

## Negative Marker *bu* in Chinese: its Nature and Features

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### Abstract

*The purpose of this paper is to account in a generalized way for two facts about negation in Chinese. One is that the Chinese negative marker *bu* cannot co-occur with the perfective aspect marker *le*; the other is that the Chinese negative marker *bu* is incompatible with the manner phrase in the *V-de* construction. We claim that the functional category *NegP* postulated by Pollock (1989) can be extended to Chinese and that *NegP* analysis can account better for the syntactic distribution of the Chinese negative marker *bu*. The negative marker *bu* is placed in the specifier of *NegP*, while the head of *NegP* is left empty; and the complement of *NegP* is usually an *AspP*, which is headed by an Aspect marker, or an *AUXP* when there is an auxiliary occupying *AUX*. Chinese is an *Asp*-lowering language. Its perfective aspect marker *le* is lowered from *Asp* onto *V*, and the trace left behind in the *Asp* node by the moved head should be properly head governed. This can be satisfied when there are auxiliary verbs, but when there are no auxiliary verbs, (because the head of *NegP* is empty) nothing properly head governs the trace, an *ECP* violation will arise. Since the postverbal adjunct marker *-de* originated from the *Asp* of *AspP*, the incompatibility between *bu* and the manner phrase in the *V-de* construction can also be explained.*

### Key words

*negative marker *bu*; *NegP* hypothesis; proper head government; aspect*

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### 1 Introduction

Negation has challenged many scholars to explore its properties and specifically its relationship to many other categories. Sentential negation, particularly, has been the subject of heated discussions. A proper understanding of the expression of sentential negation is central to our understanding of grammar (Zanuttini 2001:511). Therefore, it is of great importance to examine sentential negation in Chinese, for this can not only testify language universal, but also help us understand many other phenomena in this language.

Superficially, negation in Chinese is quite different from many other languages. Here we will compare Chinese and English sentential negation to see some differences.

First, Chinese has more sentential negative markers than English. Anyone who speaks English can tell that English has few (if there are more than one) sentential negative makers, and only *not* is common in use. In contrast, Chinese has many, including *bu*, *fei*, *wu*, *fou*, *wei*, *mei*, etc; *bu* and *mei*(*you*) are the most commonly used in standard modern Chinese.

Second, the positions of Chinese negative markers are different from those in English. Generally speaking, English negative markers have a relatively fixed place in sentences, usually before main verbs and/or after auxiliary verbs. as shown below:

- (1) He is **not** Jim.
- (2) He does **not** speak Chinese.
- (3) He has **not** finished the work.
- (4) I **cannot** tell you the truth.
- (5) I can **not** tell you the truth.
- (6) I will **not** tell you the truth.

It seems that Chinese negative markers, in contrast, do not have such a fixed place in sentences. For example, in (7) *bu* precedes a main verb; in (8) *bu* follows a main verb; in (9) *bu* precedes an auxiliary verb; and in (10) *bu* follows an auxiliary verb.

(7) *wo bu chi pingguo.*

I not eat apple

“I do not eat apple.”

(8) *wo chi bu xia pingguo.*

I eat not down apple

“I can’t eat apple.”

(9) *wo bu keyi hui jia.*

I not can go home

“I can’t go home.”

(10) *wo keyi bu hui jia.*

I can not return home

“It is possible that I do not go home.”

Third, Chinese negative markers seem to be sensitive to aspectual distinctions as well as to the manner phrase. This is shown in (11-13) (PERF stands for perfective marker, PRO for progressive marker, and DE is a postverbal adjunct marker):

(11) a. *wo chi le pingguo.*

I eat PERF apple

“I ate apple.”

- b. \**wo bu chi le pingguo.*  
 I not eat PERF apple  
 Intended reading: “I do not eat apple.”
- (12) a. *ta dai zhe maozi.*  
 he wear PRO cap  
 “He was wearing a cap.”
- b. \**ta bu dai zhe maozi.*  
 he not wear PRO cap  
 Intended reading: “He was not wearing a cap.”
- (13) a. *ta pao de kuai.*  
 he run DE fast  
 “He runs fast.”
- b. \**ta bu pao de kuai.*  
 he not run DE fast  
 Intended reading: “He does not run fast.”

