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Development of Global Structure in First-Language Narratives

Midori INABA

(Department of Teaching Japanese as a Foreign Language)

1. Introduction: Purpose and Background

The well-formed narrative has linguistic cohesion on the micro-level of individual clauses and adjacent clauses, and thematic coherence on the macro-level of plot organization. In order to produce coherent and cohesive narratives, a narrator has to draw on many kinds of knowledge. Hudson and Shapiro (1991) present four types of knowledge and skill required for narrative production: (a) *content knowledge*, which includes generalized event representations, memories of specific episodes and stories, and knowledge about common types of social interactions; (b) *structural knowledge*, that is, macrolinguistic knowledge about the structural components of different types of narratives; (c) *microlinguistic knowledge*, including knowledge of different kinds of connectives as well as how to adjust tense, pronoun use, and anaphoric reference; and (d) *contextual knowledge*, referring to what the narrator knows or believes about the function of the narrative in the particular elicitation context.

The present study investigates the development of the narrative discourse competence of children, focusing on the *structural knowledge* and *linguistic knowledge*[1] mentioned above. The fictional stories elicited from Japanese children and adults using a picture book are analyzed concerning how children develop these different strands of knowledge in producing a well-formed narrative, and how they draw on and interconnect these kinds of knowledge in their narrative discourse processing.

The present study is motivated by research on the development of first-language narrative discourse competence by Berman and Slobin (1994), showing that this development is a joint process of event comprehension and language production; and Karmiloff-Smith's (1984, 1985) psycholinguistic studies indicating that the development occurs from bottom-up via top-down and then integration of data and internal representation. This study attempted to examine these hypotheses or proposals in regard to the development of Japanese as a first language.[2]

The study pays particular attention to the development of thematic coherence on the macro-level of plot organization (global structure) of the story. Global structure was evaluated by stipulating three elements: (I) onset, (II) unfolding, and (III) resolution of the plot. The first analysis concerns the development of the three plot components of the global structure, analyzing the order of difficulty among them. The second analysis explores the development of the overall plotline. The third analysis examines the development of linguistic knowledge and its relation to structural knowledge, attempting to show characteristics of discourse processing in first-language narratives.

2. Method

2.1 Subjects: Japanese Children and Adults

Child subjects were all Japanese children who were acquiring Japanese as a first language. All of them were monolinguals born and raised in Japan, and their parents were all native speakers of Japanese. They were literate and from middle- to upper-middle-class backgrounds. The children's ages ranged from 3 to 11. These subjects were divided into 9 groups according to their age. (Hereafter they are referred to as the 3-,

4-, 5-, 6-, 7-, 8-, 9-, 10- and 11-year-old groups.) There were ten subjects in each group. The 3- to 5-year-olds attended preschool or kindergarten; the 6- to 11-year-olds were elementary school students.

Adults subjects were junior college or college graduates, ranging from 20 to 45 years of age. Most of them were from the Chubu district. The subjects in each group were divided as far as possible between males and females, but this factor was not taken into account in the present analyses. Table 1 shows the numerical breakdown of subjects by age group.

Table 1: Number and Age Range of Japanese Children and Adults

Age Group	N	Age-Range	Mean Age
3 yrs	10	3;2 - 3;11	3;7
4 yrs	10	4;0 - 4;11	4;6
5 yrs	10	5;0 - 5;10	5;4
6 yrs	10	6;0 - 6;11	6;7
7 yrs	10	7;3 - 7;11	7;7
8 yrs	10	8;2 - 8;11	8;7
9 yrs	10	9;0 - 9;11	9;5
10 yrs	10	10;0 - 10;11	10;7
11 yrs	10	11;0 - 11;11	11;4
Adults	10	20-45	30

2.2 Task and Procedure

The picture storybook, without verbal text, entitled "Frog, Where Are You?" (Mayer, 1969) was used to collect narratives from all subjects in this study.[3] The book consists of twenty-four pictures. It is a story of a boy and his dog who go looking for their pet frog which has escaped. The main action of the story consists of their adventures in a forest encountering various animals during their search, and they finally find the frog. The procedures and instructions followed Berman et al. (1986).

