TOPIC-BOUND NULL PRONOUNS IN CHINESE

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1. INTRODUCTION

Chinese, Japanese, Thai and some other languages do not have verb agreement, and yet they allow subjects and objects to be null.[1] This challenges the generally accepted null subject parameter, what Jaeggli (1982) terms as the Identification Hypothesis. Many linguists have, over the years, tried to modify the Identification Hypothesis to accommodate the Chinese type of null pronouns and probed the possibility of fitting these null pronouns into Chomsky's (1977, 1981) EC theory. These efforts, however, have turned out to be not very successful. At stake has been the dual categorial properties (pronominal as well as variable) of the null pronouns in these languages. These null pronouns can: i. occur in syntactic islands, and ii. be either A-bound or A'-bound. This paper addresses the problems respectively.

The paper is organized in the following way. Section II discusses the problems with the previous efforts in modifying the Identification Hypothesis. Due attention will be directed to the A and and A'-bound possibilities of the null pronouns and the conclusion reached is: both null subjects and null objects can be bound by NP arguments in upper clauses. Section III starts out with a review of some traditional analysis of the topic construction and ends with the claim that topics in situ are allowed in Chinese type of languages and the A-binders of the null pronouns are actually topics in situ. Section IV lays out a discourse rule and a prominence hierarchy to account for the possible occurrences of topics in situ as well as the binding relation between topics and null pronouns. Section V reconsiders the complement/adjunct and the subject/object asymmetries in terms of the rule proposed in section IV. In section VI, questions are raised concerning Chomsky's (1981) functional definition of ECs and it is argued that Chinese null pronouns are not subject to syntactic constraints because they are licensed by a discourse rule as proposed in section IV. The last section is the conclusion of the whole paper.

2. PROBLEMS WITH THE PREVIOUS EFFORTS

To save the Identification Hypothesis, Raposo (1986) and Huang (1984, 1987, 1989, 1991) have shown that most null pronouns in Chinese type of languages are subject to binding condition C and so they should be better considered as variables, or traces left by wh-movement of a null operator to the SPEC of COMP position. If this is true, the unidentified null pronouns will not create any problems for the Identification Hypothesis, because variables are not subject to identification requirements.

2.1 Pronominal properties of the null pronouns and Huang's GRC

Yet things are not that easy. Null pronouns in these languages have pronominal properties. First, they can occur in syntactic islands (which I will talk later) and second, as Huang (1984, 1987) notices, they can be bound by argument NPs:

(1) Zhangsan$_i$ shuo e_i bu renshi Lisi.
     Zhangsan say   not know   Lisi
     'Zhangsan said that (he) didn't know Lisi.'
                            (Huang, 1984)

According to Chomsky's (1981) functional definition, an A-bound EC has to be a pronominal. To keep in line with Chomsky's definition of ECs and at the same time save the the Identification Hypothesis, Huang (1984, 1987, 1989) extends the identification requirements to include not only the rich agreement features but also an NP in a certain binding domain. This extension is expressed in his Generalized Control Rule: (Huang, 1989, p. 193)

(2) Generalized Control Rule (GCR)

An empty pronominal is controlled in its control domain (if it has one).

And the notion of a control domain is defined as follows:

(3) α is the control domain for β iff it is the minimal category that satisfies both (a) and (b):

a. α is the lowest S or NP that contains (i) β, or (ii) the minimal maximal category containing β (henceforth, MMC(β)).

b. α contains a SUBJECT accessible to β.

This GCR admits only three kinds of null categories as *pros*, i. null subjects and null objects identified by agreement morphology; ii. null subjects obligatorily bound by upper subjects; and iii. null subjects optionally bound by upper subjects. The first kind exists in Italian type of languages and the second/third kinds exist in Chinese type of languages as (4) and (5) illustrate:

(4) Zhangsan$_i$ ku de [e_i hen shangxin.]
     Zhangsan cry till   very sad
     'Zhangsan cried till he got very tired.'
                            (Huang, 1989)

(5) Zhangsan$_i$ suo [$e_{i/j}$ kanjian le Lisi.]
     Zhangsan say EC   see   ASP Lisi
     'Zhangsan$_i$ said he$_{i/j}$ saw Lisi.'

                            (Huang, 1984)

The null subject in the resultative clause in (4) has two potential control domains, the embedded S which contains it and the matrix clause which contains its MMC. As the lower S has no accessible SUBJECT, it has to have the matrix clause as its control domain and there it is bound by the matrix subject. Sentence (5) is problematic for Huang. It seems to have the same structure as (4), yet the null subject in the complement clause can be bound either by the matrix subject or by a null topic already established in discourse. To solve this problem, Huang proposes different structures for sentential complementation:

(6) $[_S...[_{VP}...[_S pro...]]]$

(7) $[_S...[_{VP}...[_{NP}[_S pro...]]]]$

(6) is the structure for verbs like the one in (4). And (7) is the structure for verbs like the one in (5). A null subject in a structure like (6) has the matrix S as its control domain, whereas a null subject in a structure like (7) does not have a control domain, because neither of its two potential control domains, the lower S and the NP that minimally contains the lower S, contains an accessible SUBJECT. A *pro* that has no control domain will be free, and so it can have intrasentence references (a long-distance A-binder – the matrix subject), extrasentence references or even arbitrary references.

