 6, depending on how many of the elements in (1) he or she mentioned explicitly (see footnote 6). Table 4 represents the sums of these scores for each age-group.

Table 4 confirms the hypothesis that, with age, children refer to more plot line components, and it further shows a sharp increase in the number of children who referred to nearly all or all six components at age 5 (late pre-school-age) and then again at age 7 (early schoolgoing age). A one-way analysis of variance reveals a highly significant effect of age on number of references to these six plot line components ($F_{6,105} = 34.31, p < .001$). Individual between-group comparisons (using the Duncan Multiple Range test) revealed a significant increase in number of plot-advancing components mentioned between ages 3 and age 4, between ages 4 and 5, and between these three groups and all subjects from age 7 up ($p < 0.05$). The school-age and adult narratives are also more uniform from this point of view ($SD = 0.7$), compared with the preschoolers' ($SD = 1.4$). The 3-year-olds mention on an average less than two plot-advancing elements, and only one child of this age-group mentions as many as five elements of the story. Progression in number of plot line elements mentioned levels off by age 7, with no change from age 9, when nearly all the respondents make overt reference to all six plotline elements: The few 9-to-11-year-olds and adults who do not do so invariably fail to explicitly mention that the frog they found was the same one as or a substitute for the one that had gotten out of the jar.

⁶This analysis of the overall story line into six components critical to plot advancement was established at a crosslinguistic workshop at the University of California, Berkeley, in May 1986, conducted by Dan I. Slobin and the author with researchers representing different languages (Virginia Marchman and Tanya Renner for English, Michael Bamberg and Christiane von Stutterheim for German, Yona Neeman for Hebrew, Eugenia Sebastian for Spanish, and Ayhan Aksu-Koc for Turkish). Reliability measures were not calculated, but workshop participants very largely agreed on the scoring for plot line elements in narratives in the different languages. Specifically, the author and Yona Neeman, a graduate student in linguistics at Tel-Aviv University, agreed fully on the criteria and the particulars of these and other scores assigned to the Hebrew narratives.

These plot line elements involve what have been termed "the highest order episode" and "summary" in the analysis of story structure (Rumelhart, 1977; Trabasso, Suh, & van den Broek, in press). In order to evaluate this, the Hebrew narratives were analyzed for overall thematic organization. It was assumed that this would be a difficult task for pre-school-age children in general, as well as for some older ones. The analysis took into account that the adventures that befall the boy (and his dog) in the forest are part of their expedition in search of the missing frog and that this overriding goal is the critical factor for organizing the plot into subepisodes such as that the boy first goes walking in the forest where he looks down into the hole of a gopher, then climbs a tree, then gets on top of a rock. Three criteria were used to evaluate overarching narrative organization: (a) Explicit statements about the fact that the search was **initiated**, (b) overt references to a **sustained search motif**, and (c) verbal **encapsulation** of the search specifying that several events were all part of an interconnected series of (mis)adventures.

The first of these, Search-Initiation, was measured by number of references to the fact that when the boy and his dog walked out into the forest (so leaving the vicinity of the house), they were starting on a search. Stringent criteria were adopted so as to unequivocally identify the second kind of evidence for thematic organization (see footnote 6). Expression of a Sustained Search required explicit, repeated mention of a search that continues not only (a) when the boy and his dog have left the house for the forest (Table 1, Picture 5) but also (b) subsequently, when the boy is looking inside the gopher's hole (Picture 6a), peering into the hollow of the tree trunk (Picture 7b), and calling out from the top of the rock (Picture 9b). Moreover, (c) if children merely used a general verb for looking or peering (e.g., Hebrew *le-histakel*) or for calling or crying out (e.g., *li-kro*), they were not credited with making overt reference to a sustained search; rather, they had to use such a verb or the more specific verb *le-xapes* meaning "look for, search." They also (d) had to make explicit reference to the frog, their pet, or the lost animal as the object of their search. (The "frog" was easily identified in the Hebrew texts as the only animal in the story with feminine gender marking). Thus the following excerpts were **not** taken to indicate a sustained search motif: <3P:7b,#17> *ve az ha-yeled halax le-xapes otam betoxo* "and then the-boy went to-look-for them inside-it, where "them" refers to what the child interpreted as silkworms inside the beehive nest; <3Q:5a,#17> *shney-hem kor'im le-mashehu* "they-both [=the boy and the dog] call to-for-something"; <4I:6b,#18-19> *hu mistakel betox ze. po hu kore la-kelev.* "he looks inside it [=the gopher's hole]. Here he calls to-the-dog"; <4P:7b,#25-26> *ve axarey ze ha-yeled ala al ha-ets ve hibit ba-xor* "and after that the-boy got on the-tree and peered in-the-hole."

The third kind of evidence for overall organization, Encapsulation, was provided by explicitly summarizing formulations that encompass the search as a whole or the search in progress or en route, over and beyond its individual component parts. An example would be a narrator who said something like "and

on their way they had all kinds of mishaps" instead of, or in addition to, specifying the details of each mishap scene separately.

Table 5 gives the number of overt references to the central search motif in these three ways, with figures in square brackets in the bottom line representing partial, or "en route," encapsulations.

The first line of Table 5 lists number of references to the fact that when the boy and dog go out into the forest, they are embarking on a search. A one-way ANOVA testing the effect of age was highly significant ($F_{6,105} = 44.78$, $p < .001$). A Duncan Multiple Range test for individual between-group comparisons revealed the 3-year-olds and 4-year-olds to form one subset, the 5-year-olds another, and all children from age 7 up grouped together as a third subset ($p < .05$). Only one child out of the thirty-two 3- and 4-year-olds indicated the forest as a locale for the start of a search: (4M:5-, #6-7) *hu xipes et ha-tsfardea shelo + ve hayu dvorim* "he searched = looked-for the-frog of-his [=his frog] + and (there) were bees." Even this does not really qualify as mentioning an **initiation** of the search, but the child is making a link between the onset of the search inside the house and what ensued, when the boy followed the dog outside. In contrast, half the 5-year-olds, most of the 7-year-olds, and all the respondents from age 9 on made explicit reference to a quest for the frog being conducted outside the house, in the forest (Picture 5).