Data for Japanese children were collected in Aichi prefecture at nursery schools and private institutions—so-called "cram" schools—through the author's interviews. Adult Japanese data were audio-taped by the subjects themselves at home. The audio-taped data were transcribed. Prosodic information was not entered in these transcripts, since it could not be fully taken into account in this study, despite its importance. These data were collected in 1992-3.

2.3 Definition and Scoring

In order to evaluate global structure in quantitative terms, this study stipulated three elements of the story as criteria for the ability to relate the contents of the picturebook as an integrated whole. The three core components stipulated are I: **the onset of the plot** (the boy's realizing that his frog has disappeared); II: **unfolding of the plot** (the boy's search for the missing frog); and III: **resolution of the plot**, (the boy's finding the frog he lost or one to take its place). These criteria were originally devised by Berman and Slobin (1994) based on the work of Labov and Waletzky (1967). They also correspond broadly to the units defined in different versions of the "story grammar" approach to narrative construction (reviewed in Mandler, 1982; Shen, 1988) as follows: (i) initiating goal: the **problem** that motivates the action; (ii) **elaboration** or complication: the development of the action in terms of the protagonist's attempt(s) to solve the problem; and (iii) the **outcome** of these endeavors: the resolution of the problem (Berman and Slobin; 1994, p. 46). This study applied these criteria to evaluate the Japanese narrative structure by the same standards as Berman and Slobin (1994).

The texts were scored for these three elements in the following ways. I required explicit mention of the boy's noticing that the frog is missing; a child/subject who merely referred to the jar as empty without relating it to the boy's discovery was not credited. To received credit for II, explicit mention must have been made of searching (or looking, or calling) for the frog, and this must have gone beyond the initial start of the search inside the bedroom; and for III, the frog that the boy takes home at the end of the story must have been explicitly described as being the same as or substituting for the frog the boy lost (Berman and Slobin; 1994,

p. 46). The overall plotline is defined as explicit reference to all three components.

The three criteria are illustrated from 4- and 5-year-olds' Japanese texts in Ex. 1 through Ex. 6 below. Ex. 1 and Ex. 4 are taken from the texts to illustrate component I, Ex. 2 and Ex. 5 for component II, and Ex. 3 and Ex. 6 for component III. The first three excerpts (Ex. 1, Ex. 2, Ex. 3) failed to meet the defined criteria, and were not credited for each component. In contrast, the last three excerpts (Ex. 4, Ex. 5, Ex. 6) met the criteria, and thus rated positive scores.

Ex. 1 *Kaeru-kun o miteru. Soide dokka icchatta. Kaeru-kun ga inakunacchatta. Inu-san naka ni haicchata.*
"(The boy) is looking at the frog. And it has gone somewhere. The frog has disappeared. The dog got stuck (in the jar)." [J4g-4;7]

Ex. 2 *Kaeru-san ga inakunatta. Iru ka doka mita, kutsu no naka. Bin no naka o miteru. Soide osshatta. Soide waratte tsukamaeta Bin ga wareta. Ooi tte yonderu. Ko n naka o mitete, wan-chan ga ko n naka o mitete, hachinosu no naka no mitsu o tabero tte itteru. Soide hachi o tabero tte iu, itteru. Unto... otokonoko ga okotteru. Soide okocchatte zuutto inu o oikaketeru. Soide saa otokonoko ga ochichatte fukurou ga deta. Soide kore yuki. Soide saa fukurou ga tondette soide otokonoko saa okotteiru kara dakedo saa... Sono toki tonakai no saa tsuno ga dete soide inu ga sagashiteru. Soide saa tonakai no kao ga deta. Soide saa tasuketekureta.*
"The frog disappeared. (The boy) looked into the boots (to see) whether the frog is in there or not. (The dog) is looking into the jar. And he fell. The jar broke. (The boy) is calling, "hello." (The boy) is looking in here, and the dog is looking in here, and is telling (the boy) to eat the honey in the beehive, and tells, is telling (the boy) to eat the bees. And the boy has fallen, and an owl came out. And this is snow. And the owl flew away, and, because (he is) angry with the boy but..... At that time, the antlers of the reindeer appeared and the dog is looking for.... And the head of the reindeer appeared. And (the boy) was saved." [J4b-4;0]