By GCR, a null object, no matter what clause it is in, has to have its local clause as its control domain, for there is always an accessible SUBJECT, either the subject NP or the AGR. It can be licensed by AGR features but it can never be bound by the subject NP because that constitutes a violation of the binding condition B. Therefore an unidentified null object can only be a variable bound by a topic, either null or overt.

This GCR seems to have two attractive features. First, it provides, without changing the Identification Hypothesis, an account for the A-bound null subjects in Chinese type of languages. And second, it makes an overall generalization of all unidentified null pronouns other than A-bound subject. (They are all A'-bound variables.) Yet the virtue of these two attractive features will be nullified if the A or A'-bound distinction between null subject and other unidentified null pronouns proves to be not existing.

2.2 The subject/object asymmetry

The A/A' binding distinction is shown by the subject/object asymmetry originally observed by Kuroda (1965) for Japanese. Huang observes the same for Chinese. In his 1984 paper, he illustrates this asymmetry in various constructions. And the most crucial data come from the sentential complementation construction:

(8) a. Zhangsan$_i$ xiwang $e_{i/j}$ keyi kanjian Lisi.
       Zhangsan hope   can see   Lisi
       'Zhangsan$_i$ hopes that [he$_i$] can see Lisi.'

    b. Zhangsan$_i$ xiwang Lisi keyi kanjian $e_{*i/j}$.
       Zhangsan hope   Lisi can see
       'Zhangsan$_i$ hopes that Lisi can see [him$_i$].'
                         (Huang, 1984)

According to Huang the contrast of (8a) and (8b) shows that a subject EC can be A-bound by the matrix subject and therefore a pronominal, whereas a object EC can only have its references fixed outside the sentence. and therefore a variable.

Xu (1986) provides counterexamples to argue against Huang's assumption:

(9) haizi$_i$ yiwei mama yao zeguai $e_{i/j}$ le.
    Children think mother will blame   ASP
    'The children think that Mother will blame (them) now.'

(10) xiaotou$_i$ yiwei meiren kanjian $e_{i/j}$.
     thief   think nobody see
     The thief thought that nobody saw (him).'
                   (Xu, 1986)

In both (9) and (10), the null object in the complement clause is bound by the matrix subject. I must admit that sentences with A-bound null objects are not as easy to come across as the ones with A-bound null subjects, yet the crucial problem here is why the counterexamples are possible at all. Are they syntactically possible? Or are they just specially constructed and pragmatically oriented cases? In the following subsections I will discuss data from both Chinese and other languages and argue that it is a syntactic possibility for null objects to be bound by upper arguments. And the asymmetry lies somewhere else.

2.3 Data from Other Languages

We will first look at the data provided by Cole (1987). Cole discusses examples from Imbabura Quechua and Korean and argues that these languages do allow A-bound null objects:

(11) Juzi$_i$ nin   [Marya e_i juyanata].
      Jose   say   Maria   will love
      'Jose says that Maria will love (him).'

(12) Juan$_i$ munan [Juzi e_i rijsichun].
      Juan   wants   Jose   know
      'Juan wants Jose to know (him).'
                                    (Cole, 1987, p.600)

Sentences in (11) and (12) show that the null objects can be bound by the matrix subjects and they do not require any special context to be acceptable. Cole provides unmarked cases of A-bound null objects from Korean and Thai too:

(13) Chelswu$_i$-ka   [Yenghi-ka e_i hyeppakha-ess-ta] -ko   cwucangha-ess-ta.
      Chelswu-nom   Yenghi-nom   threaten-past-decl-comp   claim-past-decl
      'Chelswu claims that Yenghi threatened (him).' (Korean)

(14) Nit$_i$ b...k   waa   [Nuan   hen e_i]
      nit   speak   say   Nuan   see
      Nit said that Nuan saw (her).' (Thai)
                                    (Cole, 1987, p.603)

In Chung (1984), we see some interesting Chamorro data concerning the occurrence of null objects too. Chamorro is a language that has rich subject agreement features and the conditions governing the distribution of overt/null subject pronouns are consistent with the Identification Hypothesis. The problem with the Identification Hypothesis is the occurrences of null objects. Null objects in this language do not show any properties of variables, instead they display pronominal properties. They may be bound by upper clause arguments:

(15) Ha-hahässu   ha'   si   Maria$_i$ [na   in-bisita e_i
      SUBJ3s-remember   Emp   Unm   that   SUBJ1p-visit

      gi   espitát].
      Loc   hospital

      'Maria$_i$ remembers that (we) visited (her$_i$) at the hospital.'
                                    (Chung, 1984, p.6)

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According to Chung, sentences like the one in (15) with null objects in embedded complement clauses are grammatical for some speakers. And the following sentence with a null object in an adjunct clause is grammatical for all speakers.

