

THE ACQUISITION OF CHINESE PHRASE STRUCTURE RULES

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I. Introduction

Chinese has been said to be a topic-comment language, yet the syntactic nature of topic is still a controversial matter. The problem is further complicated in Chinese by the fact that there are two types of word order (i.e. SOV & SVO) exist together, and there is not any significant overt case marking. The aim of this paper is to use the model proposed by Pinker (1984) to study the interaction between these two elements during the process of language acquisition.

II. The Learning of Topic-comment Structure

1a. wo kan-wan shu le
I read-finish book PART
I have read the book

1b. wo shu kan-wan le
I book read PART

1c. wo ba-shu kan-wan le
I BA-book read PART

1d. shu wo kan-wan le
BOOK I read PART

Sentences 1a to 1d are typical examples illustrating the variation of word order in Chinese. 1d is said to be a sentence with topic=object NP, while 1a-1c is topic=subject NP. The first question that will be raised is: how can a child learn that it is a topic-prominent language? Pinker adopted Li & Thompson's (1976) suggestion that the child could use the presence of a topic that does not have any correlates of subjecthood as evidence that the target language defines a distinct topic constituent. It is just an oversimplified statement. It does not seem to be possible if a distinct topic constituent can be set up simultaneously as he or she receives such input. During the period of language learning, as Pinker claimed

elsewhere in the same book, a child may neglect any unanalysable input. He or she may just ignore it or stack it up and wait for further clues for analysis. So when a child hears sentence 2a, he or she will form structure as 2b.

2a. wu-ge pinguo, ta chi-le san-ge
 five-CLASS apple, he eat three-CLASS
 The five apples(topic), he ate three of them

2b [NP? wu-ge pinguo] [S [NPsubj ta [VP chi-le san-ge]]]

Here, let's digress for a moment and see how a child learn the phrase structure of other sentences. According to the X syntax, sentences 1a to 1d will have the following structures:

Fig.1a

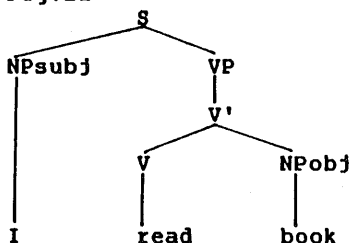


Fig.1b

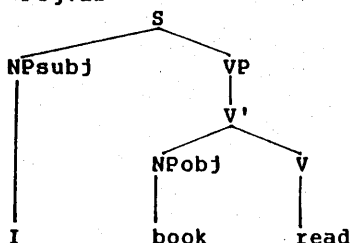


Fig.1c

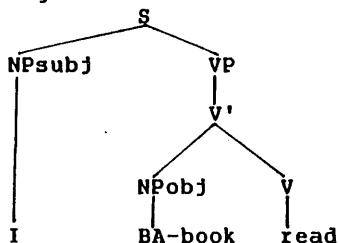
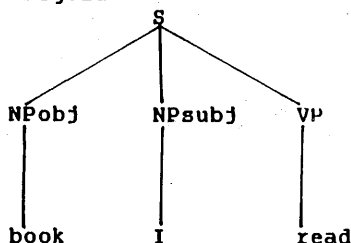


Fig.1d



The structure of 1a,1b & 1c can be collapsed together as rule 3a

3a. S -> NPsubj VP
 VP -> NPobj V
 ba-NPobj V
 V NPobj

However, structure in 1d cannot be fussed into 3a because of its non-branching structure. In X syntax, object argument should be the sister of V; but in this case "book" cannot connect to VP without cross-branching. By Pinker's acquisition mechanism P4c(p.68), it is connected to the higher possible node(i.e. S node in this case). The P-S rule will be as 3b.

3b. S → NPobj NPsubj VP

The co-existence of branching and non-branching structure within the same language is very strange. The learning procedure will be highly complicated and the application of these conflicting rules will be another problem. Clearly, the problem lies on the position of OBJ NP. If a child at this point compare the previous memorized orphan NP with this OBJ NP, he or she will find that they are both topics in the discourse and both of them raise difficulties in constructing the P-S rules. The postulation of a topic constituent here can not only give a legal status to the orphan node but also give a unified phrase structure rule. And thus the motivation for such attempt can be justified.

II. The Topic Structure

The C-structure and F-structure structure of a topic sentence is shown in Fig.2 & 3. If any element in the Topic position can take up any grammatical function which is an empty slot in the F-structure, they will be linked together.

Fig.2

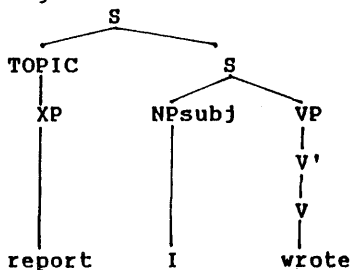
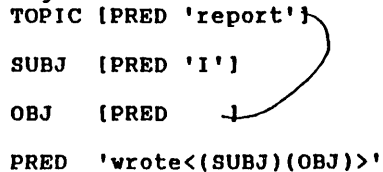


Fig.3



This process is motivated by the coherence

requirement(p.21). In sentence like 'report(topic) I wrote', 'wrote' is a transitive verb and requires an OBJ NP. The topic 'report' can either be theme or patient, and by Pinker's canonical mapping, it is naturally taken as object.(subject position is filled) The coherence requirement will then be fulfilled by the link between Topic NP and the empty functional slot.

However, there are some sentences which will have difficulties in this kind of long distance binding:

- 4a. nei ben shu chuban le
 that CLASS book publish PART
 That book, (someone) has published it.
- 4b. fan zhu-hao le
 rice cook-finish PART
 The rice, (we) have cooked.