Ex. 3 *Ko n naka ni dareka iru to omottara nee... amagaeru, ookii kaeru to nee, otosan-gaeru to nee, okasan-gaeru ga ita. Sorede netete nee, sono toki nee, ippai no amagaeru-tachi ga kite nee, okasan o okoshita. Soide nee baibai tte nee, kono amagaeru ga nee tsuiteitta.*
"(The boy thought that) there was someone in here, and a tree (green) frog. There are a big frog and a father frog and a mother frog. And (they) are sleeping, and at that time a lot of tree frogs coming out and woke the mother frog, and say good-bye and this tree frog followed (the boy and the dog)." [J4e-4;7]

Ex. 4 *Shin-chan to wan-chan ga neteiru aida ni kaeru wa kossori kabin kara dete nukedashite, asa Shin-chan to wan-chan ga okitemiru to kaeru wa tsubo no naka ni inakunatteshimaimashita.*
"While Shin-chan (a boy) and the dog were sleeping, the frog secretly went out. In the morning the boy and a dog woke up to find the frog was not in the jar." [J5e-5;3]

Ex. 5 *Ken-chan wa hachinosu no tokoro ni itte yonde mimashita ga imasendeshita. Inu wa hachi o miteimashita. Ken-chan wa shita no ana o yondemimashita. Inu wa hachinosu o mite wanwan te naiteimashita. Risu ga detekite Ken-chan wa hana o osaemashita. Inu wa ki o ugokashiteimashita. [several clauses later] Iwa no teppen made nobottemashita. Suruto soko de motto yondemimashita ga imasendeshita.*
"Ken-chan (a boy) came to the beehive and tried calling, but (the frog) was not there. The dog is looking at the bees. The boy was calling into the hole on the ground. The dog was barking 'Bow-wow' to the beehive. The squirrel came out, and the boy covered his nose (with his hands). The dog was shaking the tree. [several clauses later] (The boy) climbed to the top of the rock. And then (he) tried calling more on it, but (the frog) was not there." [J5f-5;4]

Ex. 6 *De ki no ho e iku to Shin-chan wa nanika kikoemashita. Soide soko o mitara, kaeru no osu to mesu ga imashita. Soide kaeru no chibikko-tachi ga kimashita. Soide Shin-chan wa kaeru o mitsukete kaetteikimashita.*

"And when he came toward the tree, Shin-chan (a boy) heard something. And then he saw the place (the other side of the tree), and found a male and a female frog. And baby frogs came. And the boy found the frog and went home." [J5b-5;1]

3. Results

3.1 Development of Plot Components

This section dealt with development of the ability to produce the three core components of global strucure. They were analyzed in terms of 1) the increase in mention of each component, and 2) the order of difficulty in mention among them, and 3) the developmental stages (early, middle, or late) of each component. The study defines the early stage of development as children at ages 3 to 5, the middle stage at ages 6 to 8, and the late stage at ages 9 to 11. Table 2 gives the percentages of Japanese children and adults who made explicit reference to each plot component. These figures show an age-related proportional increase in the mention of the three components.

Component I, proportionally, rises from 10% at age 3 up to 100% at age 5, although the proportional rate of mention showed a little up-down movement in the middle stage of development. Component II rises from 20% at age 3 up to 100% at age 9. Component III rises from 10% at age 3 up to 100% at the adult level. These results indicates that all these components develop with age.

Table 2: Percentage of Japanese Children and Adults Making Explicit Reference to Each of Three Core Components

	Age (N= 10 per group)										
Component	3	4	5	6	7	8	9	10	11	Adult	AVG
I	10	60	100	70	90	60	80	80	100	100	75
II	20	30	50	60	70	80	100	100	100	100	71
III	10	20	30	50	60	70	80	80	90	100	49

AVG = average

These figures show an increasing level of difficulty for each of the three components: the average for Component I is 75%, which is the highest among the three, and for Component III, it is 49%, which is the lowest. In developmental terms, Component I achieves a high level of mention (over 80%) by age 5, showing early development of this capability. Component II reached 80% at age 8, developing at the middle stage. Component III develops rather late: the proportion exceeded 80% only at the age of 9 years. Most of the 11-year-olds approximate the adult level of mention (100%) of the three components.