A significant cutoff point between preschoolers and the rest also emerges for number of references to a **sustained search** shown in the second line of Table 5: 15 out of 48 preschoolers compared with 45/48 schoolchildren ($F_{6,105} = 21.36$, $p < .05$). Moreover, although there is a clear and steady rise with age in number of preschool children who carry the search motif across their narrative, this levels off by school age, showing no increase at all after age 9. Comparison of individual narratives reveals that only, but not all, the 3- through 7-year-olds who made sustained mention of the search motif in subsequent parts of their narratives also made explicit reference to search initiation. Moreover, only older children's references to onset of the search took the form of genuine encapsulations in the sense of prospectively organizing frames for the ensuing narrative. These were provided only from school age up. Compare the examples in (2) and (3) in the following, translated from the narratives of 5-, 7-, and 9-year-olds, respectively.

(2) FIVE-YEAR-OLD REFERENCES TO SEARCH INITIATION [PICTURE 5]

- (5C #15-18): And afterwards they walked and walked until they came to a place that [=where] they wanted to see—if it was there.
- (5E #13-16): And the boy went and searched and went and called with his dog for the frog.
- (5G #20-22): . . . And afterwards they went out, and the boy called for the frog, and afterwards the frog didn't come.
- (5I #24-26): Here he calls for the frog, and the frog understood because it didn't come.

- (3) SCHOOL-AGE REFERENCES TO SEARCH INITIATION [PICTURE 5]
 (7C #13-17): Then he went out together with his dog, and—and they shouted and searched for it, afterwards they—they didn't find it, and they continued to search.
- (7K #17-19): Afterwards they went out to search for the frog, and the boy called its name out loud, and then [Picture 6] he saw some kind of burrow that he thought the frog was in.
- (9D #22-24): And they went to search for it, and they called "Frog! Frog!" and they searched and searched, until. . . .
- (9K #28-29&YL): And they went out to search for it, and they passed by a beehive, there in the forest.

The older children make clear reference to the search as motivation for entry into the forest. But only the 11-year-olds and adults explicitly link the initiation of the search with what ensues, by plural reference to an object or a goal or by using a verb of inceptive aspect, for example, (11B:#20-23) "they walked (around) *in all kinds of places* and called for the frog to come to them"; (11K:#19-22) "after that er . . . they went out and *started to walk*, and the boy *started to call* for the frog"; (AdA:#18-19) "And then they *set out on an expedition of searchings* after the lost frog, turning towards the forest. . . ."; (AdM-#18-20) "After they finished searching all over the room, they started to search outside. . . ."

Striking evidence for a difference in overall organization of more mature narratives, compared with those of children, is provided by the figures in the bottom line of Table 5. Half of the adults provide summary statements encapsulating a series of separate mishaps and encounters in the course of the search, as against only three of the 9- and 11-year-olds and none of the younger children. A few children, shown by the figures in square brackets, seem to be "en route" to this kind of expressive ability. They do this by means of plural reference such as (9P:#19-20) "Er . . . the boy called for it inside *burrows*," or by using parallel clause structures such as (7F:#34-35) "And the dog searched in the beehive, And the boy searched in the mouse-hole " and (11G:#29-31) "They went outside, searched in the garden, searched in the yard, but no frog did they find." But only the adults for example, (AdB:#22-24) "They called for it in the forest, there they encountered all kinds of things like for instance a nest of wasps . . . they asked everyone"; (AdG:#29-30) "He tries to search in every hollow and in every hole that he meets, thinking that maybe there. . . ."; (AdH:#38-42) "They asked animals they met on the way, but don't find the frog. Er . . . er on the way when they were searching, so all kinds of things lay in waiting for them on their way"; (AdJ:#34-35) "They saw different animals, they had different adventures . . . a deer and an owl, fell into a lake. . . ."; (AdN:#14) "In the forest different adventures happened to him [=the boy]"; (Adq-#27-28) "The boy and his dog continued searching in the forest for the frog, and they called it in all kinds of places."

Not all the adults use similarly literary or elegant turns of phrase in making these generalizations. But, as noted, some such encapsulation occurred in half the adult narratives in the sample, yet in virtually none of the ones told by children even as late as fourth and sixth grade.

A final source of evidence for overall narrative organization was use of linguistic forms marking the transition from one situation to another in the ongoing discourse. It was assumed that (a) young children would rely widely on deictic expressions signifying attention to each picture as an isolated frame, (b) children near or at early school age would chain events in a narrative by rather mechanical reliance on markers of temporal sequence such as "and then," and (c) more mature narratives would be tightly packaged by means of clause embedding and subordination. Narrative connectivity was analyzed in terms of three kinds of **clause-initial markers**: deictics, sequentials, and subordinators. *Deictics* are typical of the language used for picture description and include the Hebrew locatives *po*, *kan* ("here") and *'hine* ("here's, this is", rather like French *voici*), and the temporal deictic *axshav* ("now"). *Sequentials* overtly mark an event or situation as following chronologically after the preceding one and, in our analysis, include the terms *az* ("then"), *axarey ze* ("after that"), *axarkax* ("afterwards"), as well as *pit' om* ("suddenly") because this last has been shown to mark a switch from one event to another in narratives of Hebrew-speaking children aged around 5 through 9 (Josman 1986). The basic coordinating conjunction, Hebrew *ve* ("and") was not included, because it occurs with a heterogeneous range of discourse functions, with different meanings, and in different syntactic contexts in these narratives (Geva 1988; and see, McCutchen 1987, p. 275). *Subordinators* refer to conjunctions that introduce adverbial clauses, both temporal, such as the Hebrew equivalents of "when, while, after, as soon as, until" and logical, such as the words for "because, so, in order that, although."

