

# The Syntax of Topicalization of NP/DP after ‘De’ in Chinese\*

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**Abstract**—The purpose of this paper is to study a special phenomenon of topicalization construction in Mandarin Chinese, in which the topicalized constituent is the noun phrase (NP) or the determiner phrase (DP) after ‘De’ in the De phrase (DeP). Two problems will be addressed: (I) what is the derivational process of topicalization in Mandarin Chinese. (II) what constraint is involved in the derivational process of such a kind of topic structure. After examining the derivational process of the structure, we arrive at two conclusions: (I) the Topic feature drives the movement of the structure, (II) the topicalization of NP/DP after ‘De’ in DeP1 does not violate PIC, while the topicalization of NP/DP after ‘De’ in DeP2 does.

**Index Terms**—topicalization, derivation by phase, PIC

## I. INTRODUCTION

Topicalization is a process by which a constituent is made into the topic of a sentence by being moved into a more prominent position at the front of the sentence (Radford 2009). Such behavior might be said to be topicalized in a sentence. The purpose of this paper is to study a special phenomenon of topicalization in Mandarin Chinese, in which the constituent, moved into the topic position, is the noun phrase (NP) or the determiner phrase (DP) after ‘De’ in the original sentence, such as (1). In the following we will call this type of topicalization as the topicalization of NP/DP after ‘De’ in Chinese.

- (1) a. Shu<sub>i</sub>, wo xihuan Zhangsan xie de t<sub>i</sub>.  
       book I like Zhangsan write DE  
       ‘I like the book which is written by Zhangsan.’  
    b. \* Xiaoxi<sub>i</sub>, wo tingshuo le Zhangsan da le Lisi de t<sub>i</sub>.  
       news I hear LE Zhangsan beat LE Lisi DE  
       ‘I have heard the news that Zhangsan has beaten Lisi.’

As we can see, (1a) is grammatical, whereas (1b) is not. The central issue of this paper is to account for the underlying reasons for the differences between (1a) and (1b).

## II. LITERATURE REVIEW

This section is a review of previous studies and unresolved problems. Concerning the topicalization of NP/DP after ‘De’ in Chinese, there are two questions, which need further researches.

The first one is what is the derivational process of such a kind of topic structure. Few of the previous studies touched this special topic structure, though there is much in literature on the derivational process of the common topic structure in Chinese. The focus of the discussions is whether topics in Chinese are base-generated or derived by movement. Some linguists argue that topics are base-generated (Xu & Langendoen 1985; Xu 1986). Other linguists suggest that they are derived by movement (Huang 1987; Shi 1992; Yang & Liu 2014). Whereas, The third opinion is that some topics are derived by movement and others are not (Huang et al. 2009). We will give a unified explanation concerning the way the topic structure in Chinese is derived, which also turns out to be right for the topicalization of NP/DP after ‘De’ in Chinese.

The second one is what constraint is involved in the derivational process of such a kind of topic structure. Closely pertaining to this question is the status of De in Chinese. There are two approaches dealing with the derivation of DeP. The first one holds that De is a Complementizer (C). Huang (1982); Ning (1996) assume that DeP is a relative clause (CP). Simpson & Wu (2002); believes that DeP is a DP, with the CP as a complement. The second approach claims that DeP is a maximal projection of De (Wu 2000).

Among them Wu’s (2000) analysis is the most comprehensive and inspiring. Wu maintains that ‘De’ of Chinese is a special functional category. By merging with an NP or a DP, this functional category will form a DeP. As a matter of fact, DeP can be subclassified into different sorts based on the internal structure of IP in front of ‘De’.

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According to Wu (2000), 'De' in Chinese is a special functional category, and carries the strong [Nom], which is uninterpretable and should be checked in the derivation. In order to check its uninterpretable feature [Nom], 'De' needs an NP or a DP, which also has [Nom], to match with it.

Let us look at one of the DeP, in which there is an empty NP or DP in the IP preceding 'De'. The derivational process is illustrated in (2).

- (2) a. [<sub>DeP</sub>[IP Wangwu shuo e][<sub>De</sub> de]]  
 Wangwu say De  
 what said by Wangwu

In some point of the derivation, the functional head 'De' merges with its complement IP, then there is a maximal projection of DeP. Because of its uninterpretable [Nom], 'De' attracts the empty NP in IP to target on it. So there are the De' and [Spec, DeP]. The Move-F will move the [Nom] of the empty NP to Spec and make them into the relationship of Head-Spec. At that time the strong [Nom] of De will match that of the empty NP and the uninterpretable feature of 'De' will be erased.