In crosslinguistic perspective, a previous study concerning the development of these components of the global structure by English, German, Spanish, Hebrew and Turkish speakers (Berman and Slonin, 1994) reveals the same developmental trends as Japanese children and adults. The figures in Table 3 show a clear age-related increase in proportion of mention for the three core components. They show an increasing level of difficulty for each of the three components: Component I gains 68% on average, Component II, 57%, and Component III, 47%. The developmental stages of each component are also similar. Component I showed early development, showing 78% at the age of 5 years. Component II reached 98% at the age of 9 years. It cannot be specified when the inclusion of Component II exceeded 80%, since the data in Table 3 does not have figures for 6-to 8-year-olds (a middle stage), but it can at least be said that this capability developed before the late stage of development. Component III showed the latest development among three components, showing only 62% even at the age of 9 years.[4] This suggests that Japanese shows a developmental pattern common to five other languages in terms of the development of the three components of global structure.

Table 3: Percentage of Narrators across Five Languages Making Explicit Reference to Each of Three Core Components, by Age

Component	3 yrs (N=58)	4 yrs (N=36)	5 yrs (N=58)	9 yrs (N=58)	Adult (N=58)	Average[a]
I	17	50	78	94	100	68
II	15	20	52	98	100	57
III	10	28	41	62	92	47

a. The original table by Berman and Slobin (1994; p. 49, Table 2) did not incude the average, which was added by the author.

3.2 Development of Overall Plotline

This section examines the development of the ability to construct the overall plotline. The texts were examined to determine whether or not all three components of the plot were explicitly mentioned. Table 4 shows the percentage of Japanese children and adults making explicit reference to all three plot components. These figures reveal an age-related rise in explicit reference to all three plot components. None of the 3-year-olds mentioned all three components; from 4-year-olds up to 11-year-olds the proportion who did mention all components increased roughly with age. 5-year-olds mentioned all three components three times as often as 4-year-olds, 9-year-olds did so around twice as often as 5-year-olds, and the oldest children one and a half times as often as 9-year-olds. All the adult subjects mentioned all three components. The adult level of mention was approximated by 11-year-olds in the case of Japanese children and adults. These results indicate that the ability to relate to an overall plotline develops with age.

Table 4: Percentage of Japanese Children and Adults Making Explicit Reference to All Three Plot Components

	Age (N= 10 per group)										
	3	4	5	6	7	8	9	10	11	Adult	AVG
Percentage	0	10	30	30	40	30	60	60	90	100	45

AVG = average

The results from Japanese children and adults manifest a strong resemblance to those of the crosslinguistic study by Berman and Slobin (1994) shown in Table 5. Figures in it show an age-related rise in explicit reference to all three plot components: 4-year-olds mentioned all three components five times as often as 3-year-olds, the next group three times as often; 9-year-olds did so around twice as often as 5-year-olds, and adults one and a half times as often as the oldest children. Note that the figures in Table 5 are very close to those of the Japanese children and adults shown in Table 4. Thus, the results from Japanese narrators reconfirm the finding that structural competence develops with age.

Table 5: Percentage of Narrators across Five Languages Making Explicit Reference to All Three Plot Components, by Age

	3 yrs (N=58)	4 yrs (N=36)	5 yrs (N=58)	9 yrs (N=58)	Adult (N=58)	Average[a]
Percentage	3	14	34	66	92	42

a. The original table by Berman and Slobin (1994; p. 49, Table 2) did not incude the average, which was added by the author.

3.3 Development of Linguistic Knowledge and Discourse Processing

The investigation in this section concerns the development of linguistic knowledge, and its relation to structural knowledge in development. The qualitative analysis concerning their linguistic knowledge indicates that the 3-year-olds have considerable command of the lexico-syntax of their native tongue although they fail

to demonstrate knowledge of narrative structure.[5] The children in this age group all produced texts which relate to the contents of at least some of the pictures in the book, and they all relate to them as depicting dynamic events, not merely combinations of objects. These abilities are evident in the 3-year-old Japanese texts shown in Ex. 7 and Ex. 8.