The overall percentage of clauses starting with some kind of connectivity marker (other than "and") was much the same across the children, ranging from a quarter to one third of the clauses up to age 9 and decreasing markedly to around 15% or less with 11-year-olds and adults. On the other hand, there were marked differences in the **types** of connectivity markers used by different age-groups. Table 6 presents the proportion of each type of connectivity marking used by children at different ages.

There are clear developmental shifts in the distribution of deictic, compared with sequential and subordinate, markers. A one-way ANOVA performed on each of the three types of markers yielded the following results. *First*, there is an overall near-significant effect of age on number of deictics used, ($F_{6,015} = 1.83$, $p < .09$), with two extreme subsets of subjects: The 3-year-olds used significantly more deictics than all the rest, on the other hand, and the adults used significantly fewer than did the children. The change from an average of 5 deictics per 3-year-old's text to less than 2 at school age is evidence of a move

TABLE 6
Mean Percentage of Three Types of Connectivity Markers per Subject in Each Age-Group
[$N = 16$ per group]

	Age Groups						
	3s	4s	5s	7s	9s	11s	Adults
Deictic	5.2	3.8	4.2	1.9	1.3	1.5	0.6
Sequential	4.0	10.2	9.8	15.7	10.1	5.4	4.1
Subordinate	0.4	1.2	0.9	2.6	3.8	3.2	5.6

away from isolated picture-by-picture description as when a child says "and here we see X," "this little boy is jumping" (often accompanied by gestural pointing to the picture).

Second, a different picture emerges for distribution of sequential markers such as "and then, afterwards." The overall effect of age on this is highly significant ($F_{6,105} = 8.00$, $p < .001$), but there is no linear relation between number of sequentials used per age-group. The groupings that emerge as significantly distinct are, once again, the 3-year-olds, as isolated from the rest and compared with the 4-, 5-, and 9-year-olds on the one hand, and the oldest subjects, 11-year-olds and adults, on the other, with the 7-year-olds forming a separate subgroup apart from the other preschoolers, on the one hand, and from the older schoolchildren, on the other.⁷ Sequential markers show a bell-shaped distribution, occurring with relatively high frequency from ages 4 through 7 and then decreasing somewhat from age 9 on, with a significant drop among the 11-year-olds and adults ($p < 0.05$); they average under 5 per text among the youngest and oldest children, as between around 10–15 per text in the medium age range, from 4 to 9 years. This indicates recognition of the storytelling mode expressed by a rather mechanical chaining of events in temporal sequences of "and then . . . and then . . . and then . . ." Analysis of clause-initial elements in the more mature sixth-grade and adult narratives indicates that the sequential relations of "X and then Y" of "X, and afterwards Y" are assumed as the default case for chronological narration of events and, hence, are not explicitly marked by conjunctions except when needed to segment off major story boundaries.

Third, use of subordinating markers such as the temporal "while, until" or logical "because, since" again shows a different picture. The overall effect of age difference in use of subordinators was also highly significant ($F_{6,105} = 8.67$, $p < .001$), but here there is a clearly linear progression, with 3-, 4-, and 5-year-olds grouped together, compared with 7-, 9-, and 11-year-olds, on the one hand, and the adults on the other ($p < .05$). There was not much use of subordination

⁷This might be due to relatively large individual variation in this respect in the early school-age narratives, but even then they differ from the 3- and 4-year-olds in range: All 7-year-olds in our sample used at least three sequential markers (e.g., "and then," "afterwards"), whereas each preschool age-group included children who failed to use even a single such form.

in general—from around 2% of all clauses at preschool age to some 5% at school age, rising to 8% of all adult clauses—but these also (like theme encapsulation, discussed in reference to Table 5) represent a means favored by adults, compared with even sixth-grade children.

In summary, there are clear developmental differences in how younger, compared with older, children and adults handled the storytelling task in question. One difference is quantitative: The younger children's output was, on the average, shorter than that of older speakers. Several more qualitative measures reveal that all the 3-year-olds and most of the 4-year-olds relate to the contents of the booklet by means of picture-by-picture descriptions. Older children, in contrast, enter quite clearly into a storytelling mode. They make overt reference to a large number of plot-advancing components of the story; from school age up they typically make explicit reference to the search motif as deliberately initiated and sustained across large stretches of the story; and they overtly mark events as following sequentially one after another. Yet even school-age children fail to encapsulate an entire series of events within single summarizing statements of the kind provided by many of the adults.

3.2 Further Analyses

Two other analyses illuminate rather different dimensions from those presented above: use of verb tense as an indicator of "narrative mode" and detailed analysis of one particular scene, as reflecting the micro-level of individual-picture description.

The special situation of picture-book-based storytelling means that either past or present tense is equally suitable as a temporal anchoring for the narrative. And this in fact was demonstrated by the versions provided by the 16 adults on the present task: Half told the story in the past tense, the other half in the present (Table 7).⁸ Speakers were free to use the historical, or narrative, present, well suited to this as an ongoing description. For example, one English-speaking adult's narrative opened as follows: "There's this little boy sitting in his room, has a pet frog in a jar, and a dog is trying to get into the jar, wants to be playing with the frog. . . ." But a past tense anchoring would yield an equally felicitous version, as in the opening to the following English narrative, also from an adult: "Once upon a time there was a little boy who had a frog and a dog, and after he and his doggie went to sleep one night, the frog got out of his jar and escaped." Now Hebrew lacks grammatical marking of progressive or perfect aspect. Hence, the main temporal distinctions relevant in these narratives are between the bare present tense, used for immediate present as well as for habituals and generic, and the bare past tense, used for durative as well as punctual or perfective past reference and also for anteriority. We assumed that preschoolers would prefer the present tense, as suited to the more deictic, here-and-now interpreta-

⁸Of 10 adult narratives elicited in English by the same procedures (see footnote 6), only 2 were in the past tense, with the other 8 in the present.

