

## **Topic and Topic-Comment Structures in First Language Acquisition of Mandarin Chinese**

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The prevalence of topic-comment structures is one of the most distinctive features of Mandarin Chinese. It has been shown that young children in the early stages of syntax acquisition have the ability to distinguish between the notions of subject and topic; however, the production frequency and the types of topic-comment structures produced by young children in spontaneous speech have yet to be determined. This study examines the production of topic-comment structures in Chinese children between ages 2;2 and 6;0. The result shows that children begin producing topic-comment structures as early as 2;2 and reach adult like production by age 4;0. However, the production of topic-comment structures is infrequent in child speech and this is partly attributed to children's preference of canonical word order schemas.

### **1. Introduction**

Mandarin Chinese has a canonical SVO word order, and is typologically a topic-prominent language given the significant role of topic and the prevalence of the topic-comment structure (Li & Thompson, 1981). Unlike languages such as Korean or Japanese, topics in Chinese are not overtly marked with morphological markers in the syntax; the identification is dependent on the linear word order and the semantic relationship between the topic and comment. Experimental studies have shown that Chinese-speaking children in the early stages of syntax acquisition are capable of distinguishing the concepts of topic and subject (Chien, 1983). However, it is not clear how frequently topic-comment structures are produced by Chinese-speaking children in spontaneous speech. The goal of this study is to examine the production frequency of topic and topic-comment structures in children acquiring Chinese as their first language and to determine if there is a specific type of topic-comment structure that is used the most by children. The data will primarily be a comparison of four age groups: 2;2, 2;8, 4;0 and 6;0 to determine the developmental differences in the acquisition of topic-comment structures. The goal is to determine the production frequency and variety of topic-comment structures and to detect the age of which topic-comment structures emerge.

### 1.1. Definition of Topic-Comment Structures

Topic-comment structure is a universal phenomenon; this relationship is encoded with various formal linguistic devices in the grammar, namely, morphological markers, syntactic structures and intonation (Gundel, 1988, p. 216). The use of syntactic structures is the most frequently used device to code a topic-comment structure universally (Gundel, 1988, p.223), which is also the most common device in Chinese.

Chao (1968:69) is one of the first scholars to make the claim that Chinese should be considered a topic-oriented language given the pervasiveness and importance of the topic-comment structure, ‘the grammatical meaning of subject and predicate in a Chinese sentence is topic and comment, rather than actor and action.’ In Chinese, the topic is typically the sentence-initial noun phrase of which the immediately following predicate is about.

The function of topic<sup>1</sup> is that ‘the topic sets a spatial, temporal or individual framework within which the main predication holds’ (Chafe, 1976). This is the ‘aboutness’ relationship agreed among Chinese linguists (among them Li & Thompson, 1981; Shi, 2000; Tsao, 1979), which states that the topic must be related to the comment semantically, not necessarily syntactically. The major distinction between a topic and subject is such that, the subject has a grammatical relation with the predicate, while this is not required for a topic. The topic is related to the comment semantically, and may or may not be grammatically related. The semantic dependency of the topic-comment relation means that ~~it~~ it is insufficient to infer a topic-comment sentence’s meaning solely by its syntactic structure.

The sentence-initial position of the topic has been identified as one of the two properties of topic (Li & Thompson, 1981). The other important property of a topic is that it can be separated from the rest of the sentence with a pause or a topic marking particle such as *ne*, *a*, *ya* and *ba*. These particles have no semantic meaning and are interchangeable. An NP with these two properties is not automatically designated as topic; restrictions apply as to what type of NP can be a topic. The syntactic manifestation of a topic-comment relationship will be discussed in the following section.

Chien (1983), along with Xu & Langendoen (1985), propose the following phrase structure rule for Chinese, where S is a subject-predication construction:

$$(4) \overline{S} \rightarrow (\text{TOP}) S$$

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<sup>1</sup> In this study, no attempt is made to distinguish or discuss the difference between chain and syntactic topics, as proposed by Tan (1991). A chain topic serves as the topic of the greater discourse frame and is usually mentioned at the beginning of the discourse; it can correspond to the subject or object of the following sentences. It is syntactic topics that are of interest in this study. The notion of topic will be discussed as the topic at the clausal level, not the greater discourse unit, where the topic is the referent outside of the clause that contains it.