From above it can be concluded that sentential negation in Chinese is more complex than that of English. Many scholars, therefore, endeavor to explore its properties and specifically its relationship to other categories. They explain the syntactic distribution of the negative markers in Chinese from different perspectives. However, their explanations either are confronted with many problems or are based on some rules specific to Chinese. It is very necessary, therefore, to explain the syntactic distribution of the negative markers in Chinese in terms of recognized language universal principles, to testify language universals and to understand many related phenomena.

Since it is impossible for us to make a thorough study of Chinese negation, we discuss only some of the many phenomena. The issues we discuss center mainly on the syntactic distribution of the negative marker *bu* in negative statements.

The remainder of this paper is structured as follows. In §2, the Negation Phrase (NegP) hypothesis will be presented and extended to Chinese. §3 is a functional projection analysis of Chinese clause structure, especially its Tense Phrase (TP) and Aspect Phrase (AspP). Chinese is argued to be an Asp(ect)-lowering language rather than a V(erb)-raising language, based on an investigation of Chinese clause structure, namely, the hierarchy among TP, AspP and NegP. §4 deals with the interaction between *bu* and Aspect. §2 to §4 focus mainly on *bu*, while §5 deals with *mei(ou)* exclusively. In §5, the occurrence of *mei* and its interaction with Aspect and other auxiliary verbs will be discussed. §6 deals with the interaction between negation and postverbal adjuncts. On the assumption that *-de*'s in both Descriptive Complement Constructions and Resultative Complement Constructions

originate in the Asp of AspP, a natural explanation to the incompatibility between *bu* and the *V-de* construction are given. The last section is a conclusion of the present study.

## 2 NegP Hypothesis and the Chinese Negative Marker *bu*

As is claimed in Zanuttini (2001), in recent studies of the syntactic expression of sentential negation, the proposals in Pollock (1989) have been extremely influential. One major empirical contribution of Pollock (1989) is the proposal that the syntactic distribution of negative markers which follow the verb in I(nflectional) and precede the Verb Phrase (VP) is not identical to that of the class of VP-adverbs. “This proposal has proven to be extremely fruitful in analyzing negative markers in many languages, including but also going beyond Germanic and Romance” (Zanuttini 2001:523).

In this section, the NegP analysis will be presented and extended to Chinese. It is demonstrated that the Chinese negative marker *bu* should not be placed in the head of NegP, but in the specifier of NegP (Spec,NegP).

### 2.1 The English Negative Marker *not* and NegP Hypothesis

Traditionally, the English negative marker *not* is treated as an adverb. This view had dominated the linguistic field until 1989, when some generative syntacticians began to challenge it. They argue that, syntactically, the negative marker *not* is quite different from adverbs. Two frequently cited examples are repeated below:

(14) John often kisses Mary.

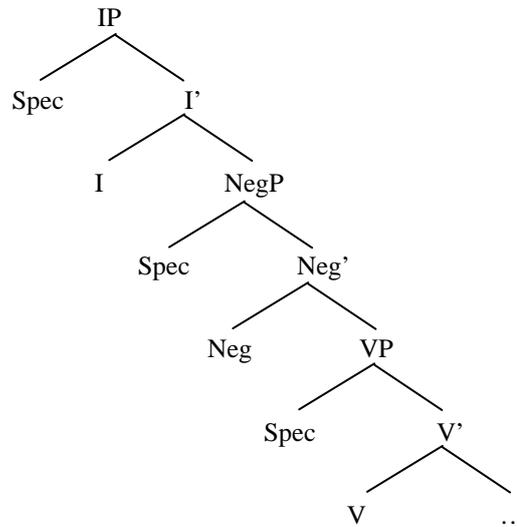
(15) John does not like Mary.