TABLE 7
 Number of Subjects with Dominant Present, Past, or Mixed Verb Tense Forms in Each Age-Group [*N* = 16 per group]

	Age Groups						Total	
	3s	4s	5s	7s	9s	11s		Adults
Over 75% past	5	9	10	14	15	12	8	73
Over 75% present	2	1	4	1	—	4	7	19
Mixed past and present	9	6	2	1	1	—	1	20
								112

tion they assigned to the task. We expected school-age children to adhere more strictly to the past tense, because this meets the narrative norms familiar to them from school readers and other fictive literature. But adults, as noted, would feel free to select either option.

We analyzed tense usage as the "dominant tense" for each narrative, defined as 75% or more occurrences of either present or past tense verb forms out of the total finite verbs in the text, not counting infinitives, imperatives, or future tense forms. The distribution of verb tense in the different narratives is shown in Table 7.

Table 7 reveals that two thirds of the respondents favored the past tense in their narratives. This trend is particularly clear in the middle-aged groups (although chi-squares were nonsignificant), because use of the past tense rises from around 60% of the 4- and 5-year-olds' narratives to 90% of the 7- and 9-year-olds', and then dips back to around 60% among the 11-year-olds and adults. The rise of past tense dominance from age 4 to 5 and its stability across school age confirms our hypothesis and indicates that these older narrations were in a storytelling, rather than picture-description, mode, where the present tense is typical. Table 7 also reveals a decrease with age in number of "mixed" narratives, which veer back and forth between present and past. More than half of the 3-year-olds use this strategy, as do several 4-year-olds (47% of all 3- and 4-year-olds' narratives are "mixed" between present and past tense verbs) and two of the 5-year-olds' narratives. These younger children have not settled on a fixed mode of predicating but shift tense as they move from one picture to another and from one predicate to another.⁹

Prior work on these narratives has shown that in-depth examination of how speakers describe a particular scene is helpful for developmental as well as

⁹Preliminary analyses of these narratives shows this to be the case for aspect shifting in English and for tense shifting in Hebrew. The youngest children (aged 3 to 4) switch from present to past or from past to present in an item-based fashion, triggered by a verb that is morphologically ambiguous between past and present tense (e.g., *rats* means both "runs" and "ran," *nixnas* means both "go in" and "went in," *sam* means both "is putting" and "has put") or by a verb that is semantically perfective and so identified by them as taking past tense marking (e.g., *nafal* "fell, has fallen" or *shavar* "broke").

crosslinguistic comparison (Berman 1984, 1987; Berman & Slobin 1987; Slobin 1986). Findings for descriptions of one particular scene that showed considerable variation across age-groups and individuals are presented below. The scene was not mentioned at all in some cases, it was described by a single clause in others, and it extended in more elaborate texts to as many as 7 or 8 clauses. This is the "discovery of loss" scene shown in Picture 2b (marked in boldface on Table 1). It is the morning after the night before shown in the preceding picture, and the boy and the dog are lying awake on the bed, gazing at the empty jar from which the frog has escaped. This scene was chosen because of four scenes analyzed in detail in an earlier context (Berman 1984), it alone showed a linear progression in the number of preschoolers who mentioned it out of each group, thus: 2 children at age 3, rising to 6 at age 4, and to 10 at age 5. This yields a total of 18/48 preschoolers (37.5%), compared with all 48 school-age children who made some reference to the boy's realizing that the frog was gone. These figures accord with our earlier findings for the lack of plot-based narratives among the younger children: The scene is a critical component of the story, because their discovery that the frog has gone is the background to all the subsequent actions of the boy and his dog.

A second reason we selected this scene is that it was particularly amenable to analysis of complex syntax, because speakers described it using the three different types of subordination: (a) an adverbial clause such as "when the boy woke up the next morning . . .," (b) a complement clause such as "the boy saw that his frog was gone," and (c) a relative, for example, "the frog was gone from the jar where he kept it." We hypothesized that syntactic marking of clause connectivity within a single scene would characterize more mature narratives and that this would be connected to the fact that only older children relate each event to the surrounding circumstances that form its background.

To test these questions, we divided the scene into a set of component elements, selected by taking the most detailed adult account to represent a fully elaborated version of the scene. This led us to consider, *first*, the syntactic constructions used to relate the event of waking up and the fact of discovery and, *second*, reference to the following constituent elements: Background expressed in the temporal reference point *next morning or in the morning* and the event of *waking/getting up*; the Event of noticing itself, plus the content of what is discovered; and possible Inner State response of the boy as protagonist.

