数理逻辑之美
——方立教授纪念文集

主编

司富珍 执行主编
北京语言大学外国语学院博士生导师方立教授不幸辞世已经一年多了。在"序"

此期间，学界同仁以及方立教授的生前好友和弟子们纷纷撰写纪念文章，追思方

立教授的良好道德风貌和杰出的学术成就。现在，方立教授培养的第一个博士

生、外国语学院教授司富珍组织编写方立教授纪念文集，并邀请我担任文集主

编。方立教授生前为北京语言大学的学科建设、人才培养特别是理论语言学和整

个外国语学院的发展做出了有目共睹的成绩，也在为人处事上为广大后学树立了

良好典范。我因此欣然接受并愿意为这本纪念文集写上几句话，聊以表达我对方立

教授的悼念之情。

方立教授1942年1月17日出生于浙江省嘉善县，是中国共产党党员，著名语

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学院院士、著名语言学家Arnold M. Zwicky的邀请在斯坦福大学语言学系作短期观

访访问研究。

方立教授是北京语言大学语言学及应用语言学专业理论语言学方向的奠基
1. Introduction

In GB-theory, passive constructions have been taken as a fundamental syntactic process involving NP-movement. According to Chomsky (1986), movement never occurs unless the interactions of some principles or subtheories require it. Passivization, a case of NP-movement, is triggered by passive morphology and forced by Case Theory. But the same syntactic process with respect to passivizations is not easy to extend into languages like Chinese. Simply there is no such passive morphology in Chinese as in English, for example:

(1.1) a. Zhangsan was hit by Lisi.
    b. *Zhangsan was hit him by Lisi.

1 This paper was written in 1989 when I was a graduate student at UPENN. Since then, it has been circulated, quoted and even further developed among Chinese formal syntacticians. However, the English version of the original form has never been published, although it has been frequently requested by colleagues and new learners. It is therefore worthwhile to print the English version not only for the historical record and the research convenience, but also for, in particular, the memorialization of the most respectful scholar and my dearest friend, Professor Feng Li, who is the earliest grammarians to promote formal syntax in Mainland China.
in order to get Case. Since the subject position is dehematized, and since Chinese has no Dummy subject like “it” in English, but the dummy subject position somehow has to be filled as she argued, NP1 has to move to the subject position of the sentence to satisfy the “dummy subject” requirement, and therefore it is a case of NP-movement. Also, since the verb still assigns Case to NPs to its right, the Freq.P can move into this position to get Case from the verb. Thus, the S-structure is:

\[(1.5) \text{NP1} \ [\text{BEI} \ \text{NP2}] \ V \ \text{Freq.P} \]

This system works well for passives like (1.1).

2. Problems of Previous Accounts

Although Li’s account explains quite a wide range of data, there are some problems in her account. First, it is obvious that the subject position cannot be filled by the Freq.P; if the subject position has to be filled anyway, why does the filler have to be the NP1, but not the Freq.P? The second problem involved in her account is examples like the following:

\[(2.1) \text{Zhangsan, Be1 ren BA ta da-le.}\]
\[\text{Zhangsan bei someone BA him hit}\]

“Zhangsan was hit by someone.”

As outlined above, in Li’s account, BEI is analyzed as a preposition (see also Huang, 1982 and many others). This treatment leads to a non-avoidable consequence: passive constructions must be a mono-clause structure. But if this is so, sentences like (2.1) would not be grammatical, simply because the pronoun ta (he) is the matrix object (BA is an object Case marker in Mandarin) and it is bound in its GC, namely by the matrix subject Zhangsan. This is an obvious violation of Principle B of the Binding Theory. How could (2.1) be grammatical? This is a big problem for Li’s account among others.