(16)   Man-mäguf   i   famagu'un$_i$ [sa'   hu-ga'nu'i e_i ni   gitala].
           SUBJ(p)-happy the children   because SUBJ(1s)-show   Obl guitar
           'The children were happy because I showed (them) the guitar.'
                        (Chung, 1984, p.6)

This complement/adjunct asymmetry is just the same as Hasegawa (1984/85) observes for Japanese. And this is an asymmetry which Huang's GRC can not explain. Chung also talks about cases where null objects are not allowed (her example (12)), but these cases are explained by some other independent mechanism in the language.[2]

2.4 Null objects in other kinds of structures in Chinese

In this subsubsection I will discuss more examples in which null objects are bound by higher arguments:[3]

(17)   Zhangsan$_i$ bu   xihuang biren piping e_i.
           Zhangsan   not   like   others criticize
           'Zhangsan does not like others to criticize (him).'

(18)   Lisi$_i$ xiangyao Zhangsan lai   kanwang e_i.
           Lisi   want   Zhangsan come   see
           'Lisi wants Zhangsan to come and see (him).'

And the complement/adjunct asymmetry exists in Chinese too. It is easier to have null objects occurring in adjunct clauses:

(19)   Lisi$_i$ [zai women piping e_i yiqian] jiu   rencuo   le.
           Lisi at   we   criticize   before already admit wrong ASP
           'Lisi realized his fault before we criticized (him).'

(20)   Lisi$_i$ [yinwei bieren kanbuqi e_i er] shangxin.
           Lisi because others despise   sad
           'Lisi felt sad because others despise (him).'

2.5 Summary

The above discussion has shown that both the null subject and the null object can have a binder in A position. And so the subject/object asymmetry can not be syntax-based. Once this is clear, Huang's GCR have to be given up. We have to find some other way to explain the distribution and reference of unidentified null pronouns in Chinese type of languages. In the following section I will turn to some traditional analysis of topic-comment construction in Chinese, which will give insight into our discussion of the null unidentified pronouns..

3. NEW APPROACH: TOPIC IN SITU

In this section I will first briefly review the traditional analysis of topic structures and then following Shi (1989) I will argue that NP arguments have the potential to become topics for lower clauses or subsequent sentences without moving overtly into the usual topic position.

3.1 Traditional analysis of topic structures

Traditionally the distinction between topic and subject has never been clear-cut in Chinese. Li & Thompson (1981) distinguish topics from subjects only when there are two NPs in the sentence initial position:

(21) Zhansan$_i$, Lisi kanjian e_i le.
      Zhangsan, Lisi see   ASP
      'Zhangsan, Lisi saw (him).'

Zhangsan in (21) is the topic and *Lisi* is the subject of the sentence. And the empty object has the references of the topic. The subject might be identical with the topic, when there is only one NP in the sentence initial position:

(22) Wo xihuan chi pingguo.
      I   like   eat apple
      'I like to eat apples.'

Structurally the subject *wo* is the only NP in the sentence initial position. Phonetically it can be set off from the rest of the sentence by a pause. And semantically what follows it is a comment about it. All these are characteristic of a topic, so the subject *wo* is also a topic.

Tsao (1977) notes that a topic may extend its domain to a sequence of several sentences. Each sentence in this sequence is an independent comment of the topic. And he terms this sequence of

sentences as a topic chain. The following is an example of a topic chain given by Tsao (p.92): (ET here means empty topic)

(23) Neike shu, ET hua xiao, ET yezi da, ET hen nankan, ET wo mei mai *e*.
      that tree   flower small, leaves big, very ugly,   I didn't buy
      'As for that tree, the flowers are small, the leaves are big, (it's) very ugly,
      I didn't buy (it).'

Tsao claims that the initial NP of a topic chain is the topic of the first sentence and it can license the deletion of the topics of all other sentences in the chain. Li & Thompson develop this idea in a slightly different way. They argue that the topic of the first sentence is the topic of the whole chain and the gaps in the subsequent sentences all refer to this topic.[4]

3.2 Topics in argument positions

Both Tsao and Li & Thompson imagine an overt topic at the chain initial position. This kind of topic chain is recognized by Shi too. Shi also argues that the topic need not be an overt topic set apart from the comment sentences, it might be an NP occupying a certain position in the first link of the chain. According to him, an NP in the subject position, the object position and the specifier position[5] within the subject NP might serve as the topic of the following sentences. Following Shi I will assume that NPs need not occupy the topic position to function as topics. They may remain in situ and function as topics by passing their references vacuously down to the following sentences.