Table 8 shows a clear development in the syntactic devices speakers choose with age. The younger, preschool children, use isolated simple clauses or occasional coordination such as *they woke up and saw. . . , they got up and didn't find . . .*; complement clause structures are used from age 4 on, for example, "they saw that the jar was empty," "they found that the frog was gone"; school-age children package events by adverbial subordination, for example, time adverbials such as "when they woke up they saw" . . . , as well as a large number of complement clauses such as "that the jar was empty". The figures for use of complex syntax in describing this set of propositions accord well with

TABLE 8
Breakdown of "Discovery That Frog Is Missing" Scene [Picture 2b]

	Preschool			School-Age			Adults
	3s	4s	5s	7s	9s	12s	
No. of Responses [=81]	2	6	10	16	16	16	15
Syntax							
<i>got/woke-up and</i> - COORD	—	2	6	6	5	3	8
<i>when got/woke-up</i> - SB-ADV	—	—	—	7	10	11	6
<i>saw/found that</i> - SB-CMP	1	4	6	8	12	16	8
Component Parts:							
Background: TIME [morning] ^a	—	—	—	10	12	10 ^a	11 ^a
EVENT [got-up]	—	2	6	13	15	14	14
NEG [not see/find]	1	1	—	6	3	1	—
Noticing:							
MC+ [=COMPLEMENT]	—	4	6	8	12	15	7
Content:							
a. JAR empty	—	4	4	4	1	4	1
b. no FROG	—	1	2	—	1	—	1
c. FROG not + LOC	—	1	1	5	11	9	7
d. FROG ran away	—	1	1	1	1	2	5
e. b + d	—	—	—	—	—	—	3
Resultant Inner State							
[sorry, surprised . . .]:	—	—	—	—	5	—	5

^a"in the morning, next morning"—nonclause-initial only in case of 11-year-olds (4 out of 10) and adults (2 out of 11).

findings for the development of such constructions in conversational Hebrew: Children proceed from initial simple clauses to coordination and complementation, and then on to adverbials of time and reason (Dromi & Berman, 1986). Half the adults again use coordinate structures of the form "*they woke up and saw*", compared with another half who use adverbial clauses of time like *on waking up they saw*. The fact that adults obviously can subordinate and embed is shown by mention of the time setting in this scene with the phrases "*next morning*" and "*in the morning*". None of the preschoolers mention this, as against about 70% across the school-age and adult storytellers. However, only the oldest children (11–12-year-old sixth graders) and the adults embed this time expression inside the clause, for example, "*when they woke up next morning, they . . .*"; the younger storytellers all place this phrase in clause-initial position, for instance, "*in the morning, when they woke up . . .*".

The event that forms background to the discovery—the fact of their awakening—is mentioned by very few preschoolers but by nearly 90% from age 7 up.

Most preschoolers who refer to this scene mention the fact of noticing, as do nearly all the schoolgoers but only about half the adults. Adults can forgo explicit mention of the boy's seeing something, because they select another option for this purpose: Several note both the state—of the jar's being empty—and the event that led up to that state—that the frog had disappeared or run away—so they have no need to go on and explicitly note that the protagonists had "seen" something, as all the schoolchildren feel they must.

Two other developmental differences were linguistically expressed. In formulating the complement clause that specifies what was noticed, younger children say either "the jar was empty" or "there is no frog," whereas school-age children, particularly the older ones, focus on the frog as topic with a location or change-of-state predicate, for example, "the frog is not there" or "the frog had disappeared/ run-away," respectively. Moreover, about one third of the 9-year-olds and the adults, but no others, mention the affective internal state resulting from this discovery—that the boy was upset, disappointed, worried, or surprised.

These differences between what younger and older children comment on in a particular scene, and the linguistic means they use for doing so, show that the difficulties young children encounter in organizing a narrative at the macro-level of global plot development also apply at the micro-level of how they describe the contents of particular scenes.

4. Discussion

The procedure used in this study, in which children have a picture book in front of them throughout, provides a kind of scaffolding not available in descriptions of everyday situations or accounts of past events. Yet the story depicted in Table 1 was of a length and complexity over and beyond the typical "picture-sequence" type of elicitation task. All the respondents attempted to provide some kind of narrative account of events. But 3- and 4-year-olds were generally unable to sustain a unified story line across their narratives, even though they had been explicitly asked to "tell a story" (Table 4). In general, younger children failed to explicitly relate the subsequent unfolding of events to the continued quest of the boy and his dog for their missing frog (Table 5). Only from age 5 up, and without exception among school-age children, was the task of picture description construed as a basis for recounting a connected narrative rather than as an end in itself. The general developmental picture yielded by these Hebrew narratives is that younger children recount the content of the pictures by merely juxtaposing one scene alongside another; they treat each picture as an isolated frame, largely to what precedes or follows. From around age 5, narratives take the form of sequential chaining of chronologically related events, shown for instance by reliance on expressions such as "after that, and then" (Table 6). Older speakers tend to embed their descriptions within a more inclusive frame of reference, to express a hierarchically organized series of events.

These findings accord with the conclusions of other studies of children's

narrative productions conducted from different points of view. In the framework of what Bamberg (1987) has termed "high-point analyses," for instance, Peterson & McCabe's large-scale (1983) study showed that children below age 6 tend to jump from one event to another, without giving expression to the events as an integrated whole. Kemper (1984) also found that only from age 5 do children quite generally provide their narratives with clear reference to something identifiable as its "high point." Within a "story-schema" orientation, the work of Nelson and her associates (e.g., French & Nelson 1982; Nelson & Gruendel 1981) shows that even preschoolers can sequence and organize their accounts of familiar events appropriately, although examination of the protocols makes it clear they need generous scaffolding to do so at ages 3 or 4. Stein & Glenn's (1977) study of story completion shows a steady development from simple descriptive sequences to more complex perspectives between ages 5 and 10. This also holds for studies conducted in terms of children's ongoing processing of the unfolding narrative, with which the present analysis is more closely allied (e.g., Applebee 1978; Hickmann 1980, 1982; Karmiloff-Smith 1980, 1981). The last found, for instance, that the youngest children in her study, around age 4 years, focused on details; subsequently children aged 6-7 years paid attention to general organization of the text; whereas her oldest subjects, aged 8-9 years, were able to integrate both these "top-down" and "bottom-up" perspectives within an overall conceptual framework for recounting events in sequence.