We can see that in such a kind of DeP there is at least one empty category in the IP preceding 'De'. According to Wu (2000), this fact is a crucial condition for the DeP, because it is assumed that only the [Nom] of the empty category that can match with that of 'De'. This kind of DeP will be called DeP1 in the following.

We also notice that there is no other constituent after De in DeP1. Actually an NP or a DP can be adjoined after De in DeP1. Wu (2000) calls it complicated DeP, such as (3).

- (3) a. [<sub>DeP</sub>[IP e chengshi] de[<sub>NP</sub> haizi]]  
 honest De child  
 'an honest child'  
 b. [<sub>DeP</sub>[IP Zhangsan xie e ] de[<sub>NP</sub> shu]]  
 Zhangsan write De book  
 'the book written by Zhangsan'

The derivational process of the complicated DeP is same as that of the DeP1. The only difference is that after the derivation of DeP1 there is an additional adjunction merge, which adds the NP or DP after 'De'. We should keep it in mind that this adjunction merge is optional, without the NP or the DP the DeP is still grammatical. This is essential for our following argumentation. So we will call the above-mentioned two DePs as DeP1.

Let us look at the second DeP, in which there is no empty NP or DP in the IP preceding De, such as (4).

- (4) a. [<sub>DeP</sub>[IP Zhangsan du shu] de[<sub>NP</sub> difang]]  
 Zhangsan read book De place  
 'the place where Zhangsan read books'  
 b. [<sub>DeP</sub>[IP Zhangsan da le Lisi] de[<sub>NP</sub> xiaoxi]]  
 Zhangsan beat LE Lisi De news  
 'the news that Zhangsan has beaten Lisi'

The functional category De merges with IP *zhangsan dushu*. So there is a maximal projection headed by 'De'. In order to check the uninterpretable feature [Nom] of 'De', the Move-F will attract the NP or DP in the IP to target on De. So, there is the De' and [Spec, DeP]. However, *Zhangsan* and *shu* in the IP are NPs with phonetical content, in other words, there is no empty NP or DP in the IP. Such NPs can not be moved to the Spec to match with the [Nom] of De. If the [Nom] of 'De' can not be matched, the derivation will not converge. We can select another NP or DP from the Numeration and put it on the position of Spec, there, the NP or DP and De is under the Spec-Head relation. Therefore, their formal feature can match and as a result the [Nom] of 'De' will be erased. Such kind of DeP will be called DeP2. In DeP2 the NP or the DP after 'De' is on the Spec of the DeP2, so it is obligatory.

### III. THE MOTIVATION OF THE TOPIC MOVEMENT

The MP assumes that all syntactic structures are merged by lexical items. The premise of the merge is that the lexical items should have identical features including semantic features, categorial features and syntactic features. We will argue that the topicalization in Chinese is derived by internal merge.

The MP holds that the uninterpretable features must be checked off before Spell-Out. If not, it will make the derivation crash. Within Chomsky's (1995) version of the MP, a feature can be rendered invisible once a local configuration has been established between the element bearing the uninterpretable feature and another element bearing a feature of the same type. This process is referred as feature checking. In other words the uninterpretable features must enter into agreement relations with interpretable features. The feature checking is the driving force of Displacement or Movement.

Interpretable features, on the other hand, must not be eliminated, since they contribute to interpretation. Since movement operations are driven by the need to check morphological features, economy considerations lead us to expect that interpretable features never undergo movement. One proposal is that some semantic features are also relevant to movement. They must be checked off before Spell-Out even though semantic features are interpretable features. In Nakamura et al. (2001), there is a piece of evidence to prove the above proposal. Their view is closely identical with our idea. They discuss the question of topicalization in English.

- (5) a. I believe that you should read this book.  
 b. This book<sub>i</sub>, I believe that you should read t<sub>i</sub>.  
 (Nakamura et al. (2001))

The element moved to the beginning of a sentence expresses a general topic and the rest of the sentence represents comment on the topic. The operation adjoins the topical factor to tense phrase (TP). The structure on (5b) is given in (6).

- (6) [TP this book<sub>i</sub> [TP I believe that [you should read t<sub>i</sub>]]].  
 (ibid.)