It is obvious that *often* and *not*, both of which are traditionally treated as adverbs, have different syntactic properties. In (14), Tense combines with the verb *kiss*, while in (15), Tense is separated from the verb by the sentential negative marker *not*. It seems that *not* is not of the same class as *often*. If it is, sentence (15) should be like (16):

(16) \*John not likes Mary.

Therefore, it is reasonable to say that we need to rethink the analysis of negation: *not* should not be treated as an adverb. One alternative analysis proposed by Pollock (1989) is that *not* is contained within a separate Negation Phrase (NegP) projection, which is situated between I and VP, as shown in (17):

(17)



How can his proposal account for the ungrammaticality of (16)? According to Chomsky (1991), in English, I is weak (Chomsky’s terms *weak* and *strong* correspond to Pollock’s *poor* and *rich*) and cannot attract the main verb to move up and adjoin to I; instead, Affix Hopping applies, that is, I is lowered onto the main verb. This creates a trace, but the trace is not c-commanded by the moved element, as in (18c). A starred trace is therefore created. What must happen later in the derivation, then, is that the whole V moves up to the position where the trace is, as in (18d). When the whole [V+I] complex moves up into the position of the starred trace, the latter is somehow obliterated (DS: D-structure; SS: S-structure; LF: Logic Form).

(18) a. John often kisses Mary.

b. DS: \*[IP John [I' I [VP often [VP kiss Mary]]]]

c. SS: \*[IP John [I' t<sub>i</sub> [VP often [VP [V [V kiss [I]]] Mary]]]]

d. LF: [IP John [I' [V [V kiss [I]]] [VP often [VP t<sub>i</sub>[V [V kiss [I]]] Mary]]]]

This explanation is based on the assumption that *often* is an adverb, an adjunct adjoined to VP. Adjuncts have a special status with respect to the categories they adjoin to. According to Ouhalla (1999:280), “An adjunct is both a sister to and a daughter of the categories it is adjoined to.” In other words, adjuncts are not full members of the categories they are adjoined to, although they are constituent members of them. For clarification, the adjoined category is often called an “associate member”. “Maximal projections are assumed to be barriers only for their full members, [while] associate members are governed by different regulations” (Ouhalla 1999:280). Therefore, *often* is not a barrier for the whole [V+I] complex to move back to obliterate the offending trace.

The English negative marker *not* is assumed not to be an adverb (if it is, (16) should be



rise to a violation of the HMC, resulting in ungrammaticality. However, (21a) and (22a) are perfect. That is to say, the movement through Neg does not give rise to a violation of the HMC. How can we account for this?

In solving this kind of problem, two versions of the NegP hypothesis have been put forward. In the first version, the negative marker heads its own NegP, taking a complement phrase. In the second one, there is a NegP, but its head is empty and the negative marker is in the Spec.

Radford (2004) follows the first. He assumes that *not* does not head NegP but serves as the specifier of NegP, so that the head Neg position is null. Thus the null Neg constituent opens up to the possibility that V moves through it into I (a detailed discussion, see Radford 2004, pp. 171-3).

The second version is defended by Ouhalla (1991). He maintains that *not* occupies the head of NegP, but (English) auxiliaries originate in a position which is higher than that of Neg. The present study will adopt this view and assume that *not* heads its own maximal projection. We will discuss this later.

The NegP hypothesis has succeeded in accounting for the negative structures in a wide range of Indo-European languages, such as English, French, Romance, Turkish, Swedish, Italian, Piedmontese, among others (Pollock 1989; Ouhalla 1990; Chomsky 1991; Belletti 1990; Haegeman 1995; Kayne 1989; Zanuttini 1996).

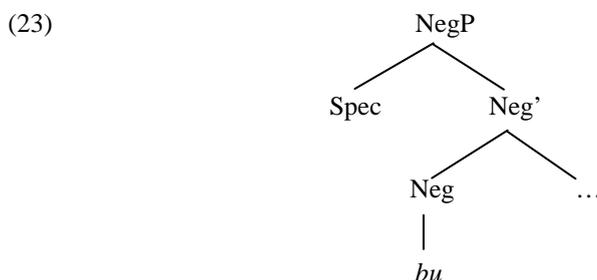
This hypothesis is also extended to Chinese by some scholars (e.g., Cheng and Li 1991; Chiu 1993; Xu 1997; Hsieh 2001; Hsiao 2002) with great success.