Children up to around age 5 have thus been shown lacking in the ability to produce sustained, hierarchically organized narratives (within a literate culture at all events) across different elicitation procedures: where narratives were produced in the course of spontaneous or quite informal ongoing conversation (Shatz 1985; Umiker-Sebeok 1978); on the basis of specially constructed short picture or film sequences (Hickmann 1982; Karmiloff-Smith 1980, 1981); and in telling a story from a quite long and complicated picture book (Bamberg 1987, and the present research). Moreover, these and other studies show that it takes until later school age for children to develop a full sense of story structure.

These facts are suggestive of a more general developmental model that I have proposed elsewhere for language acquisition (Berman 1986a, 1986b 1987a). Details of how children learn a number of subsystems in the morpho-syntax of Hebrew as a native tongue indicate that they proceed along three broad phases. At first, productions are largely item based and pregrammatical; subsequently, acquisition is structure dependent, and knowledge becomes grammaticized; and, finally, end-state knowledge of both grammatical structure and lexical convention are integrated within the requirements of discourse context and constraints of usage. An analogous three-phased development can be identified in the present study. The narratives of young preschool children are, so to speak, pregrammatical: Three- and 4-year-olds lack command of the precise discourse functions associated with the grammatical forms and lexical items they use; nor have they

achieved mastery of the accepted ways of storytelling in their culture. Consequently, their narratives manifest considerable individual variation and numerous idiosyncratic usages. Children in the middle age range, some of the 5-year-olds and all the schoolgoers aged 7 and up, have reached the phase of grammaticization: They know the rules of how to tell a story from pictures, and they also know more generally what is expected of them when an adult asks them to tell a story. But they have not yet developed a fully mature ability to avoid detail and focus on the overall theme or to plan overarching discourse organization expressed as encapsulations (Table 5). These are characteristic of the stories told by educated adults, which represent end-state narrative abilities though not necessarily the special talents of the particularly gifted or creative storyteller.

For the task under discussion here, the same story was originally elicited from adults, to provide end-state norms for this particular kind of narrative. And indeed, adult usage was found to differ in several respects from that of children, including the 11–12-year-olds. Their narratives were somewhat longer on the average, but they also had far greater within-group variability in length: Three out of these 16 adults told stories of 100–160 clauses long, and another three had stories of 35–40 clauses, short as those of the 3-year-olds (Table 3). Unlike the children, half of the adults made use of explicit encapsulations across a group of episodes (Table 5); they used fewer deictics and more subordinating markers of connectivity than did the children (Table 6); they alone freely selected either past or present tense as suited to the task at hand (Table 7); they sometimes expressed facets of a scene not noted by even the older children, for example, the fact that after sticking its head inside, the dog remained stuck in the jar or the fact that the owl frightened the boy and so caused him to fall from the tree (Berman 1984); and they used either hypotaxis or parataxis as suited their particular style of telling a story and what they judged appropriate to the task, or register, at hand (compare the figures for coordination versus subordination in Table 8 and the sample texts in the appendix).

However, it was not possible to pinpoint a particular narrative type as reflecting an adult "model." On the contrary, mature manipulation of this (as of other) discourse varies greatly from one individual to another. The adults' accounts range from complexly elaborated narratives that provide fine details of background and surrounding circumstances to short, concisely encapsulated, and closely packaged narratives. Some adults favor the paratactic, nonembedded option as a stylistic form suited to informal, nonexpository types of discourse (Givon 1979; Ochs 1979), whereas others seem to recognize this as a preferred stylistic device in the classical Hebrew of biblical narrative. Compare, for instance, the excerpts from three adult narratives, given in the appendix, relating the contents of Pictures 2b through 5 of the storybook, where the boy and his dog discover that the frog is missing and the search is initiated. The first story, of Iris, is in an elaborative style; the second, of Yona, is encapsulated; and that of Ora is

in a self-consciously juvenile style, imitating, though not in fact reproducing, the way this story is told by Israeli mothers to their children.¹⁰

It is therefore hard to specify a single narrative type as optimal or fully developmentally end-state. What most characterizes adult, as compared with children's stories is the ability to select and express an **individual style**. This decision is based on what speakers consider most suited to the particular discourse setting and to their interpretation of the task at hand, as well as to personal predilection. This is then manifested in both choice of linguistic forms and overall narrative organization. Some Israeli adults preferred a casually colloquial register, others more literary usage, and one or two less verbally skilled adults intermixed these levels (as did a few schoolchildren). Finally, as noted, some adults generalized across entire blocs of events to produce an effective skeleton of the plot; others built up their text from detailed descriptions of each subsequence; the rest settled on some alternative between these two extremes.

The children's narratives revealed a major development cutoff point between preschoolers aged from 3 to 6 years, all of whom had attended nursery school since the age of 2, on the one hand, and the schoolchildren—second graders aged 7–8, fourth graders aged 9–10, and sixth graders aged 11–12 (the year prior to the transfer to junior high). Statistically significant differences were found for these two major groups of 48 subjects each along almost all the dimensions we examined: overall length of narratives (Table 3), reference to plot-line elements (Table 4) and overall thematic organization (Table 5), use of syntactic subordination (Table 6), reliance on past tense verbs (Table 7), and descriptions of a particular scene in terms of reference to the temporal background and focusing on the frog as having disappeared (Table 8).

Detailed qualitative examination of these results reveals a more staggered developmental picture, as follows. The 3-year-olds form a distinct group, whose stories can be characterized as prenarrative on analogy with our notion of pregrammatical. The 4-year-olds are a mixed group some of whose behavior, in some respects and among some children, is identical to that of the 3-year-olds, whereas that of others is closer to the 5-year-olds; the latter (already in the more formal, though preliterate, framework of state-run kindergartens) differ from both the 3- and 4-year-olds in increased reference to the plot line (Table 4), as well as in a significantly higher number of references to a search being initiated, although not sustained (Table 5). Among the schoolchildren, the 11-year-olds are more like the adults than like second or fourth graders in their relatively low

¹⁰Findings from a pilot study of mothers telling the same story to their 3-year-old children show that they adopt a very different narrative style than a comparable group of adults from the present sample who are also 20–30-years old, college-educated, Hebrew-speaking women. For instance, the mothers rely far more on repetition (of single words, of whole clauses, and of descriptive formulae), they go in for direct teaching or elicitation of the names of objects and animals, and they make wide use of rhetorical questions, so providing an interactive basis to the storytelling situation and maintaining the attention of their children.

reliance on explicit markers of sequentiality (Table 6) and their quite common use of the present tense as a temporal anchor for their narratives (Table 7).