The additional movement in (6) is not motivated by any feature checking. The position adjoined to a maximal projection is not checked by the head. This movement lacks motivation of feature checking and violates the Last Resort. However, they propose a functional feature attracting the topical factor to evade the Last Resort violation. A functional projection occurs between a CP and a TP. Both the topicalized *this book* and F(ocus) have the semantic feature, and the feature needs to be checked off before Spell-Out. The functional projection with the feature attracts the topicalized element to [Spec, FP]. This derives the representation of (7).

- (7) [CP [FP this book<sub>i</sub> F [TP I believe that [you should read t<sub>i</sub>]]]]  
 (ibid.)

Traditional linguists have regarded the operation like topicalization as an optional movement. We disagree with the viewpoint and think that their syntactic constituents must be moved from the base-position to [Spec, FP] for the sake of feature checking. Moreover, we propose that an interpretable feature is relevant to movement, although the MP only accepts uninterpretable features as a trigger for movement.

As for topicalization in Chinese, we hold that the topic structure is a kind of CP, whose head carries the feature [+Topic]. The topic feature of C will attract the XP, which has the same feature [+Topic], to have feature checking. During this operation, the XP and its [+Topic] feature will move into the Spec of CP together.

#### IV. THE DERIVATION OF TOPICALIZATION OF NP/DP AFTER 'DE' IN CHINESE

Before we elaborate on the derivation of topicalization of NP/DP after 'De' in Chinese, it is necessary to review Derivation by Phrase (Chomsky 2001).

##### A. The Mechanism of Derivation by Phrase

The central proposal of Derivation by Phase (Chomsky 2001) is that language is an optimal solution of the computational system (grammar) to the constraints imposed by the two interfaces: PF and LF. As Chomsky points out (2001), there is no LF, strictly speaking, in this approach to syntactic relations, since Lexical Array is handed over to Semantic component 'piece-by-piece'. These piece-by-piece units are called phases.

- (8) Phase (Chomsky 2001):

A phase is a unit of syntactic computation that can be sent to Spell-Out.

Following Derivation by Phase, Chomsky assumes that the phases are  $\nu^*P$  and CP, but not TP.

Nissenbaum (2000) argues that what is spelled out and is no longer accessible to the syntactic component is not the phase node itself ( $\nu P$ , CP), but the complement of its head (TP and VP, respectively). After the operation TRANSFER only the edge of the phase is available for the derivation. The edge is the head in the phase and its specifier. The edge is an escape hatch for successive cyclic movement of the complement, which, if it remains in situ, must be spelled out at the operation TRANSFER. The fact that only the edge is available is formulated by Chomsky as the Phase Impenetrability Condition, PIC.

- (9) Phase Impenetrability Condition (PIC)

Only the edge of a phase can be accessed from outside this phase.

##### B. The Derivation of Topicalization of Subject and Object in Chinese SVO Sentences

As discussed above, we assume that the Subject or the Object in Chinese SVO sentences will be moved to adjoin to [Spec, CP] if it carries [+Topic] feature. In the following we will analyze the derivational process of the topic structure, in which the Object is Topic, as shown in (10).

- (10) Shu, wo xihuan.  
 book, I like  
 'Books, I like.'

At some point of the derivation we will get (11).

- (11) [ $\nu P$  [ $\nu P$  wo [ $\nu$  xihuan shu ]]]

When Tense Projection (TP) is introduced into the derivation, the Subject *wo* will be moved from [Spec, VP] to [Spec, TP], because the head T is a probe, which has uninterpretable EPP feature, and it will attract the nominal category Subject to check the EPP feature. At the same time this operation will check off the nominative Case of the Subject. This is illustrated in (12).

- (12) [TP Wo<sub>j</sub> [ $\nu P$  [ $\nu P$  t<sub>j</sub> [ $\nu$  xihuan shu ]]]]

Because the light verb also has uninterpretable EPP feature to be checked off, unlike the checking of uninterpretable

EPP feature of T, the EPP feature of  $\nu$  can be checked through an application of the operation Agree in which the probe  $\nu$  enters in a long distance relation with the goal (Object NP). In the operation the accusative Case of the Object can be also checked off. So Object NP does not need to move to the edge of the  $\nu$ P. Therefore, if the Object remains in situ by the time in which the phase  $\nu$ P is completed, it cannot be attracted by the COMP carrying [+Topic]. If the Object NP moves from the complement of  $\nu$ P (or VP, specifically speaking) to the [Spec CP], the movement will violate PIC, because the  $\nu$ P is a strong phase, it would have evacuated the syntactic derivation by the time the bottom-up derivation reaches the CP level. The only legitimate derivation, as illustrated in (13), is one in which the Object NP moves to the edge of the  $\nu$ P phase and is therefore visible from the COMP position, in accordance with PIC.