It is generally accepted that Chinese is a discourse oriented language, and topics play an important role. (Li & Thompson, Shi, Tsao, and Huang among others.) A topic is the core around which a discourse is organized. Unlike topics in languages like English and Italian, topics in Chinese type of languages can be both in situ and in the usual topic position (the specifier position of CP in GB).

3.3 A unified account of the null subjects and the null objects

As a consequence of admitting topics in situ, a unified account of unidentified null pronouns will be obtained. That is, all the unidentified null pronouns are topic-bound, with the topics either occupying the usual topic position or remaining in situ. And topics can pass vacuously down to the following sentences. The same is true for complex sentences containing complement or adjunct clauses. An argument NP in a matrix clause can pass vacuously down to the topic position of a subordinate clause. And like an overt topic in that position, it can bind either a null subject or a null object in the subordinate clause. The following sentences illustrate this:

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(24) (A-bound null subject in complement clause)

Zhangsan$_i$	shuo	ET$_i$	e_i		bu	renshi	Lisi.
Zhangsan	say				not	know	Lisi

'Zhangsan said that (he) didn't know Lisi.'

(Huang, 1984)

(25) (A-bound null object in complement clause)

xiaotou$_i$	yiwei	ET$_i$	meiren	kanjian	e_i.
thief	think		nobody	see	

The thief thought that nobody saw (him).'

(Xu, 1986)

(26) (A-bound null subject in adjunct clause)

John$_i$-ga	ET$_i$	[e_i		Mary-o	naguru	mar-ni]	naiteita
John-nom				Mary-acc	hit	before	was crying

'John was crying before (he) hit Mary.'

(27) (A-bound null object in adjunct clause)

John$_i$-ga	ET$_i$	[Mary-ga	$e_{i/*j}$		naguru	mae-ni]	naiteita

'John was crying before Mary hit him.'

(Hasegawa, 1984/85)

No matter a null pronoun is in the subject or the object position of a subordinate clause it can be bound by a empty topic (ET) which has the references of an argument in the upper clause. In other words the A-bound null pronouns are all actually topic-bound. And this point is strengthened by the fact that no null pronouns can be bound by an argument in its local clause, because an NP argument can never pass up to its local topic position and bind its co-argument.

3.4 Summary

The above analysis provides a unified account to all the unidentified null pronouns so that we do not have to suffer the awkwardness of splitting them up into two groups. The A and A'-bound difference is eliminated by a distinction between topics in topic positions and topics in situ. Following Huang (1984) I distinguish languages that allow null topics and languages that allow only overt topics. And the topics in situ proposed here further distinguish languages that allow topics in situ from languages that do not allow topics in situ. Chinese, Japanese and Thai are languages that allow all three kinds of topics and that is where we find null subjects and null objects which can be A-bound (bound by topics in situ), A'-bound (bound by topics in topic position) and unbound (bound by null topics).

4. LICENSING REQUIREMENTS FOR TOPICS IN SITU

Following Shi, I have assumed that some NPs have the potential to become topics in situ. As Shi observed, not all NPs have this potential. He recognizes only three positions which can host possible topics in situ: the subject position, the object position and the specifier position within a subject NP. For reasons I mentioned in footnote 4, I will focus on topics in subject and object positions only.

4.1 Topics in subject positions

It is quite easy for an NP in subject position to become a topic for lower clauses or subsequent sentences. Here we have more examples to further strengthen this point:

(28) Zhangsan$_i$ [zai e_i binghao zhiqian] buhui huilai.
Zhangsan at recover before won't come back
'Zhangsan won't come back before (he) recovers.'

In (28), the subject NP binds the EC in the subject position of an adverbial clause. In the following sentence the subject NP *Zhangsan* binds gaps in the subject positions of a series of sentences:

(29) Zhangsan$_i$ gongzuo hen nuli,
Zhangsan work very hard

zuochu le henda gongxian,
make ASP very big contribution

suoyi bei jinshen wei jinli le.
therefore PASS promote as manager ASP

'Zhangsan works very hard, (he) has made great contribuation, so (he) has being promoted to be the manager.'

It might be argued that the gaps in the above sentences are just traces of coordination deletion. Yet there are a few facts which make me believe that it is better to consider them as empty categories bound by the topic – the subject in the first link.

