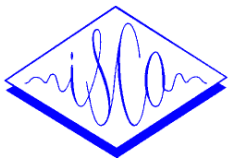

3rd International Conference on
Spoken Language Processing (ICSLP 94)
Yokohama, Japan
September 18-22, 1994

TRANSITION FROM TWO-WORD TO MULTIPLE-WORD STAGE IN THE COURSE OF LANGUAGE ACQUISITION

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ABSTRACT

This is a study of the problem of the transition from the two-word stage to the multiple-word stage in the course of language acquisition. The longitudinal speech data of six normal Japanese children were examined. The results showed a close relationship between the state of the knowledge of the projection of lexical category V and N and the appearance of multiple-word utterances. We proposed the hypothesis that it is the complete realization of the knowledge of the projection of lexical category V and N that enables children to break through the constraint on the length of utterances and makes them produce multiple-word utterances.

I. INTRODUCTION

Felix proposed two problems which must be solved in the research of language acquisition in psycholinguistics[1]. The first is a logical problem which is to answer the question why children can learn natural languages at all, i.e. what is it that makes language acquisition possible? The second is a developmental problem which is to answer the question why natural languages are acquired the way they are, i.e. how can the regularities that have been observed in real time acquisition processes be explained? According to his classification, this paper is concerned with a developmental problem. Many hypotheses have been proposed as to the characteristics of early childhood utterances [2-9]. However, there is no explicit hypothesis on the transition from the two-word stage to the multiple-word stage.

Why is it that the length of utterances increases from the two-word stage abruptly to the multiple-word stage ? In other words, what is it that serves to make the transition from two-word stage to multiple-word stage ? One view is that it is a factor irrelevant to linguistic knowledge that leads to the transition to the multiple-word stage. The alternative is that it is a linguistic knowledge itself that helps make the transition. In this study, we provide longitudinal data on six Japanese children giving affirmative evidence of the second view. If it is indeed linguistic knowledge that makes for the transition from the two-word to the multiple-word stage, we can find some relationship between the realization (acquisition) of linguistic knowledge and the beginning of the multiple-word stage.

The linguistic knowledge which is relevant to the length of utterances is a knowledge of the projection (expansion) of the syntactic category. Radford proposed three stages in the knowledge of the projection in the course of language acquisition, 1) the precategorial stage, 2) the lexical category stage and 3) the functional category stage [10]. Radford said that one-word stage was a precategorial stage. Thus, two-word stage could be a lexical stage. According to Radford, all lexical categories (N,V,A,P) are realized at the lexical stage, and children at this stage have a complete knowledge of the projection of these four lexical categories. So, it is natural to predict that there are some relationship between the realization of lexical categories and the length of utterances. In the present study, we investigate the relationship between the appearance of the lexical category projections and the beginning of the multiple-word stage by examining the longitudinal data of six Japanese normal children.

II. METHOD

Subjects were six normal Japanese children. Their utterances were observed longitudinally from the two-word stage to the beginning of the multiple-word stage. The spontaneous speech in play situations were gathered once a week in nursery school or at home. The time for observation was about an hour. The observation periods for the six children were as follows: Tasumi (0;11-1;9),

Turi (1;3-2;1), Toppei (1;7-2;3), Tentarou (1;10-1;11), Taoya (1;6-1;10), and Tuho (1;10-2;4).

III. RESULTS

We examined the relationship between the emergence of the utterances which projected the lexical category (N,V,A,P) and the beginning of the multiple-word utterances longitudinally in six children. Before presenting the results of the longitudinal study, we present examples of utterances which project each lexical category, N, V, A and P. The examples were shown below (1), along with an English translation.