## 2.2 The Chinese Negative Marker *bu*

Chinese Grammarians have identified quite a few negative markers, but only two are common in use: *bu* and *mei*. *Bu* may precede all predicates with the exception of the item *you*, which, as a lexical and an aspectual auxiliary, is exclusively negated by the negative marker *mei*. Following Wang (1965), we treat *mei* as the alternant of *bu* before *you*.

The study of Chinese negative markers can be traced back to *Ma Shi Wen Tong* (Ma 1998), the first edition of which was published in 1898, more than one hundred years ago. In this work, negative markers are treated as adverbs. This view has been followed by most Chinese grammarians until today. Generative linguists had already begun to study negation in Chinese since 1960s (e.g. Wang 1965; Teng 1973, 1974; Huang 1988; Cheng & Li 1991; Ernst 1994, 1995; Chiu 1993; Chao 1994; Xu 1997; Chao & Mui 1998; Lee & Pan 1999 2001; Hsieh 2001; Hsiao 2002; Lin 2003; Hu 2007; Li 1999, 2007). Many of them have attempted to extend the NegP hypothesis to Chinese after its proposal in 1989 (Cheng & Li

1991; Chiu 1993; Xu 1997; Hsieh 2001; Hsiao 2002). Most of them hold the idea that *bu* is an  $X^0$  head projecting a NegP.<sup>3</sup> This is shown in (23):



This analysis, as noted by Ernst (1995), makes it possible to use the “blocking effect” of the Neg head on the lowering of *-le* onto V. This is essentially the analysis of Cheng and Li (1991) and Chiu (1993). Cheng and Li (1991) propose that *-le* is the head of Aspect Phrase (AspP), which is base-generated higher in the structure than NegP, while in Chiu (1993), *-le* implies past tense, base-generated in T. We will discuss this in detail in §4.

This kind of analysis seems very appealing, but it runs into difficulty in both theoretical and practical explanations. In practice, this kind of analysis can explain the inability of *bu* to occur with the perfective aspect marker *-le*, but at the same time it excludes grammatical sentences like (24):

- (24) *ni bu yinggai chi le pingguo.*  
 you not should eat PERF apple  
 “You shouldn’t have had apple.”

In theory, as Ting (2006:81) notes, in his argument based on the clitic *suo* as applied to negative markers in Mandarin Chinese, “If negative particles in Romance are heads of NegP, those in Mandarin Chinese should not be.”

According to Ting (2006), *suo* is supposed to be base-generated as the head of the DP in the complement of the Verb position, and to be bound by a null operator base-generated in Spec,CP. So it is suggested that *suo* undergoes movement out of the DP it heads and adjoins to  $I^0$ . If this assumption is correct, then the ordering between *suo* and the negative marker *bu* indicates that *bu* is not the head of NegP. Consider (25):

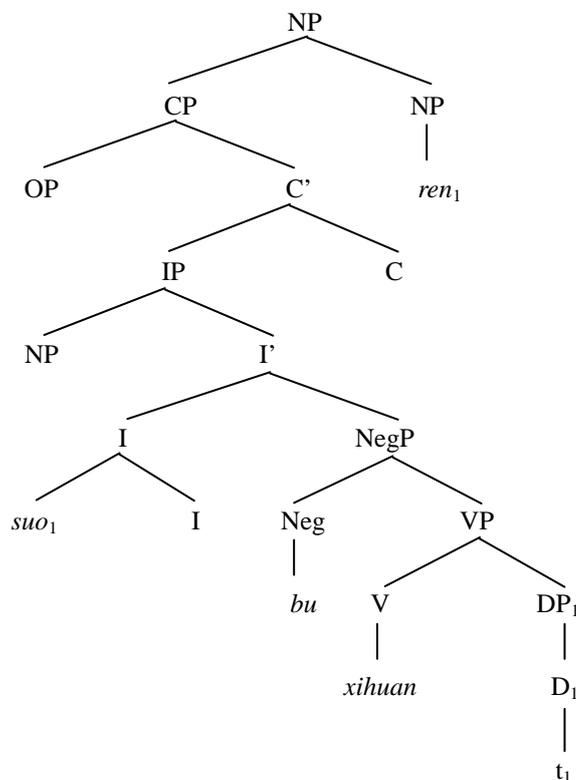
- (25) a. *Zhangsan suo bu xihuan de ren.*  
 Zhangsan SUO not like de person  
 “The person that Zhangsan does not like”  
 b. \**Zhangsan bu suo xihuan de ren.*  
 Zhangsan not SUO like de person