The texts of children aged 3 years to 3 years, 11 months and of a few children in our sample up to as late as age 4 years, 6 months are "pregrammatical" in terms of narrative exposition rather than of construction of isolated sentences or picture descriptions. Their stories include required morphological marking of oblique pronouns and of tense and person, as well as number and gender agreement from subject to verb and noun to adjective, as is to be expected by this age for speakers of Hebrew, like other languages (Berman 1985). But they fail on just about every count to sustain a narrative thread. There is little evidence of reliance on conventional or rule-bound norms for storytelling. Rather, the 3-year-olds differ from one another erratically, along the dimensions of personal associations, digressions, attitude toward the interviewer, and individual ability or inclination to concentrate on the task at hand. Examples of irrelevant personalized digressions on the part of 3-year-olds were noted at the outset of section 3. Individual children in this group (and one 4-year-old) also made use of idiosyncratic turns of phrase unlike anything found among the older children.¹¹ Reports of the investigators (graduate students in linguistics) revealed that the 3-year-olds more than any other group differed from one another in how freely and how extensively they responded to a storytelling task (half their narratives were under 30 clauses in length). Only one 3-year-old, compared with five of the 4-year-olds and most of the 5-year-olds, referred to a sustained search (Table 5). Only two noted the onset of the action when the boy sees his frog has disappeared (Table 8); they alone made broad use of deictics meaning "here," "over there," "now," and so on; and they used few sequentially marking connectives (Table 6). Over half of them shifted back and forth between past and present tense, again in contrast with older children, who mostly settled on the past tense as suited to a storytelling mode (Table 7, and see, too, footnote 9).

Four- and 5-year-olds are more clearly en route to "structure-dependent" storytelling. For instance, both groups use a relatively high number of sequentiality markers, fewer deictics (Table 6), and more past tense as a temporal anchor (Table 7) than do the 3-year-olds. But there is still considerable variation among the children in these two groups. They share properties of the younger children, who tend to focus on single pictures rather than integrating their ac-

¹¹For instance, child 3A, aged 3 years used the expression *od pa'am* "another time = again" five times in the last 14 clauses of her story, as an empty discourse filler. Nearly half the 29 clauses in the story of child 3C, aged 3 years, 5 months, start with the deictic (*ve*) *po* "and here". Five of the 60 clauses of child 3E, aged 3 years, 7 months, open with *ve* ("and") as a semantically and syntactically unmotivated marker of ongoing discourse. And child 4E, aged 4 years, 2 months, copied the subject noun phrase with a pronoun in seven clauses, as in the equivalent of "the dog *he* got into the jar." "the children *they* fell into the water." These idiosyncratic means of expressions are not typical of the other 3-4-year-old's stories, nor do they occur with this haphazard kind of distribution in the older narratives.

counts into a macro-level global organization. This is also shown in whether and how the younger children talked about the contents of a particular scene (Table 7), as well as by detailed analysis of other scenes in this story (Berman 1984, Berman & Slobin 1986). Preschool children are able to describe pictorially represented events that constitute foreground links in an unfolding chain of plot events, such as waking up from a night's sleep, a dog's putting its head inside a jar, a child's falling from a tree, or getting caught on the antlers of a deer. But they are unable to embed occurrences in a network of background circumstances and to relate them explicitly to the situations that lead up to and result from them. This interweaving takes a long time to develop, and it is lacking in the accounts of young children, who tend to report each event as having equal, independent status, rather than as logically or temporally interconnected to what precedes or follows. More maturity is also needed for a storyteller to alternate perspective on a given scene, for instance, by both noting that the jar was empty and explaining that the frog had gotten out and escaped (Table 8), or, in another picture, both that the dog had gotten his head stuck in the jar while looking for the frog and that the jar was where the frog had been kept (Berman 1987a).

The school-age children, in contrast to both the youngest groups and the adults, tend to tell quite standardized, almost stereotypical stories, rather as though they know what is expected of them in a school-type task. The fact that, for instance, they show a consistently similar range of output in their stories might well be due to the impact of school instruction and conventionalized notions of what a story "should" include. This is particularly clear in their adherence to the normative past tense mode for storytelling (preferred by 41 out of the 48 children aged 7 through 12—see Table 7) and in their almost mechanical reliance on overt marking of sequentiality to segment the ongoing discourse (Table 6). Through ages 9 and 10, around 20% of all clauses are initiated by markers of sequentiality, meaning "and then, later, after that" as well as "suddenly," as means of segmenting off and stringing together events in succession. This contrasts with 11–12-year-olds, who, like adults, rely less on explicit marking of sequentially. Recognizing temporal sequence as the default case for narrative events, they use segmentation markers such as "and then" or "afterwards" more sparingly and selectively. But younger children sometimes use them excessively, for almost every change in scene or picture frame.¹²

The structure-dependent knowledge of narrative shown by many of the 5-year-olds, and all the schoolchildren, requires awareness of the special language of storytelling. In Hebrew this involves a special kind of diglossia because the literary norms and formal usages typical of school readers, narrative prose, and children's literature differ markedly from the everyday spoken language in syn-

¹²In fact, adults use "and" less than do the children as well, relying far more heavily on the null subject option afforded as a connectivity device for clause chaining in Hebrew narratives (Berman, ms).

tax and morphology, as well as in vocabulary. Thus, several of the school-children in our sample started their narratives with formulaic openings such as the equivalent of "once upon a time," they occasionally used bound morphology where casual speech prefers more analytic options, and they sometimes attempted deliberately high-register vocabulary. Yet their personal style had not matured to the point where they felt free to summarize in brief or else indulge in long, elaborative tales. In contrast to the adults, school-age children tended to adhere quite strictly to a given narrative frame, relating much the same events from much the same perspectives, as befits their grammaticization of the task at hand. Nor did these children have the planning abilities required to prospectively encapsulate an entire series of events not as yet presented in the pictures currently before their eyes, by means of summary statements of the kinds provided by the adults.