As the rule indicates, the presence of a topic is optional in Chinese, and it is sentence-initial when present.

In summary, a topic is the sentence-initial NP, but in a SVO sentence, the preverbal NP will be treated as a subject, not topic. Topics are not determined by the syntactic structure, but instead by its semantic relation with the predicate, and the context that decides whether or not a NP is a topic.

## 1.2. Types of Topic-Comment Structures

There are four types of topic-comment structures to be discussed in this section. The first type is a topic with a resumptive pronoun in the comment clause. The topic is the antecedent of a resumptive pronoun<sup>2</sup> in the comment clause (Xu & Langendoen 1985). The topic and the resumptive pronoun have a coreferential referent. The resumptive pronoun in the comment clause can occupy the subject (1a)<sup>3</sup>, direct object (1b) or indirect object (1c) positions.

- (1) a. Li xiansheng ta renshi wo  
Li Mr. he know I  
'Mr. Li, he knows me.'
- b. Li xiansheng wo renshi ta  
Li Mr. I know he  
'Mr. Li, I know him.'
- c. Li xiansheng wo gei le ta wu ge pingguo  
Li Mr. I give PFV he five CL apple  
'(to) Mr. Li, I gave him five apples.'

The second type of topic-comment structure is a topicalized clause. For this type of construction, the topic can be viewed as having been extracted from its original post-verbal object position, leaving a gap in its original extraction site. This gap is coreferential with the topic. The comment clause may appear incomplete, but because it forms part of the topic-comment structure with the topic, it is nevertheless grammatical. This type of topic-comment construction has an OSV word order that can all be reordered into a SVO sentence.

- (2) Li xiansheng, wo renshi \_\_\_\_\_  
Li Mr. I know  
'Mr. Li, I know.'

The third type of topic-comment structure is double nominatives construction. A double-nominative construction in Chinese is where two adjacent NPs precede the

<sup>2</sup> Or less frequently, a full NP.

<sup>3</sup> The underlined NP is the topic.

predicate. The most typical types of semantic relationship between the two initial NPs in a double nominative construction are domain-subset (Kroeger, 2004) or possessor-possessed. In (3) the subject of the comment clause is considered to be a subset of the domain of the topic NP, and the object of the comment clause in (4) is a subset of the topic domain. Note that these sentences become ungrammatical if the subject or object is not a member of the domain. An example of a possessor-possessed relationship is exemplified in (5).

- (3) zhexie ren san ge shi wo de xuesheng  
 these people three CL be I POSS student  
 ‘(among) these people, three are my students.’
- (4) shuiguo wo zui xihuan yingtao  
 fruit I most like cherry  
 ‘(among all) fruits, I like cherries best’
- (5) chang jing lu bozi chang  
 giraffe neck long  
 ‘As for giraffes, their necks are long.’

The fourth type of comment structure is an adverbial phrase. Adverbial phrases are less common as topics, but they nevertheless serve as the semantic frame and provide background information for the comment clause. The purpose of a frame topic is to set the temporal or location frame for the comment clause, as in (6) and (7) respectively. Adverbial fronting is regarded as ‘a special case of topicalization’ (Xu & Langendoen, 1985). Under Chao’s (1968, p. 73) analysis, a sentence-initial locative phrase can represent the subject/topic of the predicate, since ‘the subject needs not represent the actor, it can, among other things, represent the place at, place to, object for.’ Li & Thompson (1981) also suggest that temporal and spatial adverbial phrases are topics for having the properties that are required, namely, they set the frame and they may be optionally followed by a pause or a particle.

- (6) zuotian wanshang wo mei shuijiao  
 yesterday evening I no sleep  
 ‘Last night, I did not sleep.’
- (7) zai Taiwan ni keyi chidao hen duo zhong shuiguo  
 at Taiwan you can eat very manykinds fruit  
 ‘In Taiwan, you can eat many kinds of fruit.’

### 1.3. Acquisition of topics in Chinese

In her study, Chien (1983) examined the comprehension of subject and topic by children acquiring Chinese as their first language. The results were obtained through an experimental setting, where children were required to make judgments on the

grammaticality of sentences based on their knowledge of subject and topic. The results indicate that children are sensitive to the distinction between the notions of subject and topic at their early stages of syntax acquisition.