<sup>3</sup> Some scholars have a different view, for example, Hsieh (2001:60) proposes that “*Mei(you)* heads a NegP, while *bu* does not.”

Intended reading: “The person that Zhangsan does not like”

If the negative marker *bu* projects an independent functional category, the structure which underlies (25) would be like (26) (Cited from Ting (2001:80)):

(26)

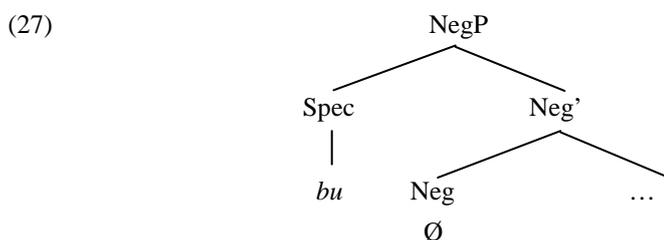


According to Ting, if *suo* moves onto Neg first, then excorporating from it is banned because the non-L-related head does not allow excorporation to take place. The only choice is that the Neg head must be crossed. However, it gives rise to an HMC/ECP violation.

This implies, theoretically, that the negative marker *bu* should be put in the specifier of NegP. This is the approach taken by Belletti (1990) for the English *not*, Rizzi (1990), Belletti (1990) and Zanuttini (1991) for the French post-verbal negative marker *pas*, Ouhalla (1990) for the Swedish *inte*, Haegeman (1995) for the West Flemish *nie*, and Zanuttini (1997) for some negative markers in certain northern Italian dialects. Therefore, it appears logically possible that the Chinese negative marker *bu* can be analyzed in this way. As pointed out by Ting (2006:81), “for such an approach to hold for deriving the occurrence of *suo* before negative particles, we have to allow an empty head (of a NegP) to be crossed.”<sup>4</sup> In the present study, we propose that the negative marker *bu* be in the specifier of NegP (Spec,NegP), and the head position of NegP be empty (marked as  $\emptyset$ ).

<sup>4</sup> Unfortunately, J. Ting did not go into detailed discussion of this approach.

Then the negative structure in Chinese would be:



In the literature, we did not find any previous works putting the negative marker *bu* in the specifier of NegP (Of course, many studies are still beyond our reach), but we did find many works in favor of this analysis. For example, Law (2001), in accounting for the syntax of A-not-A questions in Cantonese, a dialect of the Chinese language, proposes that “the sentential negative morpheme *m* is, as generally assumed for pure negators, generated in [Spec,NegP] and is in spec-head agreement with the [neg] feature on the Neg<sup>0</sup> head.” Li (2007:66) also holds the idea that “[If NegP hypothesis can be extended to Chinese,] The adverb *bu* would have to be in Spec NegP,” and she did try to extend NegP to Chinese with *bu* in Spec,NeP, though she holds a negative view from the beginning to the end.