Huang (1982) argued that the object pronoun ta in (2.1) is spelt out at PF, rather than base-generated at D-structure. Since, as he assumed, the general ban of preposition standing in Chinese is a constraint on PF, the stranded position must be spelt out by a pronoun at PF if the object of a preposition is extracted. Therefore the object pronoun is irrelevant to the Binding Theory (assuming the Binding Theory applies at S-structure). But, even so, sentences like (1.2) still create the same problem for a mono-clausal
the reanalysis is obligatory if the agent NP is empty. Cheng would rule out sentences (2.3a) and (2.4a) by saying that BEI is not adjacent to the verb and thus cannot be compounded with the verb. But, sentences like (2.1) and (2.2) will be also ruled out under her system, because there is no way to allow a pronoun to appear in the object position in a mono-clausal analysis. Also, sentences like the following will be ruled in, but it is ungrammatical (see Li, 1986):

(2.5) *Zhangsan Bei ren da-le ziji yixia.
Zhangsan bei someone hit self once
“Zhangsan was hit himself by someone once.”

This is the most difficult situation for the mono-clausal analysis. At first place, it cannot explain why a pronoun object CAN occur in the object position; at second place, it cannot explain why a reflexive CANNOT occur in the object position. There is no way to capture this phenomenon on principled ground, except to follow the descriptive generalization for passive constructions:

(i) Reflexives cannot appear in the object position;
(ii) Objective pronouns cannot appear without the agent NP.

Note that in this situation we would not expect the co-occurrence of an agent NP with a resumptive pronoun to have properties of its own. On the contrary, the co-occurrence would be a consequence of independent properties. Secondly, as we can see below, it is not always true that reflexives cannot appear in the object position of passives. Then the question is why both pronoun and reflexives can occur in the object position? Clearly, we lack a principled explanation here.

3. Toward a Solution

In this paper, I shall argue, in Section 3.1, that the passive sentence is a Bi-clausal construction. Secondly, in Section 3.2, I propose that the syntactic process of passivization involves the application of Null-operator. In Section 4.1, a comparison between Tough-movement in English and passivization in Chinese is given to support this hypothesis. And also some structural parallel phenomena between passivization, topicalization and relativization are given in Section 5. Finally, quite a range of passivizations, including long distance passives, are discussed.
3.1 The Structure of Passives: A Bi-clausal Analysis

As we have seen before, as long as examples (2.1) and (2.2) are considered, we are forced by the Binding Theory to treat BEI-sentences as a Bi-clausal construction, and the only way to analyze it is to adopt the following structure, rather than the one proposed in (1.5).

(3.1) [s1 NP1 BEI [s2 NP2 V NP]]

In this structure, BEI must be analyzed as a verbal element, rather than a preposition, and the embedded clause is a complement of BEI. Further, let us assume that the embedded verb can still assign Case to its complement/s. This is quite reasonable, because unlike passive morphology -en in English, the passive marker BEI cannot take away the ability of assigning Case from the verb as maintained before. This can also be tested further by the fact that the embedded clause in (3.2a) can stand alone as an independent sentence as in (3.2b):

(3.2) a. [s Zhangsan, Bei [s wo da-le ta, yixia]]
    Zhangsan bei I hit-Asp. him once

b. Wo da-le ta yixia.
    I hit-Asp. him once.

With this structural analysis, we can now explain readily the pronominal object phenomena we have questioned earlier: since the verb can still assign Case to its complement/s, *ta (he) and *yixia (once) will receive Case from the verb *da (hit), if we assume *yixia also needs Case. Therefore the embedded clause is well-formed. Here, the GC for *ta (he) is the embedded clause, and *ta (he) is free in that GC, therefore (3.2a) is well-formed. Now consider the pronominal object within BA-construction:

(3.3) Zhangsan, Bei wo BA ta, da-le.
    Zhangsan bei I BA him hit-Asp.

*ta (he) is the object of *da (hit), since BA is an Acc-Case marker (it absorbs the Case-marking ability from the verb, see Cheng (1986), and *ta is the object of the verb *da, the GC for *ta is still the embedded clause. Clearly, *ta (he) is free in its GC; the sentence is grammatical as we expected.