(13) [<sub>TP</sub> WO<sub>j</sub> [ <sub>$\nu$ P</sub> Shu<sub>i</sub> [ <sub>$\nu$ P</sub> t<sub>j</sub> [<sub>V</sub> xihuan t<sub>i</sub>]]]]

However, in the light of the economic principle in the MP every movement must be driven. We will explain what forces the Object NP to move from its original position to the edge of  $\nu$ P. Chomsky (2001) assumed that this problem could be handled by adopting the suggestion that syntactic movement might be replaced by the recording of ‘occurrences’. Consider a typical case of agreement between  $\nu$  and the Object NP. In the occurrences alternative to movement, after  $\nu$  agrees with the Object NP, the presence of the EPP feature causes  $\nu$  to be marked as an ‘occurrence’ of the Object NP. In *Beyond Explanatory Adequacy* (Chomsky, 2001),  $\nu$  is regarded as an occurrence of the Object. Or we can say that the head  $\nu$  is assigned the OCC feature, triggering movement to the edge of  $\nu$ P. Tang (2001) represented the partial derivation of *Who did you see* in (14). To make sure that *who* undergoes successive-cyclic movement from the complement of  $\nu$ P to the edge of CP via the edge of  $\nu$ P,  $\nu$  is assigned OCC.

- (14) a. [ see who ]  
 b. [  $\nu$  [ see who ] ]  
 c. [ you [  $\nu$  [see who ] ] ]  
 d. [ who [ you [  $\nu$  [ see who ] ] ] ] ...  
 (Tang 2001)

When the derivation goes to (39), the object NP ‘*shu*’ will move to [Spec, CP], and there it will check off the [+Topic] of C, as illustrated in (15).

(15) [<sub>CP</sub> Shu<sub>i</sub> [<sub>TP</sub> WO<sub>j</sub> [ <sub>$\nu$ P</sub> t’<sub>i</sub> [ <sub>$\nu$ P</sub> t<sub>j</sub> [<sub>V</sub> xihuan t’<sub>i</sub>]]]]]

At this point, we have completed the description of the whole derivational process of topicalization in Chinese in which the Object is the topic of the sentence.

In the following we will present the derivational process of the topic structure, in which the Subject is the Topic, as shown in (16).

- (16). Wo, xihuan shu.  
 I like book  
 ‘I like books.’

As discussed above, in (38) the Subject NP ‘*wo*’ will move from the edge of  $\nu$ P to the [Spec, TP], there it will check off the EPP feature of T. When the derivation goes to (38), if the Subject NP ‘*wo*’ carries [+Topic], it will move from [Spec, TP] to [Spec, CP], as presented in (17).

(17) [<sub>CP</sub> WO<sub>j</sub> [<sub>TP</sub> t’<sub>j</sub> [ <sub>$\nu$ P</sub> [ <sub>$\nu$ P</sub> t’<sub>j</sub> [<sub>V</sub> xihuan shu]]]]]

In this section we have analyzed the derivational process of the topicalization of the Subject and the Object in Chinese SVO sentences. In the next section we will base on the above analysis to present the derivational process of topicalization of the NP/DP after ‘*De*’ in Chinese.

### C. The derivation of topicalization of NP/DP after ‘*De*’ in Chinese

The topicalization of NP/DP after ‘*De*’ in Chinese occurs in two types of DeP: DeP1 and DeP2, as illustrated by (1) repeated as (18). The former construction is grammatical, while the latter is ungrammatical.

- (18) a. Shu<sub>i</sub>, wo xihuan Zhangsan xie de t<sub>i</sub>.  
 book I like Zhangsan write DE  
 ‘I like the book which is written by Zhangsan.’  
 b. \*Xiaoxi<sub>i</sub>, wo tingshuo le Zhangsan da le Lisi de t<sub>i</sub>.  
 news I hear LE Zhangsan beat LE Lisi DE  
 ‘I have heard the news that Zhangsan has beaten Lisi.’