The first fact to consider is that the topic subject may extend its scope endlessly to however many subsequent sentences as long as there is no other potential topic intervening. And the subse-

quent sentences might be complex sentences containing matrix clauses and complement, adverbial, relative, or conditional clauses. Let us look at a long sequence of sentences taken from a Chinese magazine:

(30) Tamen$_i$ dayixiegong, dan jin dao qian gou yong bianzhi;
       they   work a bit   but only to money enough   then stop

qiyushijian e_i bian gan xie [ziji xiang gan t_j]de shi$_j$].
othertime   then do   some self   want   do   DE   thing

Ran ji e_i gan shi, e_i ye yipai   shuiyieran,
even if   do sth   a attitude carefree

e_i xiang gan ze e_i gan, e_i bu   xiang gan ze e_i bu   gan.
       want   do   then   do   not want   do   then   not do

Guoqu   nazhong   kuangwang de   jingtou   danranwucuen.
past   that kind arrogance DE   attitude disappear

Dui   chuchenguo   gen e_i yifu keyou kewu   de   taidu.
for   achievements also   a   may   may not DE   attitude

They work a bit, but only to make enough money for a living. At other times, (they) do whatever (they) want to do. Even if (they) do something, (they) have a carefree attitude. When (they) want to do it, (they) do; when (they) do not want to then (they) will not. (Their) past arrogance disappeared totally. As for achievements, (they) do not mind at all.

The first sentence is a conjunctive sentence. And the second sentence contain three sets of subjunctive sentences. And the third and fourth sentences are just simple sentences. One thing common to all these sentences is that they all have a null subject which has the references of the subject of the first link.

The second crucial fact to consider is that some of the subsequent sentences may be gapless. It is a complete sentence in its own and a comment about the topic. Obviously no deletion of any kind can be involved in such kind of cases:

(31) | LaoZhang$_i$ | shiye | le. | | e_i | Zhengtian | zai | jiali | fachou. |
|---|---|---|---|---|---|---|---|---|
| Old Zhang | lose job | ASP | | | all day long | at | home | worry |

Toufa	dou	chou-bai	le.
hair	already	worry-white	ASP

'Old Zhang lost his job. He is worrying at home all day long. The hair is worried to white already.'

The third sentence contains no gap. It is just a comment about the subject in the first link: *Lao Zhang*. The relation between this sentence and the topic in situ is just like the one between gapless comments and the topic in the topic position as shown in (23). The only difference between (23) and (31) is that the former has a topic in the topic position while the latter has a topic in situ. Therefore it is natural to argue that the third sentence in (31) is possible just because there is, in its topic position, an empty topic that has been passed down from the first link of this chain. That is the way how a gapless sentence gets related to the subject of the first link of the chain.

As said before, Chinese is a topic-prominent language. And in Chinese, a subject has prominent status in discourse and can always function as a topic. When a subject binds the null subjects of the subsequent sentences, the prominence of the subject is kept from sentence to sentence and so the topic chain can go on forever theoretically. And that is born out by topic chains like the one in (30). To accommodate this fact, we tentatively propose a Prominence Continuance Rule:

(32) A topic is the most prominent semantic item in discourse. And as long as a topic, either an overt/null one or one in situ, bounds a gap in the subject position of a lower clause or a subsequent sentence, the prominence of the topic is maintained and so this topic qualifies to pass further down (vacuously) to the topic positions of the following sentences.

Cases where the subject of the first link binds a null object in the subsequent sentence are also possible:

(33) | Zhezhiji$_i$ | xiadan | duo, | dajia | dou | xihuan | $_i$ |
|---|---|---|---|---|---|---|
| this hen | lay eggs | many | people | all | like | |

'This hen lays a lot of eggs, people all like (it).'

(34) | Zhansan$_i$ | bingle, | jialiren$_j$ | bu | nen | zhaogu e_i, |
|---|---|---|---|---|---|
| Zhangsan | sick | family | not | can | look after |

e_j	zhihao	zhao	le	ge	baomu.
	had to	find	ASP	a	nurse

'Zhansan is sick, (his) family can't look after (him), (they) have to find a nurse.'

And the interesting thing here is: if a topic binds an object, the chain will stop. And the intervening subject might start a new chain, as the second and the third links in (34) show. And that is in line with our Prominence Continuance Rule. A object position is not a prominent position. When a topic binds an EC in the object position, the prominence of the topic is no longer maintained and the chain of prominence is broken, hence the termination of the topic chain.

4.2 Topics in object positions

Now let us turn to possible topics in the object position.[6] We notice that objects do not usually pass down their references as topics:

(35) *Zhangsan dashangle Lisi$_i$, e_i bei songjin yiyuan qu le.
Zhangsan wound Lisi was sent-in hospital go ASP
'Zhangsan wounded Lisi, (Lisi) was sent to the hospital.'