3.2 The Syntactic Processes of Passivization

Under the Bi-clausal analysis, elements in passives given above would all be base-generated in the structure of (3.1). Since there is no gap at all, therefore there would be no movement involved. Before we go into further, let us look at the following examples:

(3.4) a. Zhangsan, Bei wo BA ta, da-le.
    Zhangsan bei I BA him hit-Asp.
    b. Zhangsan, Bei wo da-le *ta, yixia.
    Zhangsan bei I hit-Asp. him once.
    c. Zhangsan Bei wo da-le *Lisi yixia.
    Zhangsan bei I hit-Asp. Lisi once.

A natural question about these examples arises: if there is no movement involved at all, what kind of syntactic constraint/principle ensures that the embedded object pronoun has to be co-indexed with the matrix subject? Furthermore, some other examples which contain a gap at the object position would also need to be explained:

(3.5) a. *Zhangsan, Bei wo da-le e,  
    Zhangsan bei I hit-Asp.
    b. Zhangsan, Bei wo da-le e,  
    Zhangsan bei I hit-Asp.

[e] is required by the Projection Principle and the interpretation of these sentences makes it clear that the empty category [e] in (3.5) must be co-indexed with the matrix subject, which is analogous to the relationship in which the pronoun has to be co-indexed with the matrix subject in (3.4).

In considering examples such as (3.4) and (3.5), I propose that there is indeed a movement involved, namely, the empty operator movement.

To begin with, let us examine the [e] in (3.5b) first. [e] is in an object position in (3.5b). It cannot be PRO, since it is governed. It cannot be an NP-trace as well, since it is not bound in its GC, namely by the embedded subject wo (I). Finally, it is not pro, because it does not satisfy the Generalized Control Rule (Huang, 1984)\(^2\), and in general, pro cannot occur in object position even in pro-drop languages. Furthermore, [e] cannot be locally A-bound by Zhangsan, or it will be an NP-trace violating the Binding Theory. Therefore, it must be a variable. That is, it must be A'-bound by an operator O. The actual S-structure of (3.5), then, must be (3.6):

\(^2\) The Generalized Control Rule states "co-index an empty pronominal with the closest nominal element" (Huang, 1984).
(3.6) Zhangsan Bei [s‘O₁ [s wo da-le ē₁]]

Following Chomsky (1982), since [ē₁] is a variable A'-bound by O, the S-structure (3.6) must have been derived by application of “Move alpha from the D-structure” (3.7):

(3.7) Bei [s‘COMP [s wo da-le O]]

Notice that the operator O is an EC and is semantically empty, therefore, [ē₁] is in effect a free variable, assigned no range by its operator in the embedded clause. As a result, it violates the principle barring vacuous operators. To satisfy the requirements that each LF variable either be assigned a range by its operator or be assigned a value by an antecedent that A-binds it, it follows that [ē₁] must be bound by an NP in the matrix subject position as in (3.8):

(3.8) Zhangsan, [BEI [O₁ [wo da-le ē₁]]]

Zhangsan was hit by me.

In (3.8) [ē₁] must be bound by Zhangsan, though [ē₁] is not locally bound by Zhangsan (rather, by O) and is not the trace of Zhangsan. Under this analysis, sentence (3.5a) can be readily ruled out:

(3.9) *Zhangsan, Bei [s‘O₁ [woda-le ē₁]]

First, [ē₁] is bound only by O₁ and is in effect a free variable, which must be ruled out.

The analysis provides answers of why the object pronoun has to be co-indexed with the matrix subject. It can also explain the question of why a full NP or a pronoun with a different reference from the matrix subject in object position must be ruled out as in (3.4). I will come back to this question in the following sections. The crucial point here is that all the ungrammatical sentences will be ruled out at an independent ground.

As we have seen above and will see below, under the Bi-clausal analysis and the movement account, all grammatical sentences we have considered so far can be generated correctly; and all the ungrammatical sentences given above can be ruled out naturally.

4. Tough-movement in English and Passivization in Chinese

If a Null-operator is in fact involved in passivization in Chinese, one would expect to find similarities between the so-called “Tough-movement” in English and passivizations in Chinese. And if the comparison is successful, it would be a strong support to the hypothesis given above. It is well-known that “easy” type of Tough-movement is different from “stubborn” type of Tough-movement, in that a resumptive pronoun can appear in the object position if the embedded subject is present in “stubborn-type”, but not “easy-type” of Tough-movement:

(4.1) a. *John is easy for Bill to please him.
   b. John is too stubborn for Bill to talk to him.