In the following we will describe the derivational process of (18a) and (18b) respectively to show why the former is grammatical and the latter ungrammatical.

We will first look at the (18a). In (18a) the topic is ‘*shu*’, which is an NP after ‘*De*’ in DeP1 before it is topicalized to the front of the sentence. In such kind of DeP, the constituents in front of ‘*De*’ together with ‘*De*’ are adjoined to the NP ‘*shu*’, and the whole constituent ‘*Zhangsan xie de shu*’ will be regarded as an NP, in which the head is the NP ‘*shu*’. Because the whole NP is the Object before it is topicalized, and the ‘*shu*’ is the head of the NP, the derivational process of such kind of topicalization is same as (10), in which the Object is the topic. The partial derivational process will be presented in (19), in which we omit the V movement.

(19) [<sub>CP</sub> Shu<sub>i</sub> [<sub>TP</sub> WO<sub>j</sub> [ <sub>$\nu$ P</sub> t’<sub>i</sub> [ <sub>$\nu$ P</sub> t<sub>j</sub> [<sub>V</sub> kanguo Zhangsan xie de t’<sub>i</sub>]]]]]

In (19), the Subject ‘*wo*’ will be moved from [Spec, VP] to [Spec, TP], because the head T is a probe, which has uninterpretable EPP feature, and it will attract the nominal category Subject NP to check the EPP feature. At the same

time this operation will check off the nominative Case of the Subject NP. The object NP ‘*zhangsan xie de shu*’ will agree with *v*, by the operation of agreement the EPP feature of *v* and the accusative Case feature of NP will be checked off. At this moment because the NP ‘*shu*’ has [+Topic] feature, it needs to move to the [Spec, CP]. As discussed above, after *v* agrees with the Object NP, the presence of the EPP feature causes *v* to be marked as an “occurrence” of the Object NP. Because the head of the Object NP ‘*zhangsan xie de shu*’ is the NP ‘*shu*’, we will assume further that *v* is regarded as an occurrence of the head of the Object NP, namely the NP ‘*shu*’. Therefore, the head *v* is assigned the OCC feature, triggering movement of NP ‘*shu*’ to the edge of *v*P. So the NP “*shu*” will first move to the [Spec, *v*P], and then move to the [Spec, CP].

Next we will talk about the derivational process of (18b). In (18b) the topic is “*xiaoxi*”, which is an NP after ‘De’ in DeP2 before it is topicalized to the front of the sentence. In such kind of DeP the NP ‘*xiaoxi*’ occupies the [Spec, DeP], and the whole constituent ‘*Zhangsan dale Lisi de xiaoxi*’ will be regarded as a DP, in which the head is not the NP ‘*xiaoxi*’. The partial derivational process will be presented in (20).

(20) \*<sub>[CP xiaoxi<sub>i</sub> [TP wo<sub>j</sub> [<sub>vP</sub> [<sub>vP</sub> t<sub>j</sub> [<sub>v</sub> tingshuo le Zhangsan dale Lisi de t<sub>i</sub>]]]]]</sub>

The movement of the NP ‘*xiaoxi*’ to the [Spec, CP] is ungrammatical because it violates the PIC. The moved NP ‘*xiaoxi*’ occupies the complement position of *v*P. According to DBP, *v*P is a strong phase, after the Spell-out of *v*P, its complement is unavailable to the next strong phase, here the strong phase of CP. Unlike the NP ‘*shu*’ in (44a), which can move to the [Spec, *v*P] firstly, the NP ‘*xiaoxi*’ is not the head of the Object and it can not undergo the cyclic movement.

## V. CONCLUSIONS

We hold that the topic structure in Chinese is a kind of CP, whose head carries the feature [+Topic] attracting the XP, which has the same feature [+Topic], to have feature checking. We also have explained why the NP/DP after ‘De’ in DeP1 can be topicalized, while that in DeP2 can not. There are two reasons. The first one is that NP or DP after ‘De’ in DeP1 is optional, which is derived by adjunction merge, whereas that in DeP2 is obligatory, which occupies the specifier of DeP. The second one is that the topicalization of NP/DP after ‘De’ in DeP2 violates PIC, but the topicalization of NP/DP after ‘De’ in DeP1 does not.

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