The null pronoun in (35) can not refer to the matrix object. However, if the object is some new information the speaker means to introduce into the discourse, it might become a topic and pass its references down to the following sentence. This is because an introduction of something new is actually an introduction of a new topic. And so this kind of object is supposed to be prominent and has the potential to become a topic.

(36) Wo zuotian maile **yiben shu**$_i$, e hen youyisi,
I yesterday buy a book very interesting

wo yizhi kan e_i dao banye cai shuijiao.
I all along read till midnight then went to bed.

'I bought a book yesterday. (It) is very interesting. I read (it) until midnight, then went to bed.'

Although *yiben shu* is in the object position of the first link in (36), it is the new information that is introduced into the discourse and so it has the potential to turn into a topic. And we further notice that a descriptive sentence commenting on certain properties of the newly-introduced object may help establish the topic status of an object. This is true for (36). Even the ungrammatical sentence in (35) will improve dramatically if we add in a descriptive sentence:

(37) ? Zhangsan dashangle Lisi$_i$, e_i shandde hen zhong,
Zhangsan wound Lisi   wound very serious

e_i bei songjin yiyuan qu le.
 was send-in hospital go ASP

'Zhangsan wounded Lisi. (Lisi) was very seriously wounded.
(He) was sent to the hospital.'

It seems that the descriptive sentence functions to strengthen the topic status of the object in the first link and then the topic might continue on like a usual topic. In other words, once it is established as a topic, it might pass down as long as its prominence is maintained. To capture these facts we propose an Prominence Hierarchy to supplement the Prominence Continuance Rule:

(38) PROMINENCE HIERARCHY (preliminary)
a. A subject is more prominent than an object, and a subject is always a potential topic in situ by default.
b. An object can compete in prominence with a subject when it is some important information newly introduced into the discourse and its topic status is established by a descriptive comment sentence or some other way (a topic marker especially which I will talk about soon).

4.3 Summary

We have seen that NPs in both the subject position and the object position have the potential to become topics for lower clauses or subsequent sentences. And whether an argument NP can function as a topic largely depends on the degree of its prominence. And the Prominence Continuance Rule together with the Prominence Hierarchy proposed here predicts the possible commencement or termination of a topic chain.

5. A LOOK AT THE COMPLEMENT/ADJUNCT AND THE SUBJECT/OBJECT ASYMMETRY AGAIN

In the above section, I have argued that it is syntactically possible for both null subjects and null objects to be bound by a higher argument. Then what will account for the complement/adjunct and the subject/object asymmetry discussed in section II.2/3/4. Actually the discourse rule proposed in last section has provided us with a new perspective to look at these asymmetries.

5.1 The subject/object asymmetry

Let us have a look at the data (8a, b) concerning subject/object asymmetry again. In (8a), the empty subject of the complement sentence can be bound by its upper subject. We may assume that

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the matrix subject is a potential topic and it can pass vacuously down to the topic position of the complement clause and bind a null pronoun there. According to our theory, a null pronoun both in the subject position and in the object position of a lower clause can be bound by the potential topic–the matrix subject. And we have discussed data from different languages to show that it is syntactically possible for null objects to be bound by matrix subjects. (See section II.3/4.) Yet we do admit that it is easier for null subjects of complement clauses to be bound by the matrix subjects than it is for null object. And there do exist cases like (8b) in which the null object can not have the references of the matrix subject. But as I have argued the asymmetry does not lie in the syntactical structure of the sentences. In the following we offer a new account of the asymmetry.

Let's look at the sentence by Xu (1986) again:

(39) xiaotou$_i$ yiwei meiren kanjian $e_{i/j}$.
      thief   think nobody see
      The thief thought that nobody saw (him).'
                        (Xu, 1986)

Compare (39) and (8a) and we can see that both the null subject and the null object in complement clauses can have two interpretations, one with the subject in situ as an antecedent and the other with an null, discourse topic as an antecedent. And if a reading with an intrasentential antecedent (the matrix subject) is possible or preferable largely depends on the relationship between the matrix subject and the subevent expressed by the subordinate clause.

We have suggested that a topic is prominent and its prominence can be maintained only when it binds the most prominent argument – the subject – of a sentence or a lower clause. If a topic binds a null object, the chain of prominence will end. And the intervening subject will be a potential topic to start another topic chain. (See (34)) If there is an already established topic, either overt or null, the topic takes precedence over the matrix subject in passing further down as a topic. Compare (40) with (8):

(40) a. Wangwu$_j$, Zhangsan$_i$ xiwang $e_{*i/j}$ keyi kanjian Lisi.
          Zhangsan   hope   can   see   Lisi
          'Wangwu, Zhangsan hopes that (he) can see Lisi.'

      b. Wnagwu$_j$, Zhangsan$_i$ xiwang Lisi keyi kanjian $e_{*i/j}$.
          Zhangsan   hope   Lisi can   see
          'Wangwu, Zhangsan hopes that Lisi can see (him).'
                        (Huang, 1984)

In both sentences above the null pronouns have to be bound by the overt topic. The presence

of the established topics deprive the subjects of their chance to turn into topics. And the subject/object asymmetry is no longer there. If there is no established topic, the subjects can still have the potential to become topics.