(1) (a) (Projection of N) (Tuho, 2;0)
Tuhochan-no okashi
Tuho (name)-'s cake

(b) (Projection of N) (Tuho, 2:1)
Chiisai nekosan
little cat

(c) (Projection of V) (Tasumi, 1:3)
Wanwan ita
dog was

(d) (Projection of V) (Turi, 1:7)
Gyuunyu choudai
milk want

(e) (Projection of A) (Tasumi, 1:3)
Koko itai
here painful

(f) (Projection of A) (Tuho, 1:10)
Papa osoi
Papa late

(g) (Projection of P) (Turi, 1:11)
Koko-ni
here

As we can see from the examples above, utterances with the projections of all four categories can consist of two words. So, utterances with projections of all four lexical categories logically could be observed at the two-word stage. If it is knowledge of the projection that makes the transition from the two-word to the multiple-word stage, then we can find some relationship between the realization (acquisition) of the projection of lexical categories and the beginning of the multiple-word stage. The results of the examination of the relationship between the projection of lexical categories (N,V,A,P) and the beginning of the multiple-word stage were shown in (2)-(7) below.

(2) Tasumi
1;3 Projection of V and A.
Two-word utterances
1;6 Projection of V, A, P and N
Two-word utterances
Projection of V
Multiple-word utterances

The data (2) above show the result of the longitudinal study of the child named Tasumi. The above utterances with the projection of V (Verb) and A (Adjective) were observed at age 1;3. At this time, she was still in the two-word stage. At age 1;6, utterances with the projection of N (Noun) and P (Postposition) were observed. And at this time, the first multiple-word utterance was also noted. The first multiple-word utterance in Tasumi was a construction which is a projection of V.

(3) Turi
1;7 Projection of V
Two-word utterances
1;11 Projection of V and P
Two-word utterances
2;0 Projection of V and N
Two-word utterances
Projection of V
Multiple-word utterances

The data (3) are the result of the longitudinal study of the child named Turi. The utterances with the projection of V were observed at age 1;7. At this time, she was in the two-word stage. At age 1;11, utterances with the projection of P were observed. At this time, Turi was still in the two-word stage. At age 2;0, the projection of N was noted, and the first multiple-word utterance was also observed. The first multiple-word utterance in Turi was a construction which is a projection of V.

(4) Taoya
1;8 Projection of V
Two-word utterances
1;9 Projection of V, A and N
Two-word utterances
Projection of V
Multiple-word utterances

The above data (4) are the result of the longitudinal study of the child named Taoya. Those utterances with the projection of V were observed at age 1;8. At this time, he was in the two-word stage. At age 1;9, utterances with the projection of A and N were observed, and the first multiple-word utterance was also noted. The first multiple-word utterance was a construction which is a projection of V.

(5) Tentarou
1;10 Projection of V
Two-word utterances
1;11 Projection of V and N
Two-word utterances
Projection of V
Multiple-word utterances

The data (5) above shows the result of the

longitudinal study of the child named Tentarou. In this case, utterances with the projection of V were observed at age 1;10. At this time, he was in the two-word stage. At age 1;11, utterances with the projection of N was observed, and the first multiple-word utterance was also noted. The first multiple-word utterance was a construction which is a projection of V.

(6) Tuho
1;10 Projection of V and A
Two-word utterances
1;11 Projection of V and N
Two-word utterances
Projection of V, (N)
Multiple-word utterances

The above data indicate the result of the longitudinal study of the child named Tuho. Utterances with the projection of V and A were observed at age 1;10, when she was in the two-word stage. At age 1;11, utterances with the projection of N were observed, and the first multiple-word utterances were also evident. The first two multiple-word utterances were as follows: one was a construction which is a projection of V and the other a construction with the projection of N.

(7) Toppei
1;11 Projection of V
Two-word utterances
2;1 Projection of V, A and N
Two-word utterances
Projection of V
Multiple-word utterances

The foregoing are the results of the longitudinal study of the child named Toppei. Utterances with the projection of V were observed at age 1;11, when he was in the two-word stage. At age 2;1, utterances with the projection of A and N were observed, and the first two multiple-word utterances were also noted. The first two multiple-word utterances were constructions which are projections of V.

Thus far, we have shown the results of the longitudinal data of six children. Table 1 is a summary of these results.