Before we end this argument for the position of *bu*, it is necessary to review some interesting arguments for *bu* heading its projection NegP given by Xu (1997). First, Xu notes that *bu* can merge with some modals, forming words like *bie* “not (imperative)” and *beng* “not have to”. Xu argues that for this merging process to be possible, *bu* must be an X<sup>0</sup> element since only heads may incorporate onto another head. It is necessary to note that this reasoning is not very convincing. Whether this merging process is an incorporating process is still a pending question, because we have many “merging processes” in English that is obviously not head to head, such as “I’m”, “you’d”, “he’ll”, etc. which are formed by pronouns occupying Spec,TP merging with modals. Furthermore, Xu notes that quantifiers such as *shei* “who”, *shenme* “what” and *nar* “where” in (28) can move out of the VP and across the negative marker *bu*.<sup>5</sup>

(28) a. *wo shei dou bu xiang jian.*

I who all not want see  
“I want to see no one.”

b. *Zhangsan shenme dou bu chi.*

Zhangsan what all not eat  
“Zhangsan eats nothing.”

<sup>5</sup> Attention should be paid to *nar* “where” in Chinese which is treated as a pronoun (*An Applied Chinese Dictionary* (edited by Dictionaries Research Center of Commercial Press) Beijing: Commercial Press, 2000: 895); this is different from its equivalent in English, *where*, which is treated as an adverb.

- c. *Lisi nar dou bu qu.*  
 Lisi where all not go  
 “Lisi goes nowhere.”

Xu then argues that given the XP status of these moved quantifiers, (28) shows that *bu* is not in the specifier position of NegP; otherwise, relativized minimality effects would arise. This account, however, is not very convincing. We would like to discuss it from two aspects. First, if the fact that *bu* is in the specifier position of NegP does give rise to relativized minimality effects, it must mean that the wh-traces in VP, namely, traces of *shei*, *sheme* and *nar*, can only satisfy the ECP via antecedent-government. However, according to Ouhalla (1999:274), “object wh-phrases can satisfy proper government via antecedent-government or  $\theta$ -government or both...” That is to say, since the traces of *shei*, *sheme* and *nar* in (28) can satisfy proper government or  $\theta$ -government, the fact given by Xu in (28) cannot show that *bu* is not located in the specifier of NegP. Besides, even if traces of *shei*, *sheme* and *nar* in (28) could only satisfy proper government via antecedent-government, we still cannot say that *bu* is not in the specifier position of NegP. The negative element *bu* occupies a position which is an A'-position, to be specific, A'-specifier (see Hsiao 2002). However, according to Ting (2006), the preposing in (28) involves A-movement in nature.<sup>6</sup> Being not of the same type, *bu* does not qualify as a typical potential antecedent governor for the traces.

### 3 Functional Projections TP and AspP

In the previous section, we revisited one major empirical contribution of Pollock (1989). He proposes that the syntactic distribution of negative markers which follow the verb in I and precede the VP is not identical to that of the class of VP-adverbs. This observation leads to a major theoretical innovation, namely the proposal that negative markers be viewed as elements heading an independent syntactic category, whose semantic properties can be characterized as contributing an instance of negation to the clause. In this section, we will go on to discuss several other functional projections postulated later, and attempt to extend them to the analysis of Chinese syntactic structure.

#### 3.1 TP

Ever since the advent of the influential split-INFL hypothesis (Pollock 1989), numerous

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<sup>6</sup> “Notice that the three wh-words are all preposed in the *dou* construction. Under a well-adopted approach, e.g. Shyu, Shu-ing (1995), this is A-movement.”—Jen Ting, personal correspondence to the author, May 18, 2008.

functional projections have been proposed (Belletti 1990; Ouhalla 1991; Chomsky 1991; etc.). Among them the three most important are TP, NegP and AspP.<sup>7</sup>

Tense, which used to be a part of inflectional projection, has been generally recognized as heading its own projection TP under the split-INFL hypothesis (Pollock 1989; Belletti 1990; Chomsky 1991; Chiu 1993; Haegeman 1994; Bobaljik & Jones 1996; Radford 1997; Li 1999, 2007). Radford (2004:327) claims, in his simple model of clause structure, that “canonical clauses are CP + TP + VP structures.” Examples (27) and (28) in §2 have the derivation shown in (29) and (30) below respectively.