Ex. 7 *Oniichan kaeru-san no... inu no... kaeru miteru. Inu to neteru. Kaeru-san bin no naka kara dete ne ochi e kaeru n janai. Kaeu ga inu to oniichan ga mitara saa, bin no naka kara saa kaeru ga inai. De saa, okii nagagutsu haite saa kaeru sagashiniiku.*[6]
"A boy is looking at... frog's... dog's... the frog. (The boy is) sleeping with the dog. The frog went out of the jar, and (it) seems to go back home. The frog... when the dog and the boy looked (at the jar), the frog is not in the jar. And (the boy is) wearing big rain boots and looking for the frog." [J3h-3;10]

Ex. 8 *... Eeto nee ooi tte sagashite mo nee eeto nee kaerutachi wa mitsukaranakatta. Wan-chan mo nee kaerutachi ga nee mitsukaranai yoo tte itta.* [*several clauses later*] *"Ooi" tte itteru. Wan-chan ga hachi o taberu to iite ne sagashite n da yo. Demo ne otokonoko wa ne sagashitekure tte itte n da yo.* [*several clauses later*] *Otokonoko ga kono naka ni iru ka naa tte sagashiteta. Suruto ne fukuro datta.*[7]
"... Well, although (the boy) looked for (it), saying halloo... well... the frogs were not found. The dog also said that he had not found the frogs. [several clauses later] (The boy) is saying, 'halloo'. The dog said that he would eat bees and was looking for them. But the boy is saying that he will look for (the frogs.) [several clauses later] The boy was looking in this (the hole), wondering if the frog was there. And then there was an owl." [J3g-3;10]

The ability to organize thematically-motivated narrative (the structural competence) developed with age. Some 5-year-olds constructed globally structured and thematically motivated narratives, whereas others related to only one or at the most two of the major plot elements and failed to organize global structure. In terms of linguistic expression, some 5-year-olds used elaborate syntax and rich lexicon, whereas others produced juvenile-sounding texts with impoverished linguistic devices. The 5-year-olds' texts, thus, show the following variety: 1) a text which is linguistically and structurally non-elaborated, as shown in Ex. 9; 2) a text which manifests juvenile linguistic expression but is thematically well-constructed, as illustrated in Ex. 10; and 3) a text which demonstrates rich linguistic means serving the purpose of picture description, but not an organized narrative such as Ex. 11.

Ex. 9 *Kaeru ga bin no naka saisho ite nee Shin-kun to wan-chan ga nee mitete nee soshite nee yoru dakara nechatte nee soide nee kossori kaeru ga nukedashichatte nee soide nee asa okitara kaeru ga inai kara nagagutsu no naka ni iru ka naa to omotta kedo ne inakatta.* [*several clauses later*] *Nozoitara nee nezumi ga detekite ne soshite ne wan-chan ga yusuttara ne ano nee hachinosu ga ne okkochichatta no. Soide nee Shin-kun wa nee ki ni nobottete ki no ana nozoiteta.* [*several clauses later*] *Ano soko no ushiro nozoitemitara kaeru ga ite ne soide nee nakama mo kita kara Shin-kun ga koko kara oriyotoshitete nee soide mo kaero tte baibai shita.*[8]
"First, the frog is in the jar, and Shin-kun (the boy) and the dog are looking it, and they slept as it was night, and the frog has escaped secretly and when (he) woke up, the frog was not there, so he wondered if it was in the rain boots but it was not there. [several clauses later] When (he) looked into it, a mouse came out, and the doggie shook (the tree) and the beehive fell down. And the boy went up to the tree and was looking into the hole. [several clauses later] They looked behind it and then there were frogs, and their friends came, so the boy is trying to get down from here and he said goodbye to go home." [J5a-5;0]

Ex. 10 *Kore nee ano nee kaeru-san ga bin no naka de nee ite nee wan-chan ga nozoiteiru tokoro. De nee neteru aida ni nee kaeru-san ga dokka itteru. De mita toki ne naka sagashite mo nee inakatta kara nee*

bin de nee wan-chan mo nee sagashiteru. [*several clauses later*] *De nee kaeru-san nee kondo sagashini itte nee de nee dondon oku ni haitteita.* [*several clauses later*] *Soshitara nee kaeru-san ga futari de ita no. De nee minna de kaeru-san kite nee otokonoko ga kawaii to omotta. De nee kaeru-san-tachi ni nee baibai tte, keru to nee, sayonarashite nee kaeru-san moratta.*