The nature of the difference between the two kinds of Tough-movement is irrelevant here. It is clear that the comparison between English Tough-movement and Chinese passivization with respect to the Null-operator analysis must take the “stubborn-type” sentences, because this type of sentences provides many interesting binding phenomena, which “easy-type” sentences lack. What we found, then, is that the binding relations in the “stubborn-type” sentences are exactly the same with the binding relations in the passivizations in Chinese.

(4.2) (i) Resumptive pronoun:
   a. John is too stubborn for Bill to talk to him.
   b. Zhangsan Bei Lisi da-le ta yixia.

   (ii) The reflexive with a present embedded subject:
   a. *John is too stubborn for Bill to talk to himself.
   b. *Zhangsan Bei Lisi da-le zhijie yixia.

   (iii) The reflexive without the embedded subject:
   a. *John is too stubborn to talk to himself.
   b. *Zhangsan Bei da-le zhijie yixia

   (iv) The absent of the embedded subject with the resumptive pronoun:
   a. *John is too stubborn to talk to him.
   b. *Zhangsan Bei da-le ta yixia.

“him” is allowed in (i-a), because “Bill” is the SUBJECT and the embedded clause is the GC for “him”. For the same reason, (i-b) is therefore grammatical.

In (ii-a) and (ii-b), the embedded subject is the SUBJECT and the embedded clause is the GC for “himself/zijie”, and “himself/zijie” is bound in its GC, thus the sentence would have been grammatical in both English and Chinese. But they are not. The reason is not a violation of Condition
A of the Binding Theory; rather it is due to a violation of the semantic interpretation. Because (ii-a) would mean that “John is too stubborn in doing that Bill is talking to Bill himself”. It is semantically non-interpretable, hence the ungrammatical sentence of (ii-a). The situation is the same for (ii-b), because (ii-b) would mean that “Zhangsan was affected directly by an action of hitting such that Lisi hit Lisi himself”. Here, “Lisi hit himself” has nothing to do with “Zhangsan”. Therefore the sentence does not make sense semantically. As a result, (ii-b) is out just like (ii-a).

If we take pro as a subject of the embedded clause in (ii), than the grammaticality of (iii-a/-b) will be the same as of (ii), i.e., the semantics of these sentences is not interpretable. I will come back to this in next section.

The situation in (iv) is not so straightforward. The reason why when the embedded subject position is an EC, rather than a full NP, the resumptive pronoun must be ruled out in both English Tough-movement and Chinese passivizations, will be given in Section 7. However, if (iv-a) is out, for whatever reason/s, the same will be true for (iv-b).

The four pairs of sentences provide parallel relations in terms of their binding relations and their grammaticality between passivizations in Chinese and Tough-movement in English. These strongly indicate that the structure of Chinese passivizations is the same as the structure of English Tough-movement (stubborn type). As has been shown earlier, the object: resumptive pronoun must be taken into account in analysis of passivizations in Chinese, and under the Null-operator analysis, it is not surprising that if both passive constructions and the “stubborn type” of sentences actually involve a Null-operator, their binding relations will equally show up in both cases.

4.1 Reflexives in Chinese Passivization

We have seen that when passivization is formed with a reflexive and a zero subject in an embedded clause, the zero subject is pro and it is the antecedent of the reflexive, such as (4.2 iii), repeated here as (4.3):

(4.3) a. *John is too stubborn pro to talk to himself.
   b. *Zhangsan Bei pro da-le ziji xiyia.

The sentence is out because of the non-interpretable reasons. But, one would argue, in this case, that reflexives in Chinese can take higher clause NP as its antecedent, for example:

(4.4) Zhangsan zhidao Lisi bu xihuan ziji.
   Zhangsan know Lisi not like self.
   a. Zhangsan knows that Lisi does not like himself (Lisi).
   b. Zhangsan knows that Lisi does not like him (Zhangsan).