(29) a. John often kisses Mary.

b. DS: \*[TP John [T' T [VP often [VP kiss Mary]]]]

c. SS: \*[TP John [T' t<sub>i</sub> [VP often [VP [V [V kiss [T]] Mary]]]]]

d. LF: [TP John [T' [V [V kiss [T]] [VP often [VP t<sub>[V [V kiss [T]]</sub> Mary]]]]]

(30) a. John does not like Mary.

b. DS: [TP John [T' T [NegP [Neg' not [VP like Mary]]]]]

c. DoS: [TP John [T' [T] [do] [NegP [Neg' not [VP like Mary]]]]]

d. SS: [TP John [T' [T] [do] [NegP [Neg' not [VP like Mary]]]]]

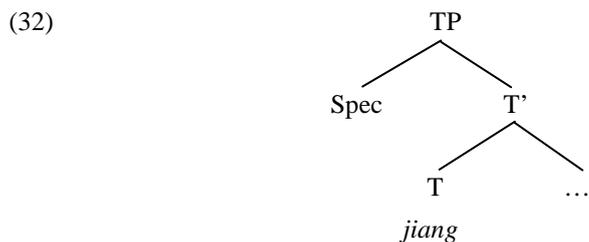
Though TP has been widely assumed to exist cross-linguistically, whether there is tense category in Chinese is still a pending question. The traditional view is that Chinese has no tense category (e.g. Wang 1943; Gao 1986; Li & Thompson 1981; C-T. Huang 1982; Lü 1999; etc.). However, many scholars advocate the existence of tense in Chinese (e.g. Zhang 1957; Dragunov 1958; Tsang 1981; Chiu 1993; Zhang 1998a-b). Although clauses in Chinese are not always overtly marked with tense, there are cases where overt markers are clearly present. As Li (2007:12) notices, “although overt tense markers can hardly be found in present or past tense, there does appear to be an element that serves to mark future events.” She proposes that the element *jiang* indicates future tense, and argues, “In spite of the fact that *jiang* does not normally appear in colloquial style to indicate a future event, it is used frequently to mark future tense in the formal register” (Li 2007:12). The following is an example cited from Li (2007:12):

(31) *zongtong jiang yu mingnian fang hua.*

President will at next year visit China

Following her, we therefore argue that there is TP in Chinese, with the subject in the position Spec, TP.

<sup>7</sup> Note that there are many others, such as Agr<sub>S</sub>P, Agr<sub>O</sub>P, MoodP, AuxP, etc. and there are even some that are Chinese-specific such as SuoP, DouP, BaP, etc. The reason I chose these three is in accordance with Zanuttini (2001, p.511), “Negative markers tend to occur in the same part of the structure as realizes other types of grammatical information, standard considered to be nucleus of the clause (e.g., tense and aspect).”