We conclude that end-state narrative ability combines, *first*, the early-acquired knowledge of grammatical and lexical forms for describing individual events; *second*, later developing knowledge of narrative structure and of how to use linguistic devices for elaboration of individual events and higher level interconnectivity of thematically related sets of events, according to the storytelling norms of a given (in this case literate) culture; with, *third*, eventual consolidation of personal style and the ability to select particular discourse options in a given narrative situation.

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APPENDIX

Excerpts from Three Adult Narratives, Pictures 2b-5a = Initiation of Search

1) *IRIS*, woman, aged 24 [20D]: Clauses 13 to 38 [Total = 114]

ve baboker kshe dani ve hakelev hit'oreru // [rising intonation]

and in-the-morning when Danny and the dog awoke

em hacfardea lo haya betox hacincenet.

er the-frog was not inside the-jar.

dani hexlit lexapes et hacfardea

Danny decided to-look-for the-frog

ka'asher hakelev haya shutaf laxipusim

when [Literary] the-dog was partner to-the-quest

dani xipes betox hamagafayim //

Danny looked [= searched] inside the-boots

ve hakelev hevin
she hacfardea ne' elam,
ve xipes oto betox hacincenet.
hu rixreax
ve lo maca. /
dani patax et haxalon
ve kara lacfardea
cfardea! cfardea! hexan ata?
hakelev hixnis et rosho letox
hacincenet
ve amad al eden haxalon //
ka' asher hacincenet betox rosho. /
. . . dani mistakel me' ever laxalon
mexapes et hacfardea
ve pir' om kofec hakelev lemata
ve hacincenet nishberet.
dani ko-es me' od al hakelev
she - shavar et hacincenet

ki hexan hu yasim et hacfardea //
kshe yimca ota bexazara. /
dani maxlit lacet haxuca laya' ar

ve lexapes // be' ezrat hakelev et
hacfardea

2) YONA, woman, aged 21 [20N]: Clauses 7–14 [Total = 37]

she dani kam baboker,
hitlabesh,
ve gila
ki hacfardea enena.
miyad yaca lexapes ota.

hu - ve yaca el haya' ar - lekivun haya' ar texapes ota. /

he - and went-out to the-forest - toward the-forest to-look-for her [=it].

baya' ar karu lo harpatka' ot shonot.

in-the-forest happened to-him [= he experienced] different adventures.

and the-dog understood
 that the-frog (had) disappeared
 and sought him inside the-jar
 he sniffed
 and not found [= did not find (it)]
 Danny opened the window
 and called (to) the-frog
 "frog! frog! where [Lit] (are) you?"
 the-dog inserted its head in the-jar

and stood on the window ledge
 when [= while] the-jar (is) in his-head.
 . . . Danny looks across the-window
 seeks [= seeking] the-frog
 and suddenly jumps the-dog down
 and the-jar breaks.

Danny is very angry with the-dog
 that - (it) broke [for having broken the
 jar]

because where will he put the-frog
 when [he] will-find it again [= back].

Danny decides to-go outside to-the-
 forest

and to-seek with the-aid of the-dog, the-
 frog.

when Danny got-up in-the-morning
 got-dressed,
 and discovered
 that [Literary] the-frog (is) not (there).
 immediately went-out to-see her.

3) ORA, woman, aged 31 [20I]: Clauses 7–32 [Total = 86]

dani hit' orer.
hacfardea enena /
dani mufta.
gam hakelev mufta.
hexan hacfardea?
ha'im betox hamagaf?
sho' el dani.
ha'im hi betox hacincenet?
sho' el hakelev.

Danny awoke.
 the frog not-she [= isn't there]!
 Danny (is) surprised.
 the dog is also surprised.
 where [Literary] (is) the-frog?
 whether [= is-it] inside the boot?
 asks Danny.
 whether [= is it] inside the jar.
 asks the-dog.

ve hakelev nitka betox hacincenet.
ma la'asot?
dani co'ek
"cfardea, cfardea, hexan at?"
ve hakelev, rosho takua bacincenet,
menase gam hu lic'ok,
ax lo yaxol.
hakelev nafal im hacincenet min haxalon.
hacincenet hitnapca.
en davar, kelev, menaxem oto Dan,
gam hakelev sameax
she pagash et dani shuv.
ve hakelev ve dani yac'u laxacer.
"cfardea, cfardea, eyfo at?" kore dani.
ulay hi betox hame'ura?

and the-dog gets/got stuck inside the-jar.
 what to-do [= what can be done?]
 Danny shouts
 "frog, frog, where [Lit] (are) you?"
 and the-dog, his-head (is) stuck in-the-jar,
 tries he too [= also tries] to-shout
 but [Literary] cannot.
 the-dog fell with the-jar from the-window.
 the-jar shattered.
 no matter, dog, consoles him Dan.
 the-dog (is) also happy
 that (he) met Danny again.
 and the-dog and Danny went-out to-the-yard.
 "frog, frog, where (are) you?" calls Danny.
 maybe she [= it (is)] inside the-burrow?