In these sentences, there are two empty slots in the F-structure which can be linked with the topic. 'The book' can either be the subject or object. If we apply the canonical mapping here again: the semantic case of 'book' can be theme or patient. In the absence of agent, theme can take up the subject slot. Yet theme can also be the object. One way to handle this problem is to take the predicate 'publish' as an adjectival verb. The difficulties in mapping the proper grammatical function will disappear automatically for an adjectival verb requires a subject only. In this way such sentence will have a non-argument topic as that in 2a.

III. 'BA' Structure

In our P-S Rule, there are two types of SOV sentences: with and without BA. It will be suspicious if they are used interchangeably. In fact the difference can be found when we expand the phrase structure by inserting a prepositional phrase.

- 5a. wo baogao xie-wan le
 I report write-finish PART
 I have written the report
- 5b. wo xie-wan baogao le
 I write-finish report

5c. wo ba-baogao xie-wan le

5d. wo dai jia-li xie-wan baogao
I at home write-finish report

5e.*wo dai jia-li baogao xie-wan
I at home report write-finish

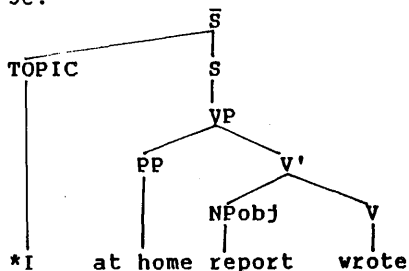
5f. wo dai jia-li ba-baogao xie-wan

5g. wo baogao dai jia-li xie-wan

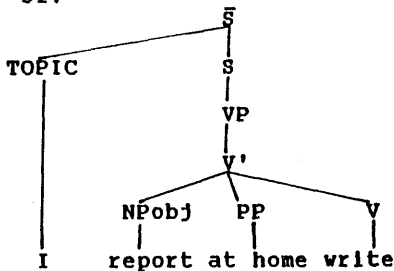
5h.*wo ba-baogao dai jia-li xie-wan

The structures of 5e-5h are shown as following:

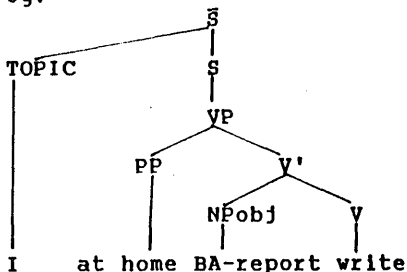
5e.



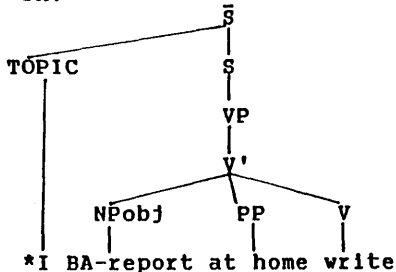
5f.



5g.



5h.



The insertion of PP brings up a vigorous structure reform and produces two types of VP:

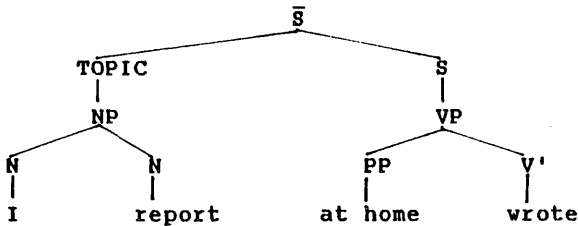
6a. VP → PP V'
V' → BA-NP V
V NP

6b. VP → V'
V' → NP PP V

Such reform is awkward and possibly will be an hindrance in learning. One solution will be to re-analyse the two adjacent NP as a kind of possessor-possessed or part-whole relation:

NP-> NP-NP

Then the ungrammaticality produced by PP insertion in 5e can be explained easily: the constituent integrity of topic NP is destroyed. And 5h is ungrammatical because PP should be the sister of V' and now it is the daughter of V'. After the re-analysis of NPs, the structure of 5g will be:



Then 5g will be treated as 4a & 4b. PP is still attached under VP and the predicate 'write-finish' becomes an adjectival verb and topic is equal to subject.

Such analysis have some further implications. SOV sentence should be case marked (by BA) as it is suggested by Tang(1972) and unmarked sentence will be SVO. Such distinction is clear and simple. The higher learnability is supported by the claim (Hakuta 1982) that children had a strong tendency to associate particular case markers with particular positions. In fact, we can hardly find errors like 5e or 5h in the data.

The possessor-possessed relation in the re-analysed NP can be better illustrated by the following sentences:

- 6a. wo kan-wan le Peter de baogao
 I read-finish PART Peter POSS report
 I have read Peter's report
- 6b. wo ba-Peter de baogao kan-wan le
 I ba-Peter POSS report read-finish PART

6c.*wo Peter de baogao kan-wan le
 I Peter POSS report read-finish PART

6c is ungrammatical because such relation does not hold between 'wo'(I) and 'Peter'. In fact some native speakers feel that 'wo Peter' can be read as an epithet, wo = Peter.

Therefore, the new phrase structure will be:

7. S-> TOPIC S
 S-> (NPsubj) VP
 VP-> (PP) V'
 V'-> V (NPobj)
 (NPobj) V
 CASE=BA

IV. Conclusion

In this study, we have discussed the possibility how a child can set up the topic constituent. The conflict between the non-branching structure of OSV word order and the branching SOV & SVO structure provides a higher motivation for the attempt. The non-argument topic sentence further aids the process. The two SOV word order is re-analysed and the result is that only those with BA marker have the SOV structure and those without such marking are treated as compound NP, with a possessor-possessed or part-whole relation. The predicate of such sentence will then become an adjectival verb which requires subject only. The mapping problem is also solved.

Reference

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