In Erbaugh's (1992) longitudinal study of four Chinese-speaking children from the age of 1;10 through 3;10, she found that these children adhere strictly to canonical SVO word order. She concurs with Slobin & Bever (1982) that the canonical word order schema appears to be accessible and plays a crucial role in children's early sentence comprehension and production. Chinese-speaking children begin to produce strictly canonical SVO order sentences at an early stage with little word order deviations and few errors until they have good control of the basic sentential relations (Erbaugh, 1992, p. 416). Erbaugh suggests that Chinese children's word order is more conservative than that of adults' due to their processing capacities and desire for consistency (Erbaugh, 1992, pp. 416-417). This could explain why non-canonical word orders are not productive, at least not in the early stages of syntax acquisition, although they are available and common in Chinese. On the other hand, word order is considered in the literature the most important syntactic device in Chinese for sentence interpretation (e.g. Chang, 1992), given the lack of morphological markers to mark agreement, number, gender or case.

Topic-comment structures require a more sophisticated syntactic competence, and this has been pointed out in Erbaugh (1992) that 'choosing a pre-sentential topic, setting it off with a particle, then commenting on it over a number of sentences developed very slowly after the child turned 3;0' (p. 441). Chinese-speaking children start to gain a good control of full-sentence predicates after about age 3;2 (Erbaugh, 1992, p. 404), where they start to produce more complex sentences such as three-term sentences with agent, action, and patient, the use of modals, serial verbs and incorporating several events into a single sentence. However, topicalization remains difficult and rare at this stage. Erbaugh (1992) suggests that topicalization is a difficult aspect of Mandarin despite 'its high input frequency and importance' (p. 441). In fact, it is a structure that children avoid producing before four years of age (Erbaugh, 1983, p. 49).

#### **1.4. Children's use of canonical word order structures**

It is suggested that cross-linguistically, children acquire a schema of canonical sentence forms at the early stage of their syntax acquisition (Slobin & Bever, 1982). This schema then forms the basis for processing non-canonical constructions and sentence forms (Slobin & Bever, 1982). They pointed out that because canonical forms have such a strong influence on language processing for children, this may hinder their understanding of non-canonical forms. This leads to the question of how do children approach non-canonical sentence structures, namely the topic-comment structure in Chinese. Children could potentially have no difficulties if they are exposed to sufficient input of topic-comment structures. A complex syntactic construction can be acquired if it is central to the grammar of the language and produced frequently in child directed speech, as has been shown for the passive construction in Sesotho. Passives are often

conceived as having a complex syntactic structure, but nonetheless, Sesotho-children are capable of comprehending and producing passives as early as age 2;8 (Demuth, 1990).

## 2. Method

This section introduces the data that is used for analysis, coding criteria, as well as the method for data selection.

### 2.1. Data

The data used in this study were obtained from the transcripts from the Zhou1 corpus for children ages 2;2 and 2;8, and the Chang corpus for children ages 4;0 and 6;0, all from the CHILDES database (MacWhinney, 2000). There are ten transcripts in both the 2;2 and 2;8 age groups, with equal number of male and female children in each group. The Chang corpus consists of 24 transcripts, with equal number of children in both age groups and six female and six male children in each age group. The total number of transcripts examined was 44. All the children are native speakers of Mandarin Chinese.

### 2.2. Coding

When identifying a topic-comment structure among all the utterances produced by children, two criteria are considered.

The first is the position in the clause. Topics have been identified as always being in the sentence initial position because they set the frame for the comment. The data for this study involve story narrating, hence there are many utterances of adverbial connectives such as *ranhou* 'then,' *keshi* 'but' and *yinwei* 'because' before a complete sentence emerges. These types of adverbial connectives<sup>4</sup> will be overlooked when identifying topics. Li & Thompson (1981) point out that a topic does not always need to be in sentence-initial position, such as when it follows a connector that links it with the preceding sentence. Although adverbial connectives appear in the preverbal slot that is typically occupied by topics, they are not considered topics. In general, only NPs can be topics and the only cases where adverbials have topical status are when they appear as temporal or spatial phrases.

The second involves topic characteristics. A topic phrase can be separated from the comment by a pause or a topic particle such as *a*, *ne*, *ma* and *ya*. These particles do not contribute any semantic meaning to the topic phrase; they can be used interchangeably and are not mandatory. In contrast, a subject cannot be separated from the rest of the sentence by a pause or one of the topic particles.