Table 1. Projection of Categories at Two-Word and Beginning of Multiple-Word Stage

Name of Child	Two-Word Stage	Beginning of Multiple-Word Stage
Tasumi	V, A	V, N, A, P
Turi	V, P	V, N
Taoya	V	V, N, A
Tentarou	V	V, N
Tuho	V, A	V, N
Toppei	V	V, N, A

We can observe in Table 1 the following facts.

1) In four lexical categories, while the category N and V were found in all six children , the category P and A were found in only two or four children during the observation period.

2) At the two-word stage, while the projection of category V was produced in all children, the projection of category N was not observed in any child.

3) The projection of N appeared at the beginning of the multiple-word stage in all children.

Finally, we will show the examples of the first multiple-word utterances in six children.

(8) (Projection of V) Tasumi (1;6)
Acchi baibaitte itta
over there bye-bye went

(9) (Projection of V) Turi (2;0)
Turichan epuron shitai
Turi (name) apron want

(10) (Projection of V) Taoya (1;9)
Buubuchan kocchi ita
car here was

(11) (Projection of V) Tentarou (1;11)
kocchi-mo taiya tsuiteruyo
this also tire has

(12) (Projection of V) Tuho (1;11)
Watashi-mo mama iruyo
I too mama have
(including Projection of N)
Watashino otousan kaisha
my father working

(13) (Projection of V) Toppei (2;1)
Mikkun-mo asoko ita
Mikkun(name) too there was
(Projection of V)
Toppei kani ippai tabeta
Toppei (name) crabs many ate

As we can see from the examples above, all children produced utterances which projected category V as the first multiple-word utterances.

IV. DISCUSSION

The main results of the longitudinal study of six children can be summarized as follows.

1) In four lexical categories, while the category N and V were found in all six children , the category P and A were found in only two or four children during the observation period.

2) At the two-word stage, while the projection of category V was produced in all children, the projection of category N was not observed in any child.

3) The projection of N appeared at the beginning of the multiple-word stage in all

children.
4) All children produced utterances which projected category V as the first multiple-word utterances.

In order to explain these facts, we propose the following hypothesis. The knowledge of the projection of category V and N is only partly realized (acquired) at the two-word stage. At this stage, children cannot process phrases as a unit. At a certain period in the two-word stage, the projection of these lexical category V and N is completely realized. As a result of the complete realization of the projection of category V and N, children become able to process phrases as a unit. The beginning of the processing of phrases as a unit increases the processing capacity in children rapidly. Therefore, after the complete realization of the projection of lexical category V and N, the multiple-word stage is reached. In other words, it is the complete realization of this knowledge of the projection that enables the children to break through the constraint on the length of utterances and leads them to produce multiple-word utterances.

This hypothesis can explain the transition from the two-word stage to the multiple-word stage as follows. The length of utterances is considered to be constrained by the capacity of the working memory for sentence production, and it is highly probable that such capacity depends on the unit of processing. In the case of the children whose knowledge of the projection of lexical category V and N is not complete, the units of processing must be just words. This is why we observe the stage when the length of the utterances is constrained directly by the number of words, like the one-word stage and two-word stage. On the other hand, in children who have complete knowledge of the projection of category V and N, the units of processing are not just words but phrases. As a result of this change in the processing unit, the processing capacity increases rapidly, enabling the children to produce multiple-word utterances.

Meanwhile, as we have shown in the introduction, Radford proposed three stages in the course of language acquisition, 1) the precategorial stage, 2) the lexical category stage and 3) the functional category stage [10]. Radford said that all lexical categories (N,V,A,P) are realized at the lexical stage, and that children at this stage have a complete knowledge of the projection of these four lexical categories. In addition, according to Radford, the one-word stage was a precategorial stage. Thus, it is natural to assume that the two-word stage should be a lexical stage. However, the results of this study show that the projection of category N was not observed until the beginning of the multiple-word stage. This result indicates that the two-word stage is not the complete lexical category stage.

V. CONCLUSION

We proposed the hypothesis that it is the complete realization of the knowledge of the projection of lexical category V and N that enables children to break through the constraint on the length of utterances and makes them produce multiple-word utterances.

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