Therefore, “ziji” in (4.3b) would also take the matrix subject “Zhangsan”, rather than the embedded zero subject pro, as its antecedent, such as:

*Zhangsan, BEI PRO da-le ziji,

The question, then, is why “ziji” can take a higher clause NP in (4.4b) but cannot in (4.3b)? The reason, I suggest, is that in Chinese a reflexive can take an upper clause NP as its antecedent if it can also take the one in its own clause (in its GC). That is, the grammar of reflexives cannot tolerate a violation of Condition A of the Binding Theory at the first place—the immediate GC—in order to save the structure by taking a higher NP as its antecedent. In our case, “ziji” has to take pro to be its antecedent by Condition A, and then goes up to take “Zhangsan” as its antecedent. Obviously, the process failed at the first place due to the semantic reasons given above and the sentence cannot be saved by any means.

If, on the other hand, the nearest subject is not valid for being an antecedent of reflexive, for example:

(4.5) Zhangsan zhidao shitou yao zaziji.
   Zhangsan know stone will hitself.

then we have the following interpretations:

a. *Zhangsan knows that the stone will squash itself (stone).
   b. Zhangsan knows that the stone will squash on himself (Zhangsan).

That is, the reflexive can skip the first SUBJECT (inanimate) to take the higher one (animate). If this is so, why cannot reflexives in (4.3b) skip the embedded subject (if it refers to an inanimate entity) to take the higher NP—“Zhangsan” as its SUBJECT? No particular attention has been paid to this question. What we find is only a general observation that reflexives cannot appear in passivizations as cited above. But there are actually some very interesting phenomena, that is, sentences like (4.6a) are grammatical:
5. Empty Operator Movement

If passivizations in Chinese involve Move-alpha, it follows that the gap must satisfy island conditions, along with other conditions that follow from the assumption that movement is involved in these constructions. This is, in fact, the case as illustrated in (5.1):

(5.1) a. *Lisi, [Zhangsan chi le [DE \(e\) zuo \(e\)] DE \(e\) rou, ]
Lisi, Zhangsan eat Asp. cook DE meat
Lisi, Zhangsan ate the meat that \(e\), cooked
b. *[Zhangsan renshi [BP \(e\) zuo \(e\)] DE \(e\) rou, BP] DE \(e\) Lisi,]
Zhangsan know cook DE meat DE Lisi
Zhangsan knows Lisi, who the meat that \(e\), cooked
c. *[Lisi Bei [Zhangsan chi le [BP \(e\) zuo \(e\)] DE \(e\) rou, ]]
Lisi, Bei Zhangsan ate the meat that \(e\), cooked

(5.1a) is topicalization and (5.1b) is relativization. Both are cases of Move-alpha, assumed in GB literature. Since the moved NP has crossed two bounding notes, NP and S in each case, it violates Subjacency. (The empty category in subject position is properly governed, see Huang (1982), and therefore they are not a violation of ECP.) (5.1c) is passivization and it is also ill-formed as (5.1a) and (5.1b). This indicates that Move-alpha must have been applied here, otherwise it is difficult to rule (5.1c) out.

The movement analysis presented above leads directly to a natural logical conclusion:

(5.2) Wherever the application of Move-alpha can apply to topicalization or relativization, it can apply to passivization.

As we can see below, this is indeed the case. (In the following examples, P stands for passivization, T for topicalization and R for relativization.)

(5.3) P [John,] BEI Laoshi pai \(t\), qu zhao ren sao jiaoshi le.
"John was sent to find someone to clean the classroom by the teacher."
T. John., Laoshi pai \(t\), qu zhao ren sao jiaoshi le.
"John, the teacher sent (him) to find someone to clean the classroom."
R. [ Laoshi pai \(t\), qu zhao John sao jiaoshi] de \(ren\),
"The person who the teacher sent [e] to find John to clean the classroom."
b. *Lisi bi e1 mai le fangzi le DE Zhangsan.
   Lisi force [e] sell house Asp. DE Zhangsan.
   Zhangsan who Lisi forces [e] to sell the house.

   c. *Zhangsan, BEI Lisi bi e1 mai le fangzi.
   Zhangsan BEI Lisi force [e] sell house.
   Zhangsan was forced [e] to sell the house by Lisi.

Among P, R, and T, the parallelism of grammaticality in (5.3-5) and the parallelism of ungrammaticality in (5.1) and (5.6) are now easy to explain, because both relativization and topicalization as well as passivization all involve not only movement but also the same kind of movement, i.e., the O operation. Whatever happens to topicalization or relativization, happens to passivization. Under the present theory these three kinds of syntactic operations collapse naturally into one syntactic process and can be accounted for in a unique way.

6. The Long Distance Movement in Passivization

Now let us consider the following long distance passivization (Feng, 1989):

(6.1) Laoshi pai John (qu) zhao ren (qu) sao jiaoishi le.
   Teacher send John to find someone to clear classroom.

   "The teacher sends John to find someone to clear the classroom."

There are three NPs which are properly governed in the positions where they occur. What is interesting here is that if this sentence is passivized, the following pattern will be impossible if passivization is analyzed in the standard way:

(6.2) [ ] INFL [p BEI NP V NP1 V NP2 V NP3 ]

In fact, each of these movements is possible, as the following three sentences show:

(6.3) a. [John] BEI Laoshi pai t1 qu zhao ren sao jiaoishi le.
   "John was sent to find someone to clean the classroom by the teacher."

b. [ren] BEI Laoshi pai John zhao t1 qu sao jiaoishi le.
   "Someone was found to clean the classroom by John who the teacher sent."

c. [jiaoishi] BEI Laoshi pai John zhao ren qu sao t1 le.
   "The classroom was cleaned by someone who the teacher sent John to find."
All (6.3a-c) are well-formed sentences. Notice that, in each of these three sentences, any one of these three objects can be moved into the subject position in a single movement, and the remaining two stay in their basic positions. It shows that before the movements take place, all of these objects are already assigned Case by their governors; otherwise we must assume that these three NPs are all non-Case-marked NPs for the reason that each of them is available for movement to the subject position. Clearly the assumption that they are not Case-marked is an undesirable one, because two of these NPs have to stay in their original position and therefore have to have Case. Ultimately these three NPs are all Case-marked NPs. If so, there is no reason to assume the standard NP-movement in the long distance passivization. For one thing, the passive marker BEI cannot take away the ability of assigning Case from the verb (say, SAO “to clean”) because the verb occurs so far away from BEI. Secondly, even though one does assume that BEI could take away the ability of assigning Case from the verb by crossing so many materials, this process must be arbitrary, since all these three NPs can move into the subject position and also can stay in their object positions. Note that there is no problem for the Null-operator analysis. Actually, the existence of long distance passivization itself argues for the analysis of the empty operator movement.

7. Final Remarks

Although the problem concerning resumptive pronouns in passivizations no longer is a problem under our account, the question we raised before about examples like the following still remains:

(7.1) a. *Zhangsan, Bei da-le ta, Zhangsan bei hit-Asp. him
    b. *Zhangsan, Bei BA ta, da-le
       Zhangsan bei BA him hit-Asp.

We still have no way to account for this ungrammaticality, since under the Bi-clausal analysis I proposed, they would have been equally as well-formed as examples given in (7.2):

(7.2) a. Zhangsan, Bei wo da-le ta, yixia
    Zhangsan bei I hit-Asp. him once
    b. Zhangsan, Bei wo BA ta, da-le
    Zhangsan bei I BA him hit-Asp.

Structurally, the grammaticality of (7.2) could not be affected by the absence of the agent NP under the Binding Theory, since the Bi-clausal structure under assumption ensures that the pronoun is free in its GC. But, in fact, sentences like (7.1) are ungrammatical. Can we account for the ungrammaticality in a principled way?

Notice that, if we remove the pronoun in examples (7.1a-b), they are, then, all perfectly grammatical:

(7.3) Zhangsan, Bei da-le e,
    Zhangsan bei hit-Asp.
    “Zhangsan was hit.”

This fact shows that the ungrammaticality is a violation of Condition B of the Binding Theory, resulting from the absence of the agent NP, because sentences can be grammatical without the agent NP. Now the question is why the binding condition varies with respect to the absence of the agent NP. The only plausible resolution is that the absence of the agent NP causes a different structure, at least to the binding domain.

How could the absence of the agent NP cause a structural change? Following, but somehow different from Cheng (1986), I propose that a structural reanalysis is involved in passives. Recall that BEI is analyzed as a verb in our account. But it has often been argued in traditional grammar and in GB-analysis that BEI should not be a verb, since it lacks some properties of verbs. In our theory, BEI has to be a verb, because the binding condition demands it to be so. But on the other hand, it does not behave like a “real” verb. I would like to suggest that BEI is a passive auxiliary verb subcategorizing for an S’ complement, but unlike other Aux-verbs, it is a bound form which must be “supported” by a phonetically realized element. A structural reanalysis is therefore motivated and a rule for reanalysis is given below:

(7.4) Bei X ... Y ... → Bei-X ... Y ...

It states that BEI takes an element that is adjacent to it as its reanalyzay. The reanalysis, I assume, takes place at S-structure and after all syntactic operations at that level. With this assumption, let us see how (7.1) can be ruled out after reanalysis.

Li (1986) also argued in detail that BEI cannot be a verb, since it cannot be “A-not-A” questioned; and it cannot take aspect le...
bound in its GC, and it is bound by the subject of “Zhangsan” which is exactly
predicated by the theory.

The next open question we consider is the embedded empty subject.
It is reasonable to assume that the embedded clause is a finite clause6 and
the empty subject is therefore a pro, rather than PRO, since the subject is
always properly governed in a finite clause in Chinese (Huang, 1982). The
question is why is the empty subject to be understood as having the arbitrary
interpretation of free pro? Let us first begin with a more concrete question of
this sort: Why the empty subject of an embedded clause cannot be controlled
by the matrix subject as in structure (4.1)?

(7.8) Zhangsanp [ BEI [ Oi [ ei da le e1 ] ]]

First, as we can see, the interpretation of the sentence makes it clear
that “Zhangsan” is coindexed with ei. If ei is coindexed with “Zhangsan”, it
follows that ei and e1 are coindexed. But ei is a variable (see Section 3.2),
and a variable is functionally determined as an R-expression. Therefore, the
empty subject ei cannot be co-indexed with the matrix subject “Zhangsan”,
otherwise there will be a Principle C violation. In fact, the empty subject ei
can neither be pro, since, as Cheng (1986) pointed out, it does not
satisfy the Disjoint Reference Condition and the Generalized Control Rule
(Huang, 1984), nor is the possibility of being an NP-trace available. The last
possibility is to consider ei a variable. However, if it is a variable, it must be
bound by an empty topic, an A'-operator, or by an antecedent that A-binds

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6 The assumption that an embedded clause is a finite clause can be attested by considering the fact that the
embedded clause can take te, an Aspect marker which cannot be taken by an infinitive clause in Chinese (Huang,
1986). For example:

Zhangsan xianxi mei BEI ren tou le
Zhangsan almost not Bei someone steal Asp.
“Zhangsan was almost stolen by someone.”

Zhangsan bing mei BEI ren BA ti tou ji ya.
Zhangsan was not Bei someone BA steal Asp. prt.
“Zhangsan was not stolen by someone.”

Zhangsan bing mei BEI ren BA ti tou ji ya.
Zhangsan did not force someone to steal him.

Zhangsan bing mei BEI ren tou le te de qian
Zhangsan was not stolen his money by someone.

Zhangsan bing mei BEI ren tou le te de qian
Zhangsan did not force someone to steal his money.

7 The Disjoint Reference states that: “A pronoun must be free in its governing category.” The Generalized
Control Rule states “co-index an empty pronoun with the closest nominal element.” (Huang, 1984)
assign Case to its object, although it governs its object. Sentence (7.10b) is out, because “ziji” has no Case.

References

Li, Yafei. 1990. On Chinese long passive construction. Talk given at UPENN.