Topic-comment clauses are then categorized into the four categories discussed in the previous section: (1) topic with a resumptive pronoun in the comment clause (2) topicalized clause (3) double nominatives and (4) adverbial phrases.

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<sup>4</sup> They are referred to as 'sentence-linking adverbs' in Li & Thompson (1981).

### 2.3. Data Selection

The scope of this study is children's sentence production, and the following types of short utterances were ignored in determining the total number of utterances produced by each child: (1) single phrase utterances: this type of utterances include answers to yes-no questions; utterances with only a noun, verb, adjective, adverb or question word; and utterances with only an adverbial-adjective phrase; (2) non-speech utterances; and (3) unintelligible utterances: where the utterance is unintelligible and the meaning cannot be determined.

## 3. Results

### 3.1. An overview

The frequency of topic-comment clauses was calculated by determining the percentage of the occurrence of this structure among all the clauses produced. The mean number of total clauses produced is lower for children in the 2;2 and 2;8 age groups and higher for 4;0 and 6;0 children. However, as presented in Table 1, the mean number of topic-comment clauses produced is low among all four age groups, ranging from 0.5 to 2.92 clauses. Only 13 tokens of topic-comment clauses were identified between the younger age groups of 2;2 and 2;8, and 69 tokens were identified in the older age groups of 4;0 and 6;0. The average percentage of topic-comment clauses produced per child ranges from 1.20% to 3.55% in the four age groups. Although there is some increase in this percentage between ages 2;2 and 2;8, this increase is not significant,  $t(18) = -1.3$ ,  $p > .05$ . Overall, there is no significant difference in the average percentage of topic-comment clauses produced by children among the four age groups,  $F(3, 40) = 1.31$ ,  $p > .05$ .

Table 1. Total number of clauses and topic-comment clauses produced by children of four age groups

	Age 2;2	Age 2;8	Age 4;0	Age 6;0
Number of children	10	10	12	12
Total number of clauses	387	227	875	1009
Mean number of total clauses	38.7 ( <i>SD</i> = 31.0)	22.7 ( <i>SD</i> = 14.7)	72.92 ( <i>SD</i> = 59.28)	84.08 ( <i>SD</i> = 47.99)
Total number of topic-comment clauses	5	8	34	35
Mean number of topic-comment clauses	0.5 ( <i>SD</i> = 0.71)	0.8 ( <i>SD</i> = 0.92)	2.83 ( <i>SD</i> = 3.76)	2.92 ( <i>SD</i> = 3.00)
Average percentage of topic-comment clauses produced per child	1.20% ( <i>SD</i> = 1.84)	2.89% ( <i>SD</i> = 3.69)	3.55% ( <i>SD</i> = 2.85)	3.38% ( <i>SD</i> = 3.41)

### 3.2. Results broken down by age and types of topic-comment structures

There is little variation in the type of topic-comment structure produced by the children in the 2;2 and 2;8 age groups, as shown in table 2. For these two age groups, the majority of the topic-comment structures produced are topicalized clauses. There are no tokens of topic-comment structures produced in the resumptive pronoun and double nominative categories. There appears to be a sharp numerical decline in the production of topicalized clauses between ages 2;2 and 4;0. However, this discrepancy is not a true decline in production frequency; only 5 topic-comment clauses were found in the 2;2 age group and all of them are topicalized clauses. On the other hand, there are 5 tokens of topicalized clauses in the 4;0 age group, but the emergence of other types of topic-comment clauses at age 4;0 caused the decline in percentage of topicalized clauses at age 4;0 and 6;0.

For the 4;0 and 6;0 age groups, the resumptive and double nominatives types of topic-comment structures together account for most of the topic-comment structures produced, with the topicalized structure being the most infrequent. Within the resumptive pronoun category, the majority clauses have a topic NP and a resumptive pronoun in the comment clause (25/27, 92.59%), whereas clauses with a topic pronoun and a resumptive NP in the comment clause is less frequent (2/27, 7.41%). For all the 27 clauses with a resumptive pronoun or NP, 26 of the clauses have a topic that is co-referential with the subject NP or pronoun in the comment. There is only one clause where the topic is co-referential with the object in the comment. As for the double nominatives, 17 tokens were identified, among which, 12 have a possessor-possessed relationship, one has a domain-



subset relationship, and the other 4 are semantically related. Within the adverbial phrases category, temporal adverbials account for 80% (12/15), while spatial adverbials account for 20% (3/15).

Although Table 2 suggests that four year old children are producing significantly more double nominatives than six year old children, the actual token figures suggest otherwise. A total of 13 tokens were found among four year olds, and among these eight were found in the same child. Thus this cannot be taken as an indication that younger children have the tendency to produce this type of topic-comment structure over the others. Statistic test shows that the production difference between the two age groups is not significant,  $t(22) = 1.033$ ,  $p = > .05$ .

The actual number of tokens produced by children in the two age groups does not show much difference in other three types of topic-comment structures. Statistic tests confirm that the differences are not significant for resumptive type of topic-comment structures,  $t(22) = -.844$ ,  $p = > .05$ , topicalized topic-comment structures,  $t(22) = .001$ ,  $p = > .05$ , and adverbial topic-comment structures,  $t(22) = -1.055$ ,  $p = > .05$ . This shows that the production of the four types of topic-comment structures are not different for four and six year old children.

There is some increase in the types of topic-comment structures produced between ages 2;2 and 2;8, but not all four types were produced. By age 4;0, all four types of topic-comment structures can be identified in child speech. However, the frequency in production does not differ statistically between ages 4;0 and 6;0, and thus could not suggest further development after age 4;0.

Table 2. Breakdown of types of and age group and topic-comment structures

Age	Types of Topic-Comment Structures				
	Frequency	Resumptive	Topicalized	Double Nominatives	Adverbial
2;2	5	0	100% (5)	0	0
2;8	8	0	87.5% (7)	0	12.5% (1)
4;0	35	32.4% (11)	14.7% (5)	38.2% (13)	14.3% (5)
6;0	34	45.7% (16)	11.4% (5)	14.3% (4)	28.6% (10)

### 3.3. Adult Data

The data sets from the previous sections show that the production of topic-comment structures is low among children ranging from ages 2;2 to 6;0. Given that Mandarin is a topic-prominent language, why is the production frequency so low in child speech? Have they or have they not acquired topic-comment structures? To put the data in perspective, it is necessary to compare the results to that of adult data.

A small sample of adult to adult speech data is collected and analyzed for the frequency of topic-comment constructions produced. Four sets of data were collected

from a variety of TV talk shows in Taiwan, which were broadcasted in 2008. For each show, approximately ten minutes were recorded and transcribed.

The first talk show is a political one, where the host discusses the latest political event with six guests, including political figures and scholars. The second talk show is a show where hosts present and sample local cuisine with several guests. The third talk show targets women audience, discussing fashion trends and beauty products. The last talk show is an informal interview, where public figures and celebrities are invited to discuss various topics. All of the shows are broadcasted in the popular evening slots. The findings on topic-comment constructions are presented in table 3 below.

Table 3. Production of topic-comment constructions in adult to adult speech

Type of TV show	Percentage of Topic-comment clauses (%)
1. Political	5.17
2. Leisure (food)	4.69
3. Fashion	4.27
4. Entertainment	2.02

As shown in table 3 above, the percentage of topic-comment structures used in adult to adult speech varies across the four talk shows, ranging from 2.02% to 5.17%. This figure is not much higher than the percentage of children's production. However, with the exception of the topicalized object topic-comment construction, all the other four types are identified across all talk shows. In the data sets of children in the age 2;2 and 2;8 groups, the variety of topic-comment constructions is more limited than those in the 4;0 and 6;0 groups. This suggests that children's production of the types of topic-comment constructions begins to parallel that of adults' by approximately age four.

### 3.4. Summary of results

In the age four and six groups together, only 69 tokens of topic-comment clauses were identified, among all the utterances produced by the 24 children. Moreover, there is no difference in the production frequency between the two age groups. Overall, the resumptive and semantic types of topic-comment structure were the most common, whereas the topic-comment structure with a topicalized object is produced the least frequently among children in the age 4;0 and 6;0 groups, although this is the dominant type for children ages 2;2 and 2;8. Children use less object topicalization at ages 4 and 6 compared to 2;2 and 2;8. Children committed few errors when producing various types of

topic-comment structures. It can be seen that when children begin producing topic-comment structures, the topicalized clause is the most prevalent type. Children do not start producing all four different topic-comment structures until age four, despite being infrequent. The production frequency shows no increase between ages 4;0 and 6;0. However, the percentage of topic-comment structures produced at 4;0 and 6;0 could parallel to the percentages of adult speech.

#### 4. Discussion

Chinese children begin producing topic-comment structures as early as at age 2;2. There is some increase in frequency between 2;2 and 2;8, but the results did not provide evidence to show that there is significant growth in production beyond 2;8. The types of topic-comment structures produced were initially limited, but children reached adult-like competence by age four. However, the production frequency at age 4;0 is not significantly different from that of age 2;8. On the other hand, the lack of production errors suggests that children may have already acquired topic-comment structures at an early age.

Topic-comment constructions have non-canonical word orders, which may pose production difficulties for children. In the study of Slobin & Bever (1982), they found that children will avoid producing structures that deviate from the canonical word order. As suggested by Erbaugh (1992), Chinese children adhere strictly to SVO word order, which could explain the low production of topic-comment structures. Also, the use of topic-comment structures is usually not mandatory in Chinese, which could also contribute to the low frequency in production.

As mentioned previously, Erbaugh's study (1983, 1992) has shown that children at 3 are already producing topicalized clauses, a type of topic-comment structures. She further suggests that this development is actually slow, because topicalized clauses are a more sophisticated syntactic structure. She also attributes the results to the fact that Chinese children avoid non-canonical word order until the age of four (Erbaugh, 1983). This is in line with the findings of this study, where it is found that by age four children are producing all four types of topic-comment structures. Few topic-comment structures were produced at ages 2;2 and 2;8 and the types were limited.

About the collected data, the role of context in data collection could have affected the type of data elicited. For the younger age groups (2;2 and 2;8), the data were collected in a semi-structured experimental settings where children were given topics and interacted with their caregiver. For the older age groups (4;0 and 6;0), children were given toys and interacted with an experimenter in an experimental setting. All the data used in this study were obtained from experimental settings where children were encouraged to talk to their mothers or an experimenter. Although the data can be considered a form of spontaneous production, children were nevertheless restricted with the contents they could produce, which as a result may not fully reflect their linguistic competence. It would also be beneficial to consider data obtained in settings where children are interacting with other

children or adults. This kind of interaction was lacking in the experimental setting in which data for four and six years old children was collected as the investigator was only responsible for eliciting a narration from children that involved asking questions which did not show great variation across the transcripts. If longitudinal data obtained from a different context and longitudinal data also yield similar results to this study, then it would provide stronger evidence that topic-comment structures are not produced frequently among Chinese-speaking children between the ages of 2;2 and 6;0.

The low frequency in production is in line with the adult data analyzed for this study. The percentages of topic-comment structures produced in adult speech are not much higher than that found in child speech. Also, by the age of four, children are producing all four types of topic-comment structures. The result seem to be surprising, given that Mandarin Chinese is generally assumed to be a topic-prominent language and has been suggested that a high number of spoken sentences can be characterized as topic-comment structures (Chao, 1968).

## 5. Conclusion

Contrary to expectations, the results show that topic-comment structures are not produced frequently in Chinese children's spontaneous speech. There is some development in the production of topic-comment structures in Chinese-speaking children between ages 2;2 and 2;8, but there is so far insufficient evidence to suggest further development between 2;8 through 6;0. The overall low production frequency of topic-comment structures found in Chinese-speaking children's spontaneous speech between ages 2;2 and 6;0 does not reflect the topic-prominent characteristic of Chinese. However, the few errors in children's production suggests that this structure is acquired at approximately 2;2 and is either not manifested in the production, due to the context in which the data was collected, or since the structure is not being used frequently in spontaneous speech by children. The findings should not be taken as an indication that young children have not yet acquired topic-comment structures since adult data shows comparable production frequencies. Children did not produce all four types of topic-comment structures until age 4;0 which suggests that they prefer to adhere to canonical SVO sentences until they have reached a higher level of syntactic competency. This supports Slobin & Bever's (1982) claim that children have a preference for canonical sentences. It would also be of interest to examine children's production patterns of topic-comment structures in other topic-prominent languages to determine whether topic-comment structures are prevalent in child speech and if these children also adhere to the canonical word order of their language.

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