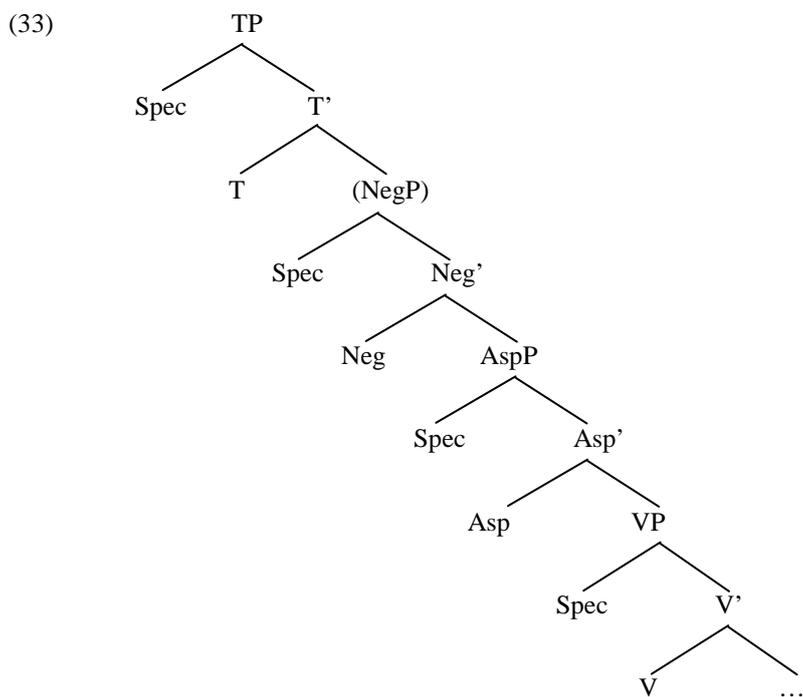


### 3.2 AspP

In this subsection we will deal with AspP. The existence of AspP has been demonstrated in many languages, e.g., in English (Ernst 1994) and Chinese (Chiu 1993; Li 1999, 2007; among others). However, many issues about Aspect still have much controversial. For instance, where are aspectual markers base-generated? How do they combine with the verb? In this subsection we will first look at the AspP in English, and then extend it to Chinese.

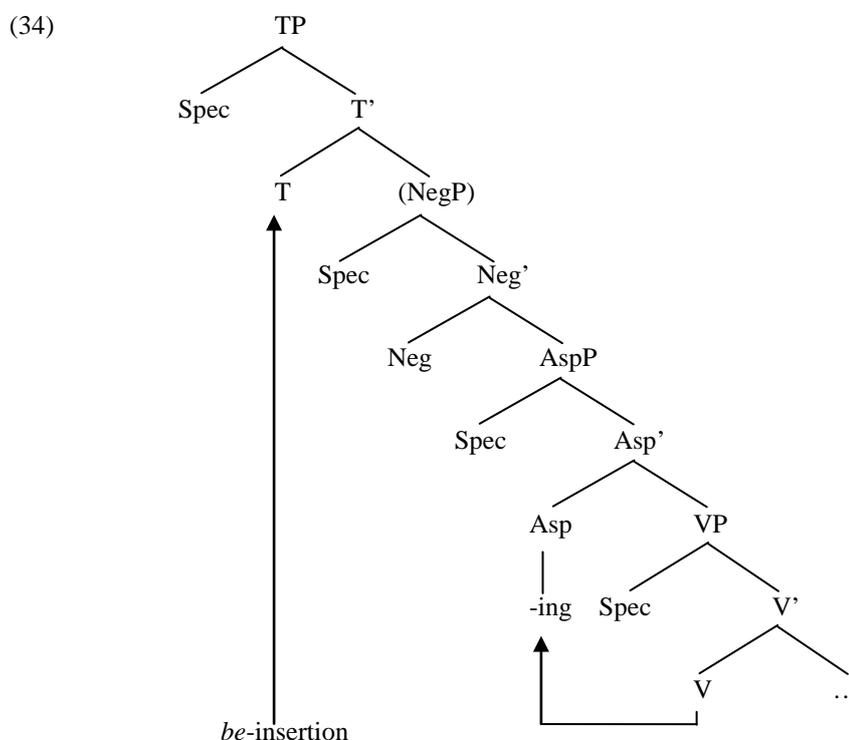
#### 3.2.1 AspP in English

Derivation in (29) and (30) involves only two functional categories, TP and NegP, but not AspP. Taking AspP into consideration, we will have a structure outlined in (33). We have NegP in parentheses to accommodate constructions which do not contain negative markers.



According to the tree diagram above, aspectual markers are base-generated under Aspect which heads AspP. That is to say, aspectual markers are base-generated higher than Verb. However, the proposal that aspectual markers are base-generated in the Asp node raises the question of how the aspectual markers which appear as suffixes of the verbs can be accounted for. Or how do the aspectual markers combine with the verb which is lower in the tree diagram?

Ouhalla (1991) distinguishes between progressive Asp and perfective Asp. The progressive Asp is formed by the verb in the lower position moving up to the higher Asp node to attach to the *-ing* form, forming a derived complex [V+Asp]. He suggests that the *-ing* form is a nominal element, [V-ing] complex is indeed nominal in nature, while *be* is inserted directly under T to support the stranded element occupying it, as shown below:

