

Multi-Spec, Relativized Minimality and Movement in Mandarin

Ruixi Ressay Ai

California State University at Long Beach

This paper provides a minimalist account for the embedded Null Object Construction (NOC) in Mandarin. Instead of the variable analysis as proposed by Huang (1984, 1987, 1998, inter alia) or the Free Empty Category (FEC) analysis as argued for by Xu (1986), the null object is argued to be the result of either overt object NP/DP movement that observes a derivational Relativized Minimality (cf. Rizzi, 1990), or the Merge of an empty *pro* due to the pro-support strategy employed in Mandarin.

1. Introduction

It was first observed by Huang (1984, 1987, 1998) that the embedded null object under neutral context cannot refer to the matrix subject (1a) or the embedded subject (1b), though it can refer to someone who is salient in the discourse (1c):

- (1) Zhangsan shuo Lisi kanjian le.
Zhangsan say Lisi see AM
*‘Zhangsan said that you saw.’
- a. *Zhangsan_i shuo Lisi kanjian le [~~Zhangsan~~]_i.
 - b. *Zhangsan shuo Lisi_i kanjina le [~~Lisi~~]_i.
 - c. Zhangsan shuo Lisi kanjian le [SOMEONE, e.g., *Wangwu*].

Counter-examples have also been observed by Xu (1986) in which the co-reference between the embedded null object and the matrix subject is possible (2a and 3a):

- (2) Xiaotou yiwei meiren kanjian. (Xu 1986, 9)
Thief think no man see
‘The thief thought nobody saw *(him).’
- a. Xiaotou_i yiwei meiren kanjian [~~xiaotou~~]_i.
 - b. *Xiaotou yiwei meiren_i kanjian [~~meiren~~]_i.
 - c. Xiaotou yiwei meiren kanjian [SOMEONE, e.g., *xiaotou* + *Wangwu*, *his accomplice*].

- (3) Haizi yiwei mama yao zeguai le. (Xu 1986, 8)
 Child think mother will reprimand SFP
 ‘The child thinks his mother is going to reprimand *(him).’

- a. Haizi_i yiwei mama yao zeguai [haizi]_i le.
- b. *Haizi yiwei mama_i yao zeguai [mama]_i le.
- c. Haizi yiwei mama yao zeguai [SOMEONE, e.g., *haizi* + *his younger sister*]

How to account for these conflicting data is the focus of this paper. In Section 2, previous analyses will be reviewed. Section 3 and 4 will provide the minimalist analysis under either movement or pro-support. Section 5 re-examines the subject-object asymmetry exhibited in Mandarin under the current analysis. Section 6 extends the ‘new’ analysis to the CP domain. Section 7 summarizes the whole papers.

2. Previous Analyses

For Huang (1984), (1c)/(2c)/(3c) can be explained if Mandarin allows for null topics (4):

- (4) Zhangsan shuo Lisi kanjian le [SOMEONE, e.g., *Wangwu*]. (=1c)
 $[_{\text{null-topic}}]_i$, Zhangsan shuo $[_{\text{null-topic}}]_i$, Lisi kanjian le $[_{\text{variable}}]_i$
 There is someone such that Zhangsan said that for that person, Lisi saw him.

Under this analysis, the null object starts as a pro. Given the functional definition of empty categories (Chomsky 1981:330) (5) (see Epstein 1984, Brody 1984, Lasnik 1985, Saito 1985 for a different view), it ends as a variable in (4) that is bound by the null topic that gets its reference from discourse/context.

- (5) The functional definition of Empty Categories (ECs)
 a. An EC is a pronominal if and only if it is free or locally bound by an element with an independent thematic role, and a nonpronominal otherwise.
 b. A nonpronominal EC is an anaphor if and only if it is locally A-bound, and a variable if locally \bar{A} -bound.

By utilizing Principal B of the Binding Theory (BT.B), (1b)/(2b)/(3b) can also be explained as they all incur BT.B violations (6b):

- (6) a. *Zhangsan shuo Lisi_i kanjina le [~~Lisi~~]_i. (=1b)
 b. *Zhangsan shuo Lisi_i kanjina le [pro]_i. (*BT.B)

To account for (1a), Huang (1984:61) proposed the Generalized Control Rule (GCR) which defines that an empty pronominal has to be co-indexed with the closest nominal

element. As “Zhangsan” in (1a) is not the closest nominal element (farther than “Lisi”), co-indexing the null object with “Zhangsan” violates the GCR (7b):

- (7) a. *Zhangsan_i shuo Lisi kanjian le [~~Zhangsan~~]_i. (=1a)
 b. *Zhangsan_i shuo Lisi kanjian le [pro]_i. (*GCR)

This analysis, however, cannot be applied to the two counter examples (2 and 3). To accommodate the two counter examples, Xu (1986:60) proposes that Mandarin contains Free Empty Categories (FECs) in that null objects like those in (2) and (3) can pick up their references ‘freely’ from context. This is a pragmatic approach, commonly under the assumption that in discourse-oriented languages such as Chinese, pragmatics can always remedy grammar.

3. The Minimalist Analysis

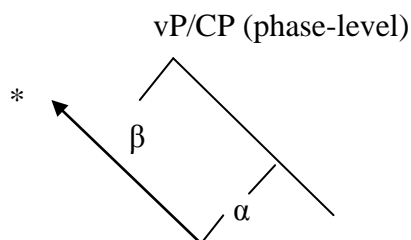
This paper intends to formally solve the aforementioned problem by not resorting to pragmatics. The theoretical framework is within the Principles and Parameters Theory (the P&P model, following Chomsky 1981, 1986; Chomsky and Lasnik 1993), with further assumptions as stated in the Minimalist Program (Chomsky 1993, 1994, 1995, 2000, 2001a, 2001b; also see Uriagereka 1998; Nunes 1995, 2004; Hornstein 2000, *inter alia* for more ‘radical views’). I will assume that the Language Faculty of human being possesses the following architecture:

(8) The architecture of the Language Faculty

Language Faculty			
Cognitive System		Performance System	
Computational System (C _{HL})	Lexicon	Conceptual-Intentional System	Sensorimotor System

Under (8), the Computational System (C_{HL}) consists of one operation only: Merge (Move is treated as *Internal Merge*). I will also assume the Syntax Maximal Hypothesis (Pylkkänen 2002) in that syntactic structure building is the ONLY mode of structure building in natural language. Under this hypothesis, syntax is nothing more than building up a structure by using Merge and the structure-building is step by step (derivational). I will assume that the only constraint in the process of building up a syntactic structure is the Relativized Minimality (RM) (cf. Rizzi 1990). This is schematized in (9). I will also assume the Multi-Spec Theory (Chomsky 1993) and assume that the Core Functional Categories (CFCs) consist of *v*, C, and T only (Chomsky 2000, Boeckx 2008). Under all these assumptions, languages differ only in the Lexicon. C_{HL} is immune to parameterization.

(9) A derivational RM:



if α and β are of the same type.

With the theoretical framework defined, let us first look at movement within the vP domain in Mandarin. The problem of the embedded null object will be explained under this approach. Take (1a) to start with, repeated here as (10). Assuming that movement can be theta-feature driven (Hornstein 1999 and subsequent works) and Mandarin has a strong discourse-related C (cf. Grohmann 2003), the derivation of (1a) proceeds from (10a) to (10d) by repeating Merge:

(10) *Zhangsan_i shuo Lisi kanjian le [~~Zhangsan~~]_i. (=1a)

Numeration: {Zhangsan, Lisi, shuo, kanjian, le}

Derivation:

- $[_{VP}$ kanjian Zhangsan]
- $[_{v'}]$ Zhangsan $[_{VP}$ kanjian Zhangsan]
- $[_{VP}$ Lisi $[_{v'}]$ Zhangsan $[_{VP}$ kanjian Zhangsan]]]
- * Zhangsan ... $[_{VP}$ Lisi $[_{v'}]$ Zhangsan $[_{VP}$ kanjian Zhangsan]]] (*RM)



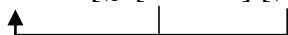
At the derivation step (10d), RM is violated as “Zhangsan” and “Lisi” are both argument DPs (hence the ungrammaticality of (1a)). This minimalist account can also be utilized to explain the grammaticality of (2a), repeated here as (11).

(11) Xiaotou_i yiwei meiren kanjian [~~xiaotou~~]_i. (=2a)

Numeration: {Xiaotou, yiwei, mei, ren, kanjian}

Derivation:

- $[_{VP}$ kanjian xiaotou]
- $[_{v'}]$ xiaotou $[_{VP}$ kanjian xiaotou]
- $[_{VP}$ [mei ren] $[_{v'}]$ xiaotou $[_{VP}$ kanjian xiaotou]]]
- Xiaotou... $[_{VP}$ [mei ren] $[_{v'}]$ xiaotou $[_{VP}$ kanjian xiaotou]]



xiaotou: NP + argument; meiren: mei(you)ren (S) + argument

- Xiaotou yiwei... $[_{v'}]$ meiren $[_{v'}]$ xiaotou $[_{VP}$ kanjian xiaotou]]]

At the derivation step (11d), RM is checked. “Xiaotou” is an NP and argument and “meiyounen” is an S (sentence) and argument. They are not exactly of the same type. So RM is not violated. Further operations of Merge give rise to the surface form (11e). We are now left with (3a), which cannot be explained under movement as clearly there is an RM violation: “mama” and “haizi” are both NPs and arguments (12).

(12) Haizi_i yiwei [mama] yao zeguai [haizi]_i le. (=3a) (*RM)



In the next section, I argue that (12) is possible because of the pro-support strategy in Mandarin. The derivation is not created by movement (Internal Merge), but by the merge of an empty pro.

4. Pro-support

Mandarin is known as a pro-drop language (Huang 1984). I further develop this argument and define that pro exists in the lexicon of Mandarin. It has three ‘surface’ forms: deictic (13a), E-type (13b) and bound variable (13c). The notation of α or β -occurrence of indices is following Fiengo and May (1994):

(13) pro in Mandarin:

- a. deictic: pro_i ^{α}
- b. E-type: pro_i ^{α}
- c. bound variable: pro_i ^{β}

With pro-support, (12=3a) can now be explained under *co-reference*:

(14) Haizi_i yiwei mama yao zeguai [haizi]_j le. (=12/3a)

Numeration: {haizi, yiwei, mama, yao, zeguai, le, pro}

Derivation:

- a. [_{VP} zeguai pro_i ^{α}]
- b. [_{VP} mama [_{VP} zeguai pro_i ^{α}]]
- c. Haizi_j ^{α} yiwei mama yao zeguai [pro_i ^{α}] le.

Notice that pro is included in the Numeration. At the derivation step (14c), “haizi” bears the index j and pro, i . They normally cannot co-refer. But the matrix verb *yiwei* and the embedded modal *yao* can typically render possible world semantics. Thus in some possible worlds that *haizi yiwei* (e.g., *imagined*), the pro is indentified as the “haizi” himself. This is almost like the situation in which someone abstracts oneself and refers oneself as another individual that is involved in the “zeguai” event. This argument seems

to be on the right track when we replace the factive verb “shuo” in (15a=1a) with the intentional verb “yiwei” (15b). The embedded null object and the matrix subject can now co-refer due to possible world semantics (15b):

- (15) a. *Zhangsan_i shuo Lisi kanjian le [~~Zhangsan~~]_i. (=1a) (*RM)
 Numeration: {Zhangsan, Lisi, shuo, kanjian, le}
 b. Zhangsan_j^a yiwei Lisi kanjian le [pro_i^a]. (cf. 1a)
 Numeration: {Zhangsan, Lisi, yiwei, kanjian, le, pro}

The minimal pair in (15) argues that the matrix verb plays a role in the interpretation of the embedded null object. A question naturally arises: why pro-support cannot rescue (1a=15a)? Suppose it can. The derivation ultimately reaches (16):

- (16) *Zhangsan_i shuo Lisi kanjian le [~~Zhangsan~~]_i. (=1a/15a)
 Numeration: {Zhangsan, Lisi, shuo, kanjian, le, pro}
 Zhangsan_j^a shuo Lisi kanjian le [pro_i^a].

Since “shuo” is a factive verb, no possible world semantics is incurred. The index *j* and *i* thus cannot co-refer in the slightest possibility: Zhangsan is telling the fact that Lisi saw someone in which Zhangsan does not consider himself to be part of the “kanjian” event.

What about (2a)? In theory, we have two analyses now due to pro-support. This can be explained either under the movement approach (11), repeated here as (17a), in which no RM violation is incurred or under the pro-support strategy in which possible world semantics is involved (17b).

- (17) Xiaotou_i yiwei meiren kanjian [~~xiaotou~~]_i. (=2a)
 a. Numeration 1: {Xiaotou, yiwei, mei, ren, kanjian} (no *RM) (=11)
 b. Numeration 2: {Xiaotou, yiwei, mei, ren, kanjian, pro} (possible world semantics)

Compare the Numeration in (17a) and (17b). Numeration 2 contains one more lexical items, i.e., pro, to build up the surface structure in (2a). Given that Merge is the only operation in C_{HL}, merging one more lexical item is more costly. Based on the minimalist construal, Numeration 1 is preferred in building up the surface form in (2a), though both computations are possible. This indicates that pro-support might be the last resort strategy in Mandarin. It is not employed unless real/possible world *reference* is involved or simply to rescue an otherwise ungrammatical sentence. This can be further evidenced if we replace the intentional verb “yiwei” in (17) with the factive verb “shuo” (18):

- (18) Xiaotou_i shuo meiren kanjian [~~xiaotou~~_i].
 a. Numeration 1: {Xiaotou, shuo, mei, ren, kanjian} (no *RM)
 b. Numeration 2: {Xiaotou, shuo, mei, ren, kanjian, pro}
 Xiaotou_j^α shuo meiren kanjian [pro_i^α].

As there is no possible world semantics involved, pro-support cannot generate the co-reference between “xiaotou” and the embedded null object (18b). The only possibility is then through the derivation of movement (Internal Merge) (18a) as no RM is violated. Under this scenario, pro-support is abandoned and Numeration 1 is the only choice.

It is worth mentioning that with pro-support, even (1a) can be rescued if it is embedded under discourse (19):

- (19) A: Zhangsan shuo shei kanjian ta le?
 Zhangsan shuo who see him AM
 *‘Who did Zhangsan say that saw him?’
 B: Zhangsan shuo Lisi kanjian le. (=1a)

This can be schematically shown in (20) in which the pro involved is an E-type pro (13b):

- (20) A: Zhangsan_j^α ← ta_j^α
 ||
 B: Zhangsan_j^α pro_j^α (*E-type pro*)

Thus in the B utterance, Zhangsan and pro do not relate to each other directly. The co-reference is possible because of the co-reference chain at the discourse level.

Another advantage of the current analysis is that (1c/2c/3c), repeated here as (21), can now be uniformly explained under pro-support (22):

- (21) a. Zhangsan shuo Lisi kanjian le [SOMEONE, e.g., *Wangwu*]. (=1c)
 b. Xiaotou yiwei meiren kanjian [SOMEONE, e.g., *xiaotou + Wangwu, his accomplice*]. (=2c)
 c. Haizi yiwei mama yao zeguai [SOMEONE, e.g., *haizi + his younger sister*]. (=3c)
- (22) a. Zhangsan shuo Lisi kanjian le [pro_j^α]. (1c) (*deictic pro*)
 b. Xiaotou yiwei meiren kanjian [pro_j^α]. (2c)
 c. Haizi yiwei mama yao zeguai [pro_j^α]. (3c)

This is the deictic use of pro (13a). Compared with the analysis in (4), the null topic is dispensed with and no variable is involved.

For (1b/2b/3b), this can now be explained under either Principle C violation if no pro-support is involved (23) or as Principle B violation if pro-support is involved as argued by Huang (1984) (24):

- (23) a. *Zhangsan shuo Lisi_i kanjina le [Lisi]_i. (=1b) (*BT.C) (no pro-support)
 b. *Xiaotou yiwei meiren_i kanjian [meiren]_i. (=2b) (*BT.C)
 c. *Haizi yiwei mama_i yao zeguai [mama]_i le. (=3b) (*BT.C)
- (24) a. *Zhangsan shuo Lisi_i kanjina le [pro_i^α]. (=1b) (*BT.B) (with pro-support)
 b. *Xiaotou yiwei meiren_i kanjian [pro_i^α]. (=2b) (*BT.B)
 c. *Haizi yiwei mama_i yao zeguai [pro_i^α] le. (=3b) (*BT.B)

5. The Subject-Object Asymmetry

The Subject-Object Asymmetry as discussed in Huang (1984) can also be explained now under the minimalist approach. It is noticed that although in (1a) the embedded null object and the matrix subject cannot co-refer, the embedded null subject and the matrix subject can (25):

- (25) Zhangsan_i shuo []_i kanjian le Lisi. (cf. (1a))
 Zhangsan say see AM Lisi
 ‘Zhangsan said that he saw Lisi.’

The minimalist approach can capture the fact easily by resorting to Merge and nothing else (26):

- (26) Zhangsan_i shuo [~~Zhangsan~~]_i kanjian le Lisi.
 Numeration: {Zhangsan, shuo, kanjian, le, Lisi}
 Derivation:
 a. [_{VP} kanjian Lisi]
 b. [_{V'} Lisi [kanjian Lisi]]
 c. [_{VP} Zhangsan [_{V'} Lisi [kanjian Lisi]]]
 d. Zhangsan...[_{VP} Zhangsan [_{V'} Lisi [kanjian Lisi]]] (no *RM)

At the derivation step (26d), further moving “Zhangsan” does not cross anything. No RM violation is incurred. The matrix subject consequently is just a copy of the embedded subject. The seemly co-reference is the result of syntactic movement.

6. Multi-Spec, Relativized Minimality and Movement within CP

It is well known in the literature that RM also applies in the CP domain. In Mandarin, for example, focus movement of a wh-word is permitted (27a). But further movement of the focused wh-word to an outer Spec of CP is prohibited (27b):

- (27) a. ? [_{CP} Zhangsan, [_{c'}-focus SHEI_i], [_{TP} ta ma-le []_i]]?
 Zhangsan who he scold-ASP
 ‘WHO did Zhangsan scold?’
 b. * [_{CP} SHEI_i, [_{CP} Zhangsan, [_{c'} []_i, [_{TP} ta ma-le []_i]]]]? (intended: (27a))
 who Zhangsan he scold-ASP

This is because of the RM violation. The first focus movement of the wh-word to the inner Spec of CP is legitimate as SHEI contains a focus feature (an A bar feature). So SHEI and *ta* are not of the same type though they are both arguments at the derivation step in (28a). After that, presumably “Zhangsan” is merged to the outer Spec of CP (possibly as a Topic). At this step, both “Zhangsan” and SHEI are non-arguments in the Spec of CP. As they are of the same type, further movement of SHEI to the outmost Spec of CP incurs RM violation (28b).

- (28) a. ? [_{CP} Zhangsan, [_{c'}-focus SHEI_i], [_{TP} ta ma-le []_i]]?
 Zhangsan who he scold-ASP
 Derivation:
 [_{VP} ta [_{v'} SHEI [_{VP} ma SHEI]]]
 ←──────────────────┘
 b. * [_{CP} SHEI_i, [_{CP} Zhangsan, [_{c'} []_i, [_{TP} ta ma-le []_i]]]]? (intended: (47a))
 who Zhangsan he scold-ASP
 Derivation:
 [_{CP} Zhangsan, [_{c'} [SHEI]_i] ...
 * ←──────────────────┘

In English, the traditional CNPC for the formations of relative clauses (29) can also be explained similarly by resorting to RM violations (30).

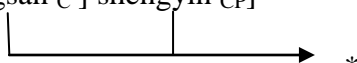
- (29) a. *John_i, the voice with which *e_i* sings is good. (Huang 1984, 76)
 b. *John, I like the voice with which *e_i* sings.

- (30) [_{CP} the voice [_{c'} John [_C with which [_{TP} John.....
 * ←──────────────────┘

Clearly, topicalization in (30) has to move “John” crossing the relative Head “the voice” that is adjoined to CP. As they are both non-arguments in the A bar positions, RM violation is incurred. Interestingly, the Mandarin counterpart of (29) shows another instance of the Subject-Object Asymmetry:

- (31) a. Zhangsan_i, e_i changge de shengyin hen haoting. (Huang 1984, 78)
 Zhangsan sing DE voice very good-to-hear
 ‘Zhangsan_i, the voice with which *(he_i) sings is good.’
 b. *Zhangsan_i, wo hen xihuan e_i changge de shengyin.
 Zhangsan I very like sing DE voice
 ‘Zhangsan_i, I like the voice with which *(he_i) sings.’

As indicated in (31), when the relative clause is in the subject position, the utterance is actually grammatical (31a). The analysis in (30) should predict that both (31a) and (31b) are ungrammatical, just like their English counterpart in (29a) and (29b), respectively, as they also incur RM violations.

- (32) *...Zhangsan_{TP}] de_C] Zhangsan_C] shengyin_{CP}]
- 

I propose that this is due to pro-support in Mandarin. What is involved is the third type of pro, i.e., the bound variable pro (13c). (31a) is explained if the subject in the relative clause is a bound variable bound by the Topic “Zhangsan” (33):

- (33) Zhangsan_i^α, [pro_i^β] changge de shengyin hen haoting. (*bound variable pro*)

To explain (31b), GCR has to be utilized:

- (34) *Zhangsan_i^α, wo hen xihuan [pro_i^β] changge de shengyin. (*GCR)

As “wo” is the closest nominal element, co-indexing the null subject in the relative clause with the Topic “Zhangsan” violates GCR.

Since English has no pro-support (it being not a pro-drop language), there is no rescue for (29a and 29b). Finally, let us look at example (35):

- (35) Zhangsan, [[e xihuan e de] ren] hen duo. (Huang 1984, 96)
 Zhangsan like DE man very many
 a. ‘Zhangsan, people who he likes are many.’
 b. ‘Zhangsan, people who like him are many.’

The sentence is ambiguous between the reading in (35a) and (35b). Under pro-support, this can be explained as either (36a) or (36b):

- (36) a. ‘Zhangsan, people who he likes are many.’
 Zhangsan_i^α, [[[pro_i^β] xihuan [pro_j^α] de] ren] hen duo.
 b. ‘Zhangsan, people who like him are many.’
 Zhangsan_i^α, [[[pro_j^α] xihuan [pro_i^β] de] ren] hen duo. (*GCR)

If we follow (34), (36b) should also incur the violation of GCR. I propose that this is because the matrix subject is by itself a covert pronoun. Co-indexing the subject in the relative clause with the Topic “Zhangsan” crossing a mute nominal element does not count as the violation of GCR. GCR is now elaborated as (37):

- (37) Generalized Control Rule (GCR) → revised co-indexing rule (Co-i)
 Co-index an empty pronominal with the closest *overt* nominal element.

GCR is now treated as a co-indexing rule (Co-i) under the minimalist framework. It is an interpretational rule for null pronominals. This amounts to say that Co-i is an interface requirement, not part of the C_{HL}.

7. Concluding Remarks

This paper provides a minimalist account to some of the central issues that have been discussed in the literature for the embedded null object construction in Mandarin. Everything being equal, the minimalist account captures the fact more directly than the variable analysis or the analysis under Free Empty Categories. I will not defend whether this analysis is superior to the other two or not. My sole intention is that the analysis proposed here can provide us with yet another window to look at some of the “old issues” that has been under debate for decades. The null object has been argued to be a variable, a free empty category. Now it is argued to be formed under either syntactic movement or pro-support.

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