"This is (the picture that), you know, the frog is in the jar and the dog is, you know, looking into it. And while (they were) sleeping, the frog is going somewhere. And when (the boy) looked, (he) did not find (the frog), so the dog is looking for it in the jar. [several clauses later] And then (he) went to look for the frog and went deep into (the woods). [several clauses later] And then the frog is together with another frog. And many frogs came out and the boy thought they were cute. And (he) said goodbye to the frogs and got a frog." [J5i-5;10]

Ex. 11 *Shin-chan to inu-kun wa nakayoshi ni kurashiteimasu. Kaeru mo issho ni... sukida to omoimasu. Yoru neteru toki ni kaeru-kun wa itazura o suru node yoru ni naru to tobidasu koto mo arimasu. Shin-chan to inu-kun wa netete kaeru-kun wa sugu okite kaeru-kun wa dokka ni itte shimaimashita.* [*several clauses later*] *Soshite mori ni ikimashita. Soshite hachinosu ga atta node, inu wa kakeda-shimashita. Hachi wa dokka ni dekaketeimasu. Nezumi no su o Shin-chan wa nozoiteimasu. Inu wa hachinosu o pyonpyon hanemawateiru dake desu. Soshitara nezumi ga detekite Shin-chan wa nezumi ga kiraideshita. Inu wa ki o te de motte buraburatto saseteimasu. Hachi-tachi wa mo deremasen. Soshite inu ga yatteru tochu ni okkochite hachi ga bun to detekimashita. Hachi-tachi wa mou kankan. Shin-kun wa fukuro no su o miteru dake desu.*[9]

"Shin-chan (a boy) and his doggie live together happily. A frog also lives with (them),... (they) probably like it. While they are sleeping at night, the frog sometimes goes out because he is naughty. Shin-chan and the doggie were sleeping, and the frog got up quickly and went somewhere. [several clauses later] And then they went to the woods. And the dog ran away when he saw a beehive. The bees are going out (somewhere). The boy is looking into a mouse's nest. The dog is only running around the beehive. And then a mouse came out and the boy did not like mice. The dog holds the tree with his hands and is shaking it. The bees can't come out any more. While the dog is doing it (shaking the tree), (the beehive) fell down and the bees came out. The bees got mad. The boy is only looking into an owl's nest." [J5c-5;1]

The finding that the 3-year-olds manifested good linguistic command to describe events but had not developed the structural knowledge suggests that the narrative discourse processing occurs bottom-up first, with the emergence of structural competence. The second feature of the 5-year-olds' texts, the combination of juvenile linguistic expression and paucity of descriptive detail with well-structured plot construction, suggests that structural knowledge in itself does not guarantee a linguistically rich and elaborate narrative. It should be noted here that this feature dovetails with the characteristic of the middle period of top-down processing in narrative abilities pointed out by Karmiloff-Smith (1984, 1985). The third feature of the texts indicates that linguistic knowledge in itself or the command of an array of expressive devices in itself does not suffice for children to put together a well-constructed narrative, either.

All these results suggest that the development occurs as a combination of structural knowledge and linguistic knowledge. In other words, these kinds of knowledge are interwoven and interact in development. This supports the claim by Berman and Slobin (1994) that the narrative development is a joint process of event comprehension and language production.

4. Discussion and Conclusion

This study investigated the development of children's ability to construct the global structure of a fictional story, defined as explicit reference to the three components of global structure: the onset, unfolding, and resolution of the plot. The results of the study are summarized and discussed in the conclusion.

The ability to produce the plot components of global structure developed with age. In regard to the

difficulty in producing each component, the resolution of the plot proved to be a the most difficult (the latest development) of the three, and the onset of the plot revealed the least difficulty (earliest development). The present data are insufficient to properly account for the observations, but we can speculate on the reasons for the difficulties in terms of content knowledge. To produce each component, a narrator must draw not only on the structural knowledge of the plot, but also on knowledge about the events of the story. Hudson and Shapiro (1991) pointed out that a narrator's content knowledge has much influence on the narrative structure, since creating a narrative of an event requires that the narrator shape content knowledge into a particular narrative structure. They proposed two types of knowledge in narrating a fictional story: *general event knowledge*, memory of a single episode; and *general social knowledge*, knowledge of social roles, personality types, and typical social interactions. In order to fulfill the requirements of a plot-organized narrative, the narrator must draw on not only general event knowledge but also general social knowledge. To achieve a higher level of narrative coherence, deeper content knowledge is necessary. The order of difficulty among the three components could be explained by the degree of these kinds of knowledge that a narrator has to draw on. That is, to produce the resolution of the plot, the narrator may need more social knowledge than knowledge of the other components.