Here it is time to give our final version of the Prominence Hierarchy:

(41) PROMINENCE HIERARCHY (final)
a. An established topic is more prominent than a subject.
b. A subject is more prominent than an object, and so a subject is always a potential topic in situ by default.
c. An object can compete in prominence with a subject when it is some important information newly introduced into the discourse and its topic status is established by a descriptive comment sentence or some other way.

The matrix subject can function as a topic for the subordinate clause and the subject of the subordinate clause can function as a topic for possible subsequent sentences. If the subordinate clause contains a null subject this null subject can easily be bound by the matrix subject, just like what we see in sentence (8a). Things are different for (8b) though. The subordinate clause in (8b) contains a null object. And between the matrix subject and the null object there is an intervening subject – the subject of the subordinate clause. As I said before this subject is a possible topic too and its presence kind of overshadows the prominence of the matrix subject and so the matrix subject, not established yet as a topic in any other way, has some difficult in becoming the topic for its subordinate clause. If the topic status of the matrix subject is otherwise established, then it will be easier for the null object of the subordinate clause to get bound by it:

(42) *Laozhang$_i$ yiwei [dajia duo xihuan e_i].
      Old Zhang   think people all like
      'Old Zhang thinks people all like (him).'

(43) ? Lao Zhang a,   yiwei [dajia duo xihuan e_i].
      Old Zhang   Ah   think people all like
      so   everyone   all   like
      'Old Zhang Ah thinks people all like (him).'

Sentence (42) is out, but sentence (43) is much better. And the only difference between them is that the topic status of the NP *Lao Zhang* is somehow established in (43) by *a* which has no meaning in itself and functions as a sort of topic marker in Chinese. Therefore we argue that the intervening subject might make the listener expect a change of topic and so the null object is not so easy to go across it to look for an antecedent. But if the possible antecedent is already an established topic in someway then the binding is easier.

Our assumption is supported by data discussed by Chung too. Chung's (12) is ungrammatical,

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yet it will improve dramatically if the embedded subject is not overt. In other words, if the intervening subject is null it will not overshadow the prominence of the matrix subject.

Following these facts we might assume whether a matrix subject can bind an object in the complement clause depends on the prominence status of the matrix subject in comparison with that of the subject of the lower clause. By our Prominence Hierarchy, a later subject is as prominent as a former one. So it is difficult for a subject to bind across a later subject. But if a matrix subject is somehow established (by a comment sentence or a topic marker) it can bind across a later subject. And sometimes pragmatic factors might lay more stress on the matrix subject, and so it becomes more prominent than the intervening subject and have a chance to become a topic binding across the intervening subject.

In Chinese, we find it easier for the subjects of verbs like *xiangxin* 'believe' and *xiang* 'think' to bind the objects in their complement clauses. While it is harder for the subjects of verbs like *shuo* 'say', *xiwang* 'hope' to bind the objects of their complement clauses.

(44)   xiaotou$_i$ **yiwei**   meiren   kanjian $e_{i/j}$.
       thief   **think**   nobody   see
       The thief thought that nobody saw (him).'
                                                   (Xu, 1986)

(45). Zhangsan$_i$ xiwang   Lisi   keyi   kanjian $e_{*i/j}$.
       Zhangsan   hope   Lisi   can   see
       'Zhangsan$_i$ hopes that Lisi can see (him).'
                                                   (Huang, 1984)

The reason might be that the subevents expressed by the complement clauses under 'say' kind of verbs receive more stress and so the prominence of the lower subject is not easy to be overshadowed by other factors. As for the 'think', 'believe' kind of the verbs, on the other hand, the subjects who 'think' or 'believe' receive a lot of stress and so they might overshadow the prominence of the subjects in their complement clauses.

To sum up, subject/object asymmetry does exists, but it has nothing to do with syntax. Some discourse factors, like the prominence of the topic and subject, the intervening subject effect and so on account for the asymmetry.

5.2 The complement/adjunct asymmetry

Our comparative prominence theory gives a natural explanation to the complement/adjunct asymmetry. A complement clause is subcategorized for by the matrix verb, while an adjunct clause is only optional. An adjunct clause only supplies additional information and can not serve as the core of discourse. Usually the subject of an adjunct clause does not have the potential to become

a topic, so it is easy for a matrix subject to bind across a subject of an adjunct clause.

