

TO DISPENSE WITH OV WORD ORDER IN MODERN MANDARIN: A LEXICASE ANALYSIS

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I. BACKGROUND OF THE DEBATE OVER MANDARIN BASIC WORD ORDER

The issue of basic word order in Modern Mandarin has attracted a continuous interest and much heated discussion among Chinese linguists in the last decade. Tai (1973) initiated this debate when he proposed that the basic word order of Modern Mandarin is SOV. Other advocates of this position include Givón (1978), Huang (1978), Tai (1976, 1984), and, most prominently, Li and Thompson (1973, 1974, 1975, 1981). Among linguists who dispute this position and maintain that the basic word order is SVO, there are Mei (1978), Cheung (1979), Light (1979), Chu (1984), and Sun and Givón (1985).

There are however two assumptions which seem to be accepted without question by almost all the linguists from both camps and thus serve as the foundation of this debate:

Assumption I: There are several OV constructions in Modern Mandarin, as in the following sentence types:

- (1) (a) 他把錢丟了
Ta ba qian diu le.
He ba money lose PF/SP¹
'He has lost the money.' PF=Perfective
Aspect
SP=Sentence
Particle
- (b) 他錢丟了
Ta, qian diu le.
He money lose PF/SP
'He has lost the money.'

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¹ le is a problematic element for linguistic analysis in Chinese. There are two le's: one is traditionally considered a perfective aspect marker or a marker indicating 'boundedness' according to some linguists, and the other is a sentence particle indicating the change of state or currently relevant state (CRS) according to Li and Thompson. This paper will not be concerned with the analysis of either of them. However, I believe if le is immediately preceded by a verb at sentence-final position then it has both functions at the same time. But I will simply treat it as an inflectional aspect marker in trees and treat [V-le] as a single word for now.

(c) 錢 他 丟 了
 Qian, ta diu le.
 Money he lose PF/SP
 'The money, he has lost (it).'

(d) 錢 被 他 丟 了
 Qian bei ta diu le.
 Money bei him lose PF/SP
 'The money was lost by him.'

Assumption II: There has been certain degree of change of word order from VO to OV in the historical development of Mandarin.

In terms of Assumption I, the disagreement is over whether these OV constructions have prevailed over VO constructions and should be established as the basic word order. The disagreement arising from Assumption II is far greater: different linguists have different theories for the explanation of this change of word order. Thus, even linguists within the same camp disagree with one another. Tai (1973) initially argued that the basic word order of Modern Mandarin is SOV, according to Greenberg's study of language universals, and later (1976) attributed this change in word order to an Altaic superstratum, a view clearly influenced by Hashimoto's theory (1975). Li and Thompson (1974), on the other hand, consider the grammaticalization of the first verb in the earlier serial verb construction to be the explanation for the change. From a morphological point of view, Huang (1978) disputes Li and Thompson and proposes that the change is due to the disappearance of Archaic Chinese postverbal 于 (於) *yu* in later Chinese. Within the opposition camp, various conflicting theories also abound. Cheung (1979) believes that the effect of object preposing is caused by the compounding process of a verb and its complement. From a semantic point of view, Light (1979:166-167) asserts that the rise of OV order as a marked order in Modern Mandarin should be attributed to "the Rule of Positional Meaning: the meaning of nouns and adverbs depends upon their location before or after the main verb." Chu (1984), after giving an excellent and concise survey and some insightful criticisms of all these theories, offers his own explanation, incorporated with Cheung's, that (1) the rise of compound verbs of verb-complement type and (2) the reduction of the use of topic markers are the two main causes of verbs moving preverbally.

This paper will not, however, be concerned with the validity of Assumption II. Nor will it be concerned with the various explanations attempting to account for Assumption II. Rather, it seriously questions the validity of Assumption I, which logically precedes Assumption II, and challenges it with alternative analyses, within a rigorously constrained grammar, of syntactic constructions that are conventionally treated as OV constructions.

By now it should be regarded as convincingly established that the

proper basic word order of Modern Mandarin is SVO. Light (1979:153-158), Chu (1984:135) and others have correctly rejected the line of argument for a SOV basic word order proceeding from universal correlates. Furthermore, the most direct evidence comes from several studies which examine the actual use of various VO and so-called OV constructions by native Mandarin speakers. Li (1979) reports that an experiment which used different pictures to elicit sentences from some thirty native speakers shows that the dominant word order is SVO. Chu (1984) confirms this observation in his text count of one editorial and one short story with extensive dialogue from a newspaper. Sun and Givón (1985) examine both written and spoken Mandarin on a larger scale and still find that VO is overwhelmingly preferred in both, at the level of 90% and over. They also report Erbaugh's study which finds that Mandarin speaking children have a much lower frequency of the use of OV constructions than do adults. This of course again confirms the belief that OV order is highly marked and thus can not be considered the basic, unmarked order.

II. PROBLEMS WITH PREVIOUS DISCUSSIONS ABOUT MANDARIN WORD ORDER

A. The Lack of Explicit Definitions of Subject and Object

Based upon evidence available, it is reasonable to claim that Modern Mandarin is a SVO language. Nevertheless, in challenging Assumption I, I raise a rather logical and most important question concerning this whole issue: what are the criteria for deciding whether a certain construction is SOV, OSV, or SVO? In other words, what are the definitions of subject and object that these linguists have used when talking about word order of Modern Mandarin? Amazingly not one formal and explicit definition has been given in all the works mentioned earlier dealing with this issue. Their authors apparently assume, take for granted, that those who speak of "subject" and "object" are all talking about the same thing. They also seem to assume that the readers would know exactly what they mean by the terms. Assumptions of this kind are unscientific, since claims made based on such assumptions are untestable. Also, there is no way to compare two claims made by two different linguists on a fair ground without explicit definitions.

B. The Confusion of Category and Function

More seriously, in the examples which these linguists use to illustrate their use of 'subject' and 'object,' one finds a dangerous confusion of syntax and semantics. Modern linguistics, especially within the generative tradition, generally considers subject and object syntactic categories, not semantic ones. Chomsky's use of 'logical subject' and 'logical object' is also unfortunate in terms of their imprecision and subjectivity. Although there are certain semantic functions that can be abstracted from the subject and object categories, one must keep in mind that a syntactic category and its semantic function should not be confused. Thus, a subject may well be the agent and the object may well be the patient; however, subject and object, as syntactic categories, must be defined in syntactic terms, not in semantic terms. It is as if a linguist were to define

syntactic categories in phonological terms! The analogy should be clear enough. As a matter of fact, this confusion is not unique to the studies of Mandarin word order; it is rather unfortunately common among Greenbergian typological studies of languages.

Li and Thompson consider all the following examples OV sentences (1981:21 & 492) (the examples and glosses are slightly modified here):

- (2) (a) 他把書買了
 Ta ba shu mai le.
 He ba book buy PF/SP
 'He bought the book.'
- (b) 他書買了
 Ta, shu mai le.
 He book buy PF/SP
 'He bought the book.'
- (c) 書他買了
 Shu, ta mai le.
 Book he buy PF/SP
 'The book, he bought (it).'
- (d) 他被姐姐罵了
 Ta bei jiejie ma le.
 He bei older-sister scold PF/SP
 'He was scolded by his older sister.'

According to Li and Thompson, in each sentence the underlined NP is the object. Nevertheless, as far as the surface representation is concerned, one can abstract no formal syntactic properties from these underlined NPs. There are, however, semantic properties which can be induced. That is, regardless of what its syntactic position is, an NP is regarded as an object as long as it is semantically and situationally the recipient of the activity denoted by the verb, but if the NP is the initiator of the activity it is the subject. Thus, Li and Thompson consider the following two sentences SV and VS, respectively:

- (3) (a) 人來了
 Ren lai le.
 People come PF/SP
 'People came.'
- (b) 來了人
 Lai le ren le.
 Come PF people SP
 'People came.'

A most recent contribution to this debate about Mandarin word order is

made by Sun and Givón (1985). Let us examine some of the examples that they consider OV constructions (again, the examples are modified and the glosses are mine):

- (4) (a) 棗 都 沒 了
Zao dou mei le
Prunes all not-have PF/SP
'The prunes are all gone.'
- (b) 他 把 那 杯 酒 洒 在 地 上
Ta ba na bei jiu sha zai di-shang.
He ba that cup wine spill at ground top
'He spilt that cup of wine on the ground.'
- (c) 這 點 活 你 別 乾 啦
Zhei dian huo ni bie gan la.
This little work you don't do la
(la is an exclamation word.)
'You don't have to do such a little work.'

Sun and Givón would consider the underlined NPs objects. Presumably they employ the same semantic principle to determine which nominals are subjects and which objects.

It is amazing that this debate had been going on for more than a decade before Chu (1984:137) voiced the caution:

When talking about subject and object, one has to make sure what subject and object are. While it may be easy to define 'semantic subject' and 'semantic object', it is rather difficult to define 'syntactic subject' and 'syntactic object'! After all, it is the syntactic relation of subject and object that a discussion of word order should be based on. (Translation mine)

Indeed, it is the surface syntactic order of subject, object, and verb that is under discussion and the most important premise is that subject and object are defined syntactically. Although he rejects *ba* and *bei* sentences as OV types, Chu himself does not give explicit definitions of subject and object. It is therefore not clear what criteria he uses to determine what subject and object are.

Thus far, the objection to Assumption I can be summarized as follows:

1. In the previous discussions of word order of Mandarin, there have been no explicit and formal definitions of subject and object.
2. There seems to have been a confusion of subject and object as syntactic categories and their semantic functions.

C. The Obscure Status of Topic

Before proceeding to what may serve as working definitions, it is important to point out that the obscure status of topic and the exaggera-

tion of the importance of topic have also indirectly contributed to this confusion. Chao (1968:69) first stated that the semantic relation of subject and predicate in Mandarin is that of topic and comment. Thus, it is clear that to him "topic" is a semantic concept and "subject" a syntactic one. However, when Li and Thompson (1981:16) claimed that Mandarin is a "topic-prominent" language and that it is typologically different from "subject-prominent" languages such as English, it is quite unclear whether they considered "topic" a syntactic or semantic notion. In fact it is not even clear whether they recognized "subject" as a category in Mandarin at all. Starosta (1985a:260-261) made this criticism:

Li and Thompson failed to recognize the importance of the category of subject in a grammar of Chinese because of their informal and subjective 'functional' approach. Thus they define the category of subject notionally in terms of a 'doing' or 'being' relationship (Li and Thompson 1981:87), an approach taken by traditional school grammars but discredited within modern linguistics since the early thirties and especially since the advent of case grammar.

The importance of a grammatically defined category of subject within a relatively rigorous linguistic framework has been amply demonstrated by John Hou, who describes a number of Chinese grammatical processes that crucially involve the category of subject (Hou 1979:47-59, 102, 110-131, 165-193, 205-208), and it comes out even in an informal 'functional' treatment such as Li and Thompson's grammar, where the syntactic distribution of certain classes is stated using what is in effect the position of the subject rather than the topic as the point of reference (Li and Thompson 1981:174, 175, 181, 318, 320, 340, 350, 356).

This paper will take the position that topic is a syntactic category, thus a syntactically defined notion parallel to that of subject and object. Therefore, "topic", "subject" and "object" are mutually exclusive categories. An NP constituent can not belong to two syntactic categories at the same time. We may rename Chao's usage of topic for its semantic function as "focus" to maintain a clear distinction. Thus, while a subject may often be the focus of its clause, it cannot be the topic at the same time.

III. PROBLEMS WITH A TRANSFORMATIONAL ACCOUNT OF WORD ORDER

The definitions of topic, subject, and object and the analyses of various Mandarin sentence types in this paper are given within the Lexibase framework, a rigorously constrained grammar model which does not allow any transformational rules. Therefore, there is only one level, the surface level, of syntactic representation. It is felt that the issue of basic word order can be best discussed within such a framework since it is only the surface syntactic order of subject, object, and verb that we should be concerned with. Thus, Tai's vacuous proposal (1973:659) that Mandarin is an SOV language based on a powerful transformational rule:

$$\# X - NP - V \# \longrightarrow \# X - V - NP \#,$$

where OV is the so-called deep structure, can be immediately rejected. Likewise, descriptions or definitions of subject and object at the deep structure level (e.g. Huang 1966, Li 1972) are not relevant here either. As it has been pointed out (Starosta 1985b:5-7) once deep structures and such powerful devices as transformations are allowed in a generative model of language, the grammar would lose its empirical significance since any desired surface structure can be derived from a randomly chosen deep structure among many possible ones without violating any general metatheoretical principles. Therefore, a transformational account of word order typology would clearly have no empirical content.

According to Li and Huang, the preverbal NP is the subject and the postverbal NP the object in the proposed deep structure for Mandarin:

| | | | | |
|-------|---|---|---|------|
| NP | - | V | - | NP |
| Subj. | | | | Obj. |

This kind of analysis also leads to the claim that *ba*, *bei*, and topicalization sentences are OV constructions since they are all transformationally derived from the deep structure SVO (e.g. Teng 1977:36). The first flaw with this analysis, as pointed out earlier, is that it will result in a confusion of syntactic categories and their semantic functions. Secondly, this analysis cannot survive for a language where case forms are morphologically marked:

| | | | | | |
|-----|-----|--------|--------|--------|-----------------|
| (5) | (a) | He | kissed | her. | |
| | | [+Nom] | | [+Acc] | Nom: Nominative |
| | | | | | Acc: Accusative |

| | | | |
|-----|--------|---------------|--------|
| (b) | She | was kissed by | him. |
| | [+Nom] | | [+Acc] |

The morphologically marked case forms and their close correlation with subject and object are to be totally ignored if we accept that (5)(b) is an OV construction in English. Therefore, this transformational account is clearly to be rejected. To be sure, Li and Thompson might argue that English is a subject-prominent language and thus needs an analysis different from that of Chinese. But such a position would make the claim that Mandarin is of SOV type and English SVO and the whole issue of word order typology meaningless. Therefore, in order to capture the syntactic generalizations of surface representations within a language or universally, it is best to define subject, object and topic by surface syntactic criteria only.

IV. THE LEXICASE FRAMEWORK

The Lexicase (LXC) framework, as its name suggests, is a lexicalist approach to syntax. Within its grammatical analysis, every N constituent

is marked for a Case Form (CF) and a Case Relation (CR) and every V is marked for a Case Frame which specifies the CFs and CRs the verb can or cannot cooccur with. Lexicase CRs are comparable to Fillmorean case relations. However, the former are primarily defined in syntactic terms while the later are mainly defined by semantic and situational criteria. There are five CRs recognized in LXC: Patient (PAT), Agent (AGT), Correspondent (COR), Means (MNS), and Locus (LOC), all of which are claimed to be universal. LXC CFs are purely syntactic categories defined in terms of coding properties, although they are characterized as composed of one or more case makers and in terms of clusters of localistic features. CFs are categories which signal the presence of CRs. In turn, CFs are signaled by various case markers such as word order, preposition and postposition, and noun classification.

Lexicase is a lexicalist approach which accounts for systematic syntactic relations among different sentence types in terms of lexical rules. Moreover, it is a grammar of words which captures all syntactic generalizations through statements of the internal properties, external distribution, and the derivational analogical interrelationships among classes of words, with the exception of syntactically conditioned anaphora rules (Starosta 1984:5). Lexicase also adopts the word and paradigm approach to morphology. In the lexicon a lexical entry is minimally specified with features which can not be predicted, and it is developed into a fully specified lexical item through Redundancy Rules, Subcategorization Rules, and Inflectional Redundancy Rules.

One of the important constraints of LXC is the One-bar Constraint which requires every construction to have at least one lexical head. Therefore, the traditional VP constituent is impossible in LXC, where a VP node must be equal to the S node.

V. DEFINITIONS OF SUBJECT, OBJECT AND TOPIC

In this paper, "subject" in Mandarin is defined as the NP with the feature [+Nom], or in terms of markedness and word order as the last unmarked preverbal NP. "Topic" is defined as the NP with feature [+topc], or in terms of word order, the NP before subject, if there is one, within the immediate clause, or the sentence-initial NP marked by topic markers such as 呢 a, 呢 ne, or pause. "Direct object" is the NP with features [-Nom, +PAT], or, in terms of word order, the first postverbal bare NP that is [+PAT]. Note that by this definition a direct object has to be immediately dominated by a VP, or S. Thus, the term "direct object" can not by definition refer to the NP immediately dominated by a PP. The definitions above can be put into a more formal form:

- (I) An NP is the subject of a clause iff
 - (i) it is marked [+Nom], or
 - (ii) it is the last unmarked preverbal NP.
- (II) An NP is the topic iff it is immediately dominated by the S node and
 - (i) it is marked [+topc], or

- (ii) it is before the subject, or
 - (iii) it is marked by a topic marker 'a', 'ne', or pause.
- (III) An NP is the direct object iff
- (i) it is marked [-Nom +PAT], or
 - (ii) it immediately follows the verb and has the CR [+PAT]².

VI. LEXICASE ANALYSES OF SO-CALLED OV CONSTRUCTIONS

According to these definitions, this study now attempts to give a LXC account for various Mandarin constructions previously treated as OV types and argue that there is no need to pose any OV order in Mandarin, and thus offer an alternative to the whole controversy about the basic word order in Modern Mandarin.

A. The *ba* construction

We will first examine the *ba* construction which almost all Chinese linguists consider the most important OV sentence type in Mandarin. Chu (1984) however argues differently. He believes that *ba* is a lexical item clearly with semantic content, whose presence or absence not only makes a difference in terms of meaning but also grammaticality. He thus rejects the analysis that *ba* is an "object marker" and *ba* sentences are of OV order. Consequently, he analyzes sentences such as:

- (6) 猫 把 鱼 吃 了
 Mao ba yu chi le
 Cat *ba* fish eat PF/SP
 'The cat ate the fish.'

as having a structure of [S [P O] V]. Note that here the O is the object of the preposition *ba*, not the direct object of the verb.

Historically, *ba* was originally a verb, meaning 'take', 'grasp', etc. Its verbal function is however nearly lost in Modern Mandarin, except in some frozen expressions. Clearly, in its historical verbal use in a structure of [S [*ba* O] V], the O is the object of the verb *ba*, not the other V, whose implied Patient, or the missing object, may be different from that of *ba*. For example,

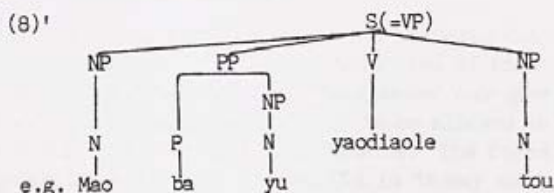
- (7) 詩 句 無 人 識 應 須 把 劍 看
 Shiju wu ren shi, ying xu ba jian kan.
 Poem no person understand should must *ba* sword read
 'Nobody understands the poem; I should hold the sword and read it.'

² Again, it is important to stress that [+PAT] is a syntactic feature in Lexicase. Implied features such as ?[+PAT] are semantic.

Here, according to Wang Li (1946:412), the implied object of the verb 'kan' is the poem, not the sword. Even though in some other instances the object of *ba* is coreferential with the implied object of the second verb, the overt object should still be considered as that of *ba* for *ba* as a verb is always transitive.

Dispute about the modern status of *ba* is over whether it is a pure "grammatical maker" or a preposition. The former account is rejected on two grounds. First, *ba* clearly has semantic content, uncharacteristic of pure grammatical markers, such as the Japanese *ga*. Traditionally, *ba* is analyzed as having the meaning of "dispose" or "process". Thus, it resembles other prepositions in Mandarin like 用 *yong*, 对 *dui*, 给 *gei*, etc., in that they all have semantic content derived from their verbal meaning. It seems to me that *ba* has the meaning of "doing something to something." It has been observed that in Chinese when two NPs have the relationship of whole and part, whole most typically precedes part (the Whole-Before-Part Principle, Light 1979:155). This principle can be generalized to cover all semantic relationships of "general to specific". Thus, for sentence (6), we may interpret it as "the cat did something to the fish and what the cat did was it ate the fish." Secondly, more importantly, there is indisputable data showing that in some instances the object of *ba* cannot be syntactically the object nor semantically the patient of the following verb.

- (8) (a) 他把舊房子漆了新漆
 Ta ba jiu fangzi qi le xin qi.
 He ba old house paint PF new paint
 'He painted the old house new.'
- (b) 他把孩子穿好了衣服
 Ta ba haizi chuanhao le yifu.
 She ba child dress-finish PF clothes
 'She finished dressing the child.'
- (c) 工人把大門加了鎖
 Gongren ba damen jia le suo.
 Worker ba gate add PF lock
 'The worker locked the gate.'
- (d) 貓把魚咬掉了頭
 Mao ba yu yaodiao le tou.
 Cat ba fish bite off PF head
 'The cat bit off the head of the fish.'



Chu's analysis is therefore sound; however, he does not give any further account of the fact that only transitive verbs can co-occur with *ba* and very often there is no NP following the verb. For instance

- (9) (a) 他把舊房子拆了
 Ta ba jiu fangzi chai le.
 He *ba* old house take-apart PF/SP
 'He took apart the old house.'
- (b) 她把衣服穿好了
 Ta ba yifu chuanhao le.
 She *ba* clothes dress-finish PF/SP
 'She finished putting on the clothes.'
- (c) 工人把大門鎖了
 Gongren ba damen suo le.
 Worker *ba* gate lock PF/SP
 'The worker locked the gate.'
- (d) 貓把魚吃了
 Mao ba yu chi le.
 Cat *ba* fish eat PF/SP
 'The cat ate the fish.'

I believe that all these verbs are still transitive; thus, they all share the features essentially:

| | |
|---|--|
| $\begin{array}{c} +V \\ +\text{trns} \\ \supset [+PAT] \\ \supset [+AGT] \\ - \left[\begin{array}{c} +Nom \\ -AGT \end{array} \right] \end{array}$ | $\begin{array}{l} \text{trns} = \text{transitive} \\ \supset = \text{implied} \end{array}$ |
|---|--|

Note first of all that in Mandarin a transitive verb does not require an overt subject, nor an overt object. For example,

- (10) Q: 他吃冰沒
 Ta chi bing mei?
 He eat shave-ice not
 'Did he eat the shaved ice?'
- A: 吃了
 Chi le.
 Eat PF/SP
 'He did.'

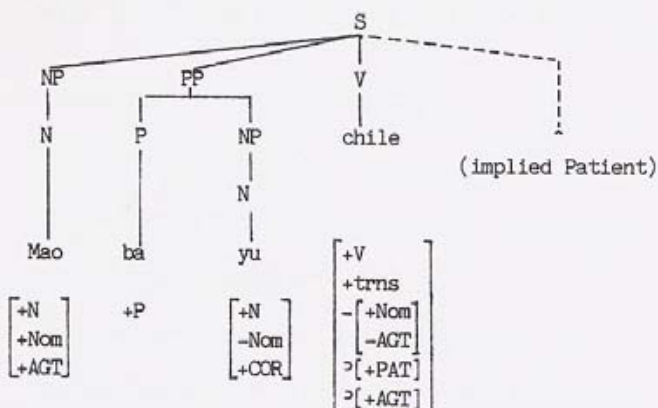
While *chi* is a transitive verb, the answer "*chi-le*" is a well-formed sentence though without overt subject and object. This fact is observed

through a Redundancy Rule (RR):

$$\text{RR-1: } [+trns] \longrightarrow \left[\begin{array}{c} - \\ [+Nom] \\ [-AGT] \end{array} \right]$$

Note that RR-1 states in a negative way that no element which is nominative and yet is not an Agent can co-occur with a transitive verb. In other words, the rule specifies that if the transitive verb is to have a subject, the subject has to be [+AGT]. It thus allows the possibility for the subject and the object to be "missing". And since Patient centrality is recognized in LXC, the feature [\geq [+PAT]] is present in every verb's case frame. Furthermore, since the verb is transitive, it implies an Agent but does not necessarily require one.

In light of this, let us now examine the sentences in (9).



The only unsatisfied feature in this sentence is the feature [\geq [+PAT]]. Nonetheless, the all sentences in (9) are well-formed. Thus, I propose an identification rule in the semantic component of the grammar to identify this implied Patient with an earlier N marked [+COR]. This kind of rule is called Argument Identification Rule (AIR) (Pagotto 1985, Lindsey 1986). Thus,

- AIR-1. Insert a dummy nominal and mark it coreferential with an earlier *ba*-marked COR if there is one, otherwise with an earlier COR if there is one, otherwise with the discourse topic, to satisfy the implied case relation associated with the [-Nom] sister of the verb of the matrix clause.

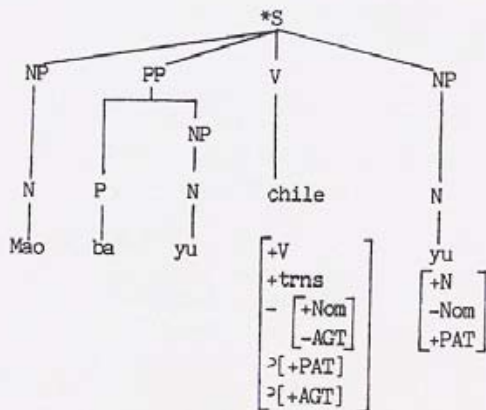
Since [\geq [+PAT]] and [\geq [+AGT]] are semantic features, it is not at all unreasonable to satisfy them by this kind of identification rule. Note that we are not proposing that the grammar may generate empty categories, which will be too powerful a device to be allowed in a grammar and is thus ruled out in the current LXC framework. The formal notation adapted in this paper to satisfy the missing CRs is "dummy nominal insertion" proposed

by Lindsey (1986). The inserted dummy nominal is to be identified with an earlier N and thus satisfies the missing implied case relation. Therefore, still no empty categories or zero lexical entries are allowed in the grammar.

However, one may challenge this analysis of missing objects with the observation that postverbal object and preverbal *ba* following an object are in complementary distribution. Thus,

- (11) (a) 貓 吃 了 魚
 Mao chi le yu
 Cat eat PF yu
 'The cat ate the fish.'
- (b) 貓 把 魚 吃 了
 Mao ba yu chi le.
 Cat ba fish eat PF/SP
 'The cat ate the fish.'
- (c) *貓 把 魚 吃 了 魚
 Mao ba yu chi le yu.
 Cat ba fish eat PF fish
 'The cat ate the fish.'

It seems that (c) poses a dilemma for us because when the feature [$\text{P}[+\text{PAT}]$] is actually satisfied the sentence becomes bad.



As a matter of fact, all formal features are satisfied in this sentence. Therefore, we know for sure that this sentence is bad not because there is any feature violated or unsatisfied. As we have seen in the sentences of (8), it is entirely possible for the verb with preverbal *ba* to have an object, provided that this object and the object of *ba* are of a "part-whole" relationship. In other words, the presence of an overt direct object of the verb is not the cause of the ill-formedness. It is

rather the fact that this direct object is completely identical with the object of *ba* and there is no more specific information given. I would therefore argue that sentence (11c) is syntactically well-formed, but it is semantically or pragmatically ill-formed due to the violation of certain general principles which speakers follow to make communication more efficient.

The approach adapted here is that proposed by Lindsey (1986:2-3). It makes use of Grice's Maxims of Quantity in relation to a hierarchy of NPs according to the amount of information contained.

(1) Grice's Maxims of Quantity

Maxim 1. Include in your contribution as much information as necessary.

Maxim 2. Include in your contribution the minimum of information necessary.

(2) Information Hierarchy for NPs (IH)

1. Nothing (implied NPs)
2. Pronoun (non-reflexive)
3. Reflexive Pronoun
4. Deictic
5. Full NPs (uniquely identifiable)

(3) NP Choice Strategy (NCS)

Choose the highest valued form (that is, the one containing the least information) from the IH for NPs which (a) meets the requirements of the syntax and (b) satisfies the Maxims of Quantity.

All sentences in (8) and (9) follow this NCS nicely; sentences in (9) choose the highest valued form, nothing, to be the direct object and we therefore have the necessary information in its minimum grammatical form; sentences in (8), on the other hand, choose full NPs to be the direct objects because their information is uniquely identifiable. Also, note that all of the following sentences in (12) are acceptable only with the reading that the two accusative NPs are non-coreferential. The NCS would be violated once the two accusative NPs are coreferential for in this case Maxim 2 is not satisfied and the form to be chosen for the final NP is to be nothing, the implied NP, which meets both of the requirements of syntax and Grice's Maxims of Quantity.

- (12) (a) 他把土 洒上 了土
 Ta ba tu shashang le tu.
 He *ba* dirt spread-on PF dirt
 'He spread some dirt on the dirt.'

- (b) 他把衣服 蓋上 了衣服
 Ta ba yifu gaishang le yifu.
 He **ba** clothes cover-on PF clothes
 'He covered the clothes with clothes.'
- (c) 他把皮 剝 了皮
 Ta ba pi buo le pi.
 He **ba** skin peel PF skin
 'He peeled the skin off the skin.'
- (d) 他把鎖 加 了鎖
 Ta ba suo jia le suo
 He **ba** lock add PF lock
 'He added a lock on the lock.'

However, such a reading is always anomalous or nonsensical for sentences like (11c). Therefore, it is semantically ill-formed no matter what reading is intended.

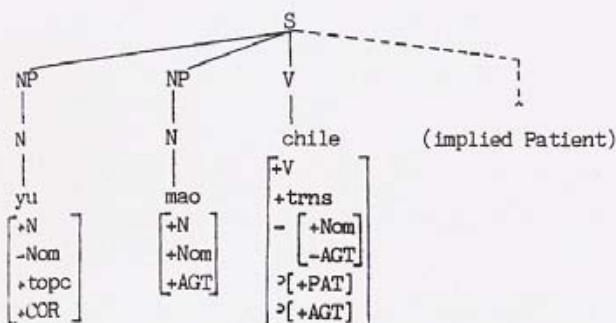
B. The Topicalization Construction

Thus far, we have accounted for **ba** constructions and argued that the NP marked by **ba** cannot be taken as the direct object of the verb. Our analysis can be generalized to further account for the following type of sentences in (13) which were also treated as OV constructions previously:

- (13) (a) 大門 工人 鎖 了
 Damen, gongren suo le.
 Gate worker lock PF/SP
 'The gate, the worker locked (it).'
- (b) 魚 貓 吃 了
 Yu, mao chi le.
 Fish cat eat PF/SP
 'The fish, the cat ate.'
- (c) 電話 我 打 了
 Dianhua, wo da le.
 Phone call I make PF/SP
 'The phone call, I made.'
- (14) (a) *大門 工人 鎖 了 大門
 *Damen, gongren suo le damen.
 Gate worker lock PF gate
 'The worker locked the gate.'
- (b) *魚 貓 吃 了 魚
 *Yu, mao chi le yu.
 Fish cat eat PF fish
 'The cat ate the fish.'

- (c) *電話 我 打 了 電話
 *Dianhua, wo da le dianhua.
 Phone call I made PF phone call
 'I made the phone call.'
- (15) (a) 那 個 房 間 我 洗 了 地 板
 Na ge fangjian, wo xi le diban
 That M room I wash PF floor M=measure
 'As for that room, I washed the floor.'
- (b) 魚 我 只 吃 蒸 魚
 Yu, wo zhi chi zhengyu.
 Fish I only eat steamed-fish
 'As for fish, I only eat steamed fish.'
- (c) 聖 經 我 喜 歡 看 新 約
 Shengjin, wo xihuan kan xinyue.
 Bible I like read New Testament
 'As for the Bible, I like to read the New Testament.'

For the sentences in (13) our analysis for ba sentences in (9) can be applied here too:



'The fish, the cat ate.'

Again, the sentence is syntactically well-formed. Semantically, however, there is one feature [>[+PAT]] not satisfied. But with the application of AIR-1, this feature is satisfied. Also, like sentences in (8), those in (15) contain a transitive verb which does take an overt direct object and since there is a "part-whole" relationship between the direct object and the topic, there is no violation of the NP Choice Strategy. Sentences in (14) are bad, however, for the same reason that (11c) is bad. Note interestingly how the NCS and "general to specific" principle interact and compensate each other to require that the general comes first and the specific later.

One may notice that all sentences in (8) with a structure of [S [ba NP] V O] may have counterparts of a topicalization structure of [Top S V O] of (15). Nonetheless, it is not necessarily true vice versa. This indicates that the class of verbs that may co-occur with *ba* is more restricted. In fact, any [+trns] (trns=transitive) verb³ can occur in [Top S V O], but a verb has to be [+trns +actv +prcs] (actv=active prcs=process) to cooccur with *ba* which has the feature [+aftv] (aftv=affective) to characterize its disposal denotation (Chao 1968, Li 1974). The following subcategorization rule and inflectional redundancy rule can account for this.

$$\text{SR-2: } \begin{bmatrix} +\text{trns} \\ +\text{actv} \\ +\text{prcs} \end{bmatrix} \longrightarrow [\pm\text{aftv}]$$

This rule subcategorizes action-process verbs into two categories.

$$\text{IRR-1: } \begin{bmatrix} +\text{V} \\ +\text{aftv} \end{bmatrix} \longrightarrow \left[+ \begin{bmatrix} +\text{P} \\ +\text{aftv} \end{bmatrix} \underline{\quad} \right]$$

This inflectional redundancy rule specifies that a [+aftv] verb must cooccur with *ba*.

However, our analysis so far cannot account for the fact that the following sentence type is valid:

- (16) 老 王 我 骂 了 他
 Lao Wang, wo ma le ta.
 Old Wang I scold PF him
 'I scolded Old Wang.'

while a corresponding sentence with *ba* will be bad:

- (17) *我 把 老 王 骂 了 他
 *Wo ba Lao Wang ma le ta.
 I ba old Wang scold PF him
 'I scolded Old Wang.'

Considering the following data, we may find a generalization.

- (18)(a) 他 没 有 钱 花
 Ta meiyou qian hua.
 He not-have money spend
 'He doesn't have money to spend.'

³ Refer to p. 31 for the subcategorization of verbs.

- (b) */? 他 没有 钱 花 钱
 */? Ta meiyou qian hua qian.
 He not-have money spend money
 'He doesn't have money to spend.'
- (c) 他 要 书 看
 Ta yao shu kan.
 He want book read
 'He wants books to read.'
- (d) */? 他 要 书 看 书
 */? Ta yao shu kan shu.
 He want book read book
 'He wants books to read.'

(19) A: 你 看 了 那 本 书 没
 Ni kan le na ben shu mei?
 You read PF that M book not
 'Have you read that book?'

B: 看 了 (?那 本 书 了)
 Kan le (?na ben shu le).
 Read PF that M book SP
 'I did.'

你 也 看 了 (?那 本 书) 吗
 Ni ye kan le (?na ben shu) ma?
 You also read PF that M book ma
 'Have you read it too?'

A: 我 今 晚 看 (?那 本 书)
 Wo jinwan kan (?na ben shu).
 I tonight read that M book
 'I'll read it tonight.'

It seems that when the two NPs in question have another NP occurring in between and separating them, the NCS allows the latter NP to be either the highest or the second highest valued form. Thus, for *ba* constructions and inner infinitival constructions in (18), NCS is one hundred percent strict. But in order to account for sentences like (16) NCS needs to be modified to allow for the direct object to be the second highest or the highest valued NP, that is, a non-reflexive pronoun or nothing, which is coreferred with the topic when there is a subject intervening. However, it is important to note that for sentences like (16) native speakers much prefer the highest valued form, the implied NP. For coreference across sentence boundaries, the rule loses its power in terms of acceptability. Thus, the questionable sentences in (18) are perfectly acceptable in terms of syntax within our LXC analysis and they are only questionable in terms of discourse criteria beyond the sentence level.

Incidentally, note that the sentences in (18) have a structure of [S V O [V]]. There is still no OV order. However, we do need other AIRS to identify the implied ACT and PAT.

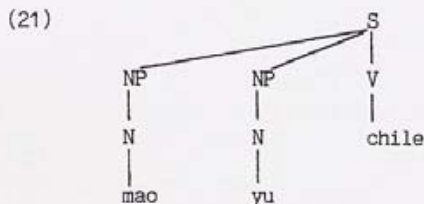
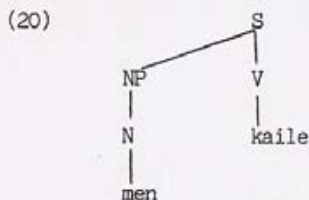
C. The Process Verb Construction

We now turn our attention to another type of sentence also traditionally considered to be of OV construction, but requiring a rather different analysis.

- (20) (a) 門 開 了
Men kai le.
Door open PF/SP
'The door was open.'
- (b) 信 收 到 了
Xin shoudao le.
Letter received PF/SP
'The letter was received.'
- (c) 書 出 版 了
Shu chuban le.
Book published PF/SP
'The book was published.'
- (d) 飯 吃 了
Fan chi le
Rice eaten PF/SP
'The rice was eaten.'
- (e) 錢 掉 了
Qian diao le.
Money lost PF/SP
'The money was lost.'
- (21) (a) 他 門 開 了
Ta, men kai le.
He door open PF/SP
'He opened the door.'
- (b) 我 信 收 到 了
Wo, xin shoudao le.
I letter received PF/SP
'I received the letter.'
- (c) 王 教 授 書 出 版 了
Wangjiaoshou, shu chuban le.
Prof. Wang book published PF/SP
'Prof. Wang had his book published.'

- (d) 他 飯 吃 了
Ta, fan chi le.
He rice eaten PF/SP
'He ate the rice.'
- (e) 老 板 錢 掉 了
Laoban, qian diao le.
Boss money lost PF/SP
'The boss had his money lost.'

Even Chu (1984), who is skeptical of *ba* and *bei* sentences as OV constructions, considered this sentence type in (21) the only genuine SOV construction. However, we may still argue that the structure of (20) is [S V] and that of (21) is [Top S V].



This account for sentences in (20) and (21) is focused on the analysis of the verbs. It poses the claim that verbs in (20) and (21) are syntactically of the same category but different from those in (22) or their *ba* counterparts.

- (22) (a) 他 開 門 了
Ta kai men le.
He open door PF/SP
'He opened the door.'
- (b) 我 收 到 信 了
Wo shoudao xin le.
I receive letter PF/SP
'I received the letter.'

- (c) 王教授 出版 書 了
Wangjiaoshou chuban shu le.
Prof. Wang publish book PF/SP
'Prof. Wang published books.'
- (d) 他 吃 飯 了
Ta chi fan le.
He eat rice PF/SP
'He ate.'
- (e) 老板 掉 錢 了
Laoban diao qian le.
Boss lose money PF/SP
'The boss lost some money.'

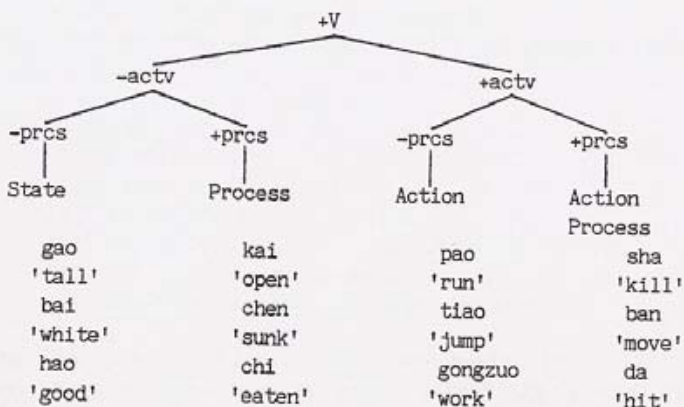
First, I pose the following subcategorization rule (SR) for Mandarin verbs:

$$\text{SR-1: } [+V] \longrightarrow \left[\begin{array}{l} \pm\text{actv} \\ \pm\text{prcs} \end{array} \right] \quad \begin{array}{l} \text{actv}=\text{active} \\ \text{prcs}=\text{process} \end{array}$$

"Active" indicates the initialization of an action or event. "Process" indicates the change of state. Thus, four classes of verbs are recognized: state, process, action, and action-process. This analysis of Mandarin verbs is surely inspired by Chafe (1970). However, he does not fully take advantage of a classification system with binary features. He derives these four classes of verbs from two rules (Chafe 1970:99&101):

1. V \longrightarrow state
2. V_{-state} \longrightarrow (process, action)

Therefore, he uses three features while I use only two and thus can make statements that are more general.



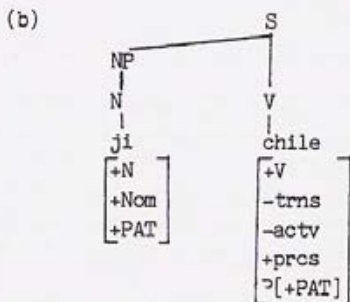
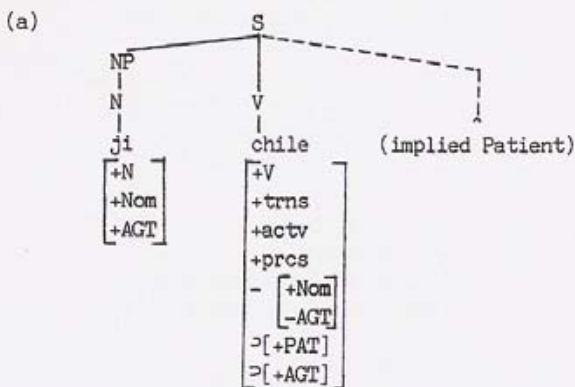
And I propose the following verb derivation rule (DR):

$$\text{DR-1: } \begin{bmatrix} +\text{trns} \\ @\text{Fi} \end{bmatrix} \text{ --- } \rightarrow \begin{bmatrix} -\text{trns} \\ -\text{actv} \\ +\text{prcs} \\ @\text{Fi} \end{bmatrix} \quad @=\text{alpha}$$

Thus, we may account for the ambiguity of the following sentences according to this analysis.

- (23) 雞 吃 了
 Ji chi le
 Chicken eat/eaten PF/SP

- (a) 'The chicken ate.'
 (b) 'The chicken was eaten.'



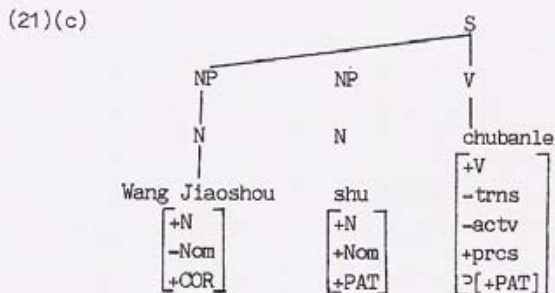
Both sentences are well-formed. Though (a) has a missing Patient, the >[+PAT] feature can be satisfied by the AIR-1 that identifies the implied Patient with the discourse topic. (b) is well-formed with all features internally satisfied.

Consequently, it would appear that every transitive active verb can be derived into an intransitive non-active process verb. From the translation of sentences in (20), we may determine why the derived verbs are non-active and process. The subject is the Patient and it receives, not initiates, and undergoes the action. For sentences in (21), the English translation

uses active voice. Nonetheless, it is only for the sake of convenience. We may as well translate all of these sentences of topicalization more appropriately as follows:

- (21) (a) As for him, the door was opened.
 (b) As for me, the letter was received.
 (c) As for Prof. Wang, the book was published.
 (d) As for him, the food was eaten.
 (e) As for the boss, the money was gone.

Because a topic is semantically the focus of the sentence, it can be a number of things: place, event, agent, patient, time, reason, instrument, etc. It does not always have to be the actor of the action denoted by the verb. Very often it is, as related to the rest of the sentence by the semantic and pragmatic components of the grammar. Therefore, very often the topic is interpreted as the actor due to our knowledge of the real world, not due to syntactic constraints. Thus, while semantically a topic can be of a number of functions, syntactically all the topics have the CR of [+COR]. For instance,



The fact that all sentences in (20) are well-formed indicates that this analysis of sentences in (21) is reasonable where the topic is the outer COR and thus not an obligatory constituent.

This analysis thus can account for all four possible readings of the following sentence:

- (24) 老虎 獅子 吃 了
 Laohu shizi chi le
 Tiger lion ate/eaten PF/SP
 (a) As for the tiger, the lion ate (it).
 (b) As for the tiger, the lion was eaten (by it).
 (c) The tiger and the lion have eaten.
 (d) The tiger and the lion have been eaten.

The readings of (c) and (d) have been dealt with in (23) (a) and (b) already. We are more concerned with the readings (a) and (b). Unquestionably, there is a stronger tendency for the native speaker to interpret

this sentence in favor of reading (a) where the verb is underived, active. However, the second reading is fairly perceivable too. Actually, all sentences in (21) are structurally ambiguous in these four possible ways, if we ignore the possibility of having a pause marking a topic. Again, their only interpretation is forced by the semantic and pragmatic rules of the grammar such as selectional restrictions.

The most important part of this analysis is the recognition of the verb derivation rule DR-1 which can be generalized to further account for *bei* sentences.

D. The *bei* Construction

- (25) (a) 老虎被獅子吃了
 Laohu bei shizi chi le
 Tiger *bei* lion eaten PF/SP
 'The tiger was eaten by the lion.'
- (b) 我被他看到了
 Wo bei ta kandao le.
 I *bei* ta seen PF/SP
 'I was seen by him.'
- (c) 小王被爸爸打了
 Xiao Wang bei baba da le.
 Little Wang *bei* Papa hit PF/SP
 'Little Wang was hit by Papa.'
- (d) 學生被老師罵了
 Xuesheng bei laoshi ma le.
 Pupil *bei* teacher scolded PF/SP
 'The pupils were scolded by the teacher.'

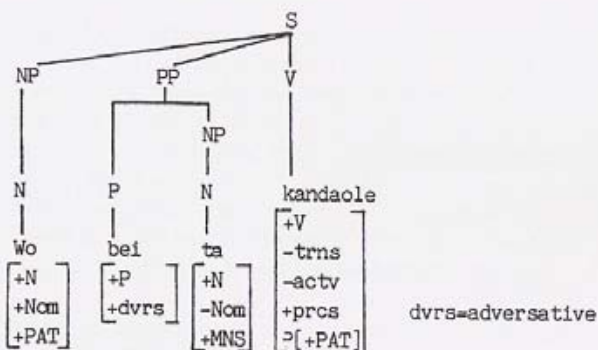
These sentences are traditionally, and incorrectly, as we have shown earlier, considered as having an OSV order, due to either a confusion of category and function or a transformational account in which subject and object are defined in the deep structure. But one can argue that these *bei* sentences, just like other sentences with a prepositional phrase such as these following ones in (26), have the structure [S [P O] V].

- (26) (a) 獅子把老虎吃了
 Shizi ba laohu chi le
 Lion *ba* tiger eat PF/SP
 'The lion ate the tiger.'
- (b) 他對我不好
 Ta dui wo bu hao.
 She to me not nice
 'She is not nice to me.'

- (c) 小孩子 用 手 爬
 Xiaohaizi yong shou pa.
 Baby with hand crawl
 'Babies crawl with their hands.'
- (d) 我 跟 校 長 談 天
 Wo gen xiaozhang tantian
 I with principal chat
 'I chat with the principal.'

Although Chu (1984) also holds that the *bei* construction does not qualify to be OV, he does not support his case beyond arguing that *bei* has the semantic content of being adversative and that the presence or absence of *bei* makes a difference in meaning and sometimes in grammaticality. Thus it can not be considered a purely grammatical maker as some linguists (e.g. Li and Thompson 1981:493) have suggested. His analysis is therefore quite unclear in terms of the treatment of the verb in a *bei* sentence.

I would follow the same analysis as I used in accounting for sentences in (21).



In other words, the verbs in the *bei* sentences in (25) are all derived intransitive, non-active process verbs. The connotation of adversity is due to the presence of *bei* which is marked [+dvrs]. Therefore, in this LXC analysis, an active sentence is related to its non-active counterpart by verb derivation rules such as DR-1, not by transformations.

(27) (a)

| | | |
|----------------------|--|----------------------|
| 他 | 打了 | 我 |
| Ta | dale | wo |
| He | hit-PF | me |
| [+N +Nom +AGT] | [+V +trns +actv +prcs - +Nom -AGT >[+PAT] >[+AGT] | [+N -Nom +PAT] |

'He hit me.'

(b)

| | | | |
|----------------------|---------------|----------------------|--|
| 我 | 被 | 他 | 打了 |
| Wo | bei | ta | dale. |
| I | bei | him | hit-PF/SP |
| [+N +Nom +PAT] | [+P +dvrs] | [+N -Nom +MNS] | [+V -trns -actv +prcs >[+PAT] >[+MNS] |

'I was hit by him.'

Thus, the corresponding Case Relations between an active sentence and its non-active counterpart are:

PAT → PAT
AGT → MNS

Also, the fact that this *bei* sentence can take another [+MNS] indicates that it is an inner [+MNS] which follows *bei* and we therefore have the feature >[+MNS] in the case frame of a derived non-active, process verb. The following sentence may illustrate this.

(28)

| | | | | | |
|--------|---------|---------|--------|--------|---------|
| 我 | 被 | 他 | 用 | 刀 | 伤了 |
| Wo | bei | ta | yong | dao | shangle |
| I | bei | him | with | knife | hurt-PF |
| [+PAT] | [+MNS] | [+MNS] | [+MNS] | [+MNS] | |
| | (inner) | (outer) | | | |

'I was hurt by him with a knife.'

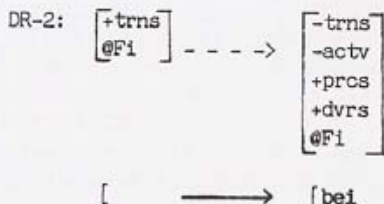
One important difference between *bei* and all the other prepositions in Mandarin is that is, *bei* does not require a following NP.

- (29) (a) 老虎被吃了
 Laohu bei chi le.
 Tiger bei eaten PF/SP
 'The tiger was eaten.'
- (b) 我被看到了
 Wo bei kandao le.
 I bei seen PF/SP
 'I was seen.'
- (c) 小王被打了
 Xiao Wang bei da le.
 Little Wang bei hit PF/SP
 'Little Wang was hit.'
- (d) 學生被罵了
 Xuesheng bei ma le.
 Pupil bei scolded PF/SP
 'The pupils were scolded.'

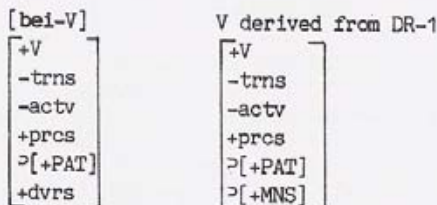
Traditionally it has been suggested that there is a missing element, the agent, following *bei*. This analysis is not very sound, for if there is a missing element, the semantic and pragmatic components of the grammar should provide a way of identifying, or coreferring, this missing element with an earlier element. However, there is no need for such identification rules; the native speaker does not feel there is any element missing. Hence, an effort to identify the missing NP with a previous NP would prove to be as futile as the posing of "by someone" or "by something" in the deep structure of so-called agentless passive sentences.

- (30) (a) A: 他怎麼了
 Ta zenme le?
 He what PF/SP
 'What happened to him?'
- B: 他被騙了
 Ta beipian le.
 He bei-cheated PF/SP
 'He was cheated.'
- (b) 這件事不會被發現
 Zhei jian shi bu hui beifaxian.
 This M affair not will bei-discovered
 'This affair won't be discovered.'

In both examples, there is no implied Agent. As a matter of fact, I believe that here [*bei*-V] is a compound and thus a single word. Therefore, we need to pose another derivational rule.



Note that no elements, including a pause, can intervene. When there is an NP following *bei*, *bei* is a preposition. In (29) and (30), *bei* is part of a compound verb. Clearly, this is a very productive compounding process. The [*bei-V*] compound verb is different from the derived non-active verb in at least two respects according to our analysis: (a) the former is marked [+*dvrs*], the latter is not, and (b) the latter has >[+*MNS*] in its case frame, the former does not.



Thus, the following pairs of sentences differ with respect to the feature [+*dvrs*] which is present in the [*bei-V*] compound.

- (31) (a) 那 本 書 出 版 了
 Na ben shu chuban le.
 That M book published PF/SP
 'That book was published.'
- (b) 那 本 書 被 出 版 了
 Na ben shu beichuban le.
 That M book *bei*-published PF/SP
 'That book was published.'
- (c) 這 個 演 講 會 記 錄 下 來
 Ze ge yianjiang hui jiluxialai
 This M lecture will recorded
 'This lecture will be recorded.'
- (d) 這 個 演 講 會 被 記 錄 下 來
 Zei ge yianjian hui beijiluxialai.
 This M lecture will *bei*-recorded
 'This lecture will be recorded.'

The only difference between the *bei* and non-*bei* sentence in terms of meaning is that the former carries a strong connotation of adversity. Li and Thompson (1981:487) incorrectly consider (b) and (d) ill-formed.

To be sure, some *bei* sentences such as the following one do seem to contradict our claim that the verb in a *bei* clause is a derived intransitive verb. One way of accounting for this, quite simply, however, is to recognize the verb as a derived non-active transitive verb⁴. Thus,

| | | | | | |
|------|----------------------|-----------------|----------------------|---|----------------------|
| (32) | 我 Wo I | 被 bei bei | 他 ta him | 打破了 dapuole hit-broken-PF | 头 tou head |
| | [+N +Nom +AGT] | [+P +dvrs] | [+N -Nom +MNS] | [+V +trns -actv +prcs - [+Nom -AGT] >[+PAT] >[+AGT] | [+N -Nom +PAT] |

'I got my head broken by him.'

In a Fillmorean case grammar, the [+AGT] here might be labeled as "experiencer." But as we have mentioned before, in LXC Case Relations are primarily defined according to syntactic criteria and only secondarily characterized by semantic, but never purely situational, properties. In an accusative language such as Chinese "Agent" is defined as the case relation of the subject of a transitive verb, and "Patient" as the case relation of either the subject of an intransitive verb or the object of a transitive verb. Thus, our analysis for (32) is similar to that of this English sentence:

| | | | | | | |
|------|--------|---------|---------|--------|----|--------|
| (33) | I | got/had | my head | broken | by | him. |
| | [+AGT] | | [+PAT] | | | [+MNS] |

Also, similar structure and analysis can be found in Japanese (Starosta and Nomura 1984:59).

Therefore, for verbs in sentences like (32) we need to have another Verb Derivational Rule to derive such verbs from their active counterparts. Thus,

| | | | |
|-------|----------------|----------|----------------------------------|
| DR-3: | [+trns @Fi] | - - - -> | [+trns -actv +prcs @Fi] |
|-------|----------------|----------|----------------------------------|

⁴ There are several possible ways to analyze this structure of *bei*-sentences and their non-*bei* non-active counterparts. However, alternative analyses would involve different analyses for *ba*-sentences too. We may deal with the evaluation of alternative analyses in another paper.

VII. CONCLUSION

Thus far, we have criticized previous discussions of the basic word order in Modern Mandarin for lack of formal and explicit definitions of subject, object, and topic as well as the confusion of category and function and the lack of empirical content of a transformational account. It is hoped that this discussion may contribute to the study of word order typology in general as well. Furthermore, it has given a set of explicit definitions of subject, object, and topic as syntactic categories (section V, p.13). It re-examined most of the sentence constructions that are previously treated as OV type and offered new analyses within the non-transformational Lexicase framework. In our proposed analyses no OV order needs to be recognized to capture any generalization in Mandarin syntax. Thus, we conclude that based on this lexicase account Modern Mandarin is a highly rigid SVO language.

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