Linguistic knowledge develops relatively early: many of the 3-year-olds showed a good command of grammatical forms and lexicon for describing individual events. Older children are able to use a wide range of linguistic means to organize their narratives more rigorously and to achieve a higher level of narrative coherence. Structural knowledge, on the other hand, emerges rather late, from around age 5, and it develops with age. The variety of combinations found in 5-year-olds' texts suggests that structural or linguistic knowledge in themselves do not suffice to produce a thematically-motivated and linguistically elaborate narrative, and that these kinds of knowledge, rather, are interwoven and interact in development. These results support Berman and Slobin's (1994) proposal that narration is a joint process of event comprehension and language production, and Hudson and Shapiro's (1991) argument that content, structural and linguistic knowledge are interconnected both in development and in the act of narrative production. Narrative discourse processing occurs first bottom-up, then top-down in the middle stage, followed by integration of data and internal representation. These phases corresponds to Karmiloff-Smith's (1984, 1985, 1986a, 1986b, 1992) Representational Redescription model.

The fact that the acquisition of Japanese as a first language shows similar trends as the crosslinguistic data by Berman and Slobin (1994) provides further evidence to their claim that there is a common developmental pattern towards increasing cohesion and coherence among children in many languages. There are, however, many factors playing important roles in narrative production. Hicks (1991) indicates that the development of narrative ability is diverse depending on the kind of narrative, such as a script narrative, a general description of what usually happens in an event; a personal narrative, accounts of specific events that have been personally experienced; and a fictional story. This diversity occurs because each type of narrative is distinguished by both the selection of information presented (the content) and the order and manner in which is narrated (the structure), so a narrator must draw on different types of content, structural, and linguistic knowledges in narrating.[10] There are also many factors influencing accessibility of these kinds of knowledge, such as frequency of occurrence of similar episodes (Hudson and Nelson, 1986),[11] degree of superficiality of the experience, interest and so on (Hudosn, 1986). Wolf (1990) emphasized that different narrative genres can be viewed as different frames for rendering experience into narrative. The social context of narrative production, which is related to contextual knowledge, should also be considered, since different narratives serve different communicative functions, and the structures that define narrative genres are a result of those communicative functions (MaCabe & Peterson, 1991). Since this study only discussed fictional story telling, research on other kind of narratives should be investigated further.

Lastly this study is part of a twin study (in preparation) dealing with narrative discourse processing in second-language development, applying the same methodology. This study, thus, hopes to provide an important perspective on discourse development.

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Notes

1. In this paper, the term "linguistic knowledge" is used in the sense of "microlinguistic knowledge" (Hudson and Shapiro, 1991).
2. Berman and Slobin (1994) does not include research on the Japanese language.
3. This book was originally used by Slobin and Berman to gather narratives from children and adults for the purpose of crosslinguistic and developmental analyses measuring how the subjects used the grammatical tools of the tenses and aspects of verbs. Since then the book has been used in various kinds of research looking at first language acquisition (Harkins, 1992; Trabasso & Nickels, 1992), second language development (Howel, 1993), bilingual studies (Verhoeven, 1993), discourse planning (Trabasso, Stein, Rodkin, Munger, & Baughn, 1992), language impairment (Fine, 1985) and so on.
4. Unfortunately it is impossible to specify when the children's level of mention approximates the adult level of mention, since Table 3 does not include data for the older children, either.
5. As noted in the previous analysis, none of the 3-year-olds in the present study produced an account which meets the criteria in this study for expression of narrative structure in terms of global plotline.
6. This part of the text is credited as Component I.
7. This part of the text is credited as Component II.
8. Components II and III were not explicitly mentioned in Ex. 9.
9. In this text, the continued search for the frog is not explicitly mentioned.
10. Hudson and Shapiro (1991) noted that narrative production is very much influenced by what knowledge is used in producing the narrative and how the structure of that knowledge does or does not match the structural requirements of the particular narrative genre.
11. Hudson and Nelson (1986) found that preschool children have a great deal of difficulty in recalling specific episodes of highly routine events, but an event that had only been experienced once was relatively rich in detail.

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