6. THE SYNTACTIC STATUS OF THE TOPIC-BOUND NULL PRONOUNS

We have argued that both the null subjects and the null objects in Chinese type of languages are topic-bound. They are, therefore, all variables by Chomsky's definition. But there seems to exist another difference between the Chinese type of languages and the English, Italian type of languages. In English, Italian type of languages, the topic-bound variables are subject to island constraints or subjacency while in Chinese type of languages the topic-bound variables are not subject to the island constraints or subjacency. In the following we will see data from Chinese, Thai and Imbabura Quechua:

(46) (Null object in relative clause)

Juan$_i$	yuyan	[chay	[e_j	pay-ta$_i$/e_i	rijsisihka]	runa$_j$]
Juan	thinks	that		he-acc	knew	man-acc

mirkadu-pi	kashka-ta.
market-in	was-acc

'Juan thinks that the man who knows (him) was in the market.'
(Cole, 1987)

(47) (Null object in conjoined NP)

Juan$_i$	yuyan	chay	runa	pay-ta$_i$/e_i	Maria-wan	rikushka-ta.
Juan	thinks	that	man	he-acc	Mary-and	saw

'Juan thinks that man saw (him) and Mary.'
(Cole, 1987)

(48) (Null object in sentential subject)

Zhege	wenti$_i$	hen	nan,	[rang	ni	huida	e_i]	bu	gongping.
this	question	very	difficult	let	you	answer		not	fair

'This question is very difficult. To let you answer (it) is not fair.'

To explain the non-existence of subjacency effect in Chinese, Huang suggests that the null objects are generated as pronominals and then change into variables when they get bound by the topics. Yet as Huang himself realizes 'it may be that ECs are never allowed to change status in the course of derivation.' If this change of status is not a possible account for the special properties of the topic-bound null pronouns, then Chomsky's functional definition might be called into question.

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We have seen that a null object can never be bound by its local subject. We have also proved that both null subjects and null objects in Chinese type of languages are topic-bound. All this seems to suggest that null pronouns in these languages are not pronominal in nature. Yet on the other hand, they do not behave like traces left by *wh*-movement or topic-movement in English type of languages in that they do not obey constraints on movement. In other words, the null pronouns in Chinese type of languages have both the pronominal and the variable properties.

In face of this problem, what we have to do is, maybe, give up Chomsky's functional definition as Huang suggests (1991, footnote 1) and assume that there are A'-bound pronominals. And our analysis of topics in situ seems to have provided a new perspective to look at the problem. Firstly, the possibility of topics in situ implies that no movement on the side of the null pronoun can be involved. It is the topic that moves vacuously down to the topic position of the subsequent sentences. Secondly the binding relation between a topic and a null pronoun is licensed by pragmatic and discourse rules rather by syntactic rules. So it is natural for us to imagine that the vacuous passing down of the topic does not happen in the syntactic component of the grammar and is not subject to syntactic constraints.

7. CONCLUSION

In this paper we present an analysis of null pronouns in Chinese type of languages. We have argued that both the null subjects and the null objects in these languages are topic-bound. The A /A'-bound difference is recast as a difference between topics in topic positions and topics in situ. This analysis has a few interesting features. First, it provides a unified account for null pronouns which are not licensed by agreement morphology or clitics. Second, the possibility of topics in situ and the vacuous movement of topics gives a reasonable account for the pronominal features of the topic-bound null pronouns. And third, a typological distinction is made between languages that allow topics in situ and languages which don't allow topics in situ.

NOTES

1. Following Whitman (1986), I will call these null subjects and null objects 'unidentified null pronouns' in the sense that they are not identified by agreement or clitics.

2. Whitman (1986) discusses A-bound null objects too. He provides a VP ellipsis analysis for the identity of object ECs. Huang (1991) also talks about the possibility of analysing some of the object ECs as the results of VP ellipsis. Yet, VP ellipsis accounts only for a subset of possible null objects. The examples given in this subsection and the following subsection either have the null objects in adjunct clauses or have them c-commanded by their antecedents, so they can not be traces of VP ellipsis.

3. *'xihuan'* is control verb like the English 'want' and 'like'. A sentence like the one in (17) has the structure:

   [Xiaomin xihuan beiren [PRO piping e]].

4. Note that in (23) the sentences following the first one are actually gapless. What is missing is only the topic.

5. Some of Shi's data sentences, especially the one concerning topic in the specifier of the subject NP position, might involve coordination deletion. I leave these sentences aside to avoid possible controversy. I will discuss here only the sentences that apparently do not involve coordination deletion or VP deletion.

6. Following Huang (1991), we consider the null object in sentences like the following as VP deletion:

Zhangsan   aishangle   neige   guliang$_i$, Lisi   ye   aishangle e_i.
Zhangsan   love   that   girl   Lisi   also   love
'Zhangsan loves that girl, Lisi does too.'

The cases we consider in the paper are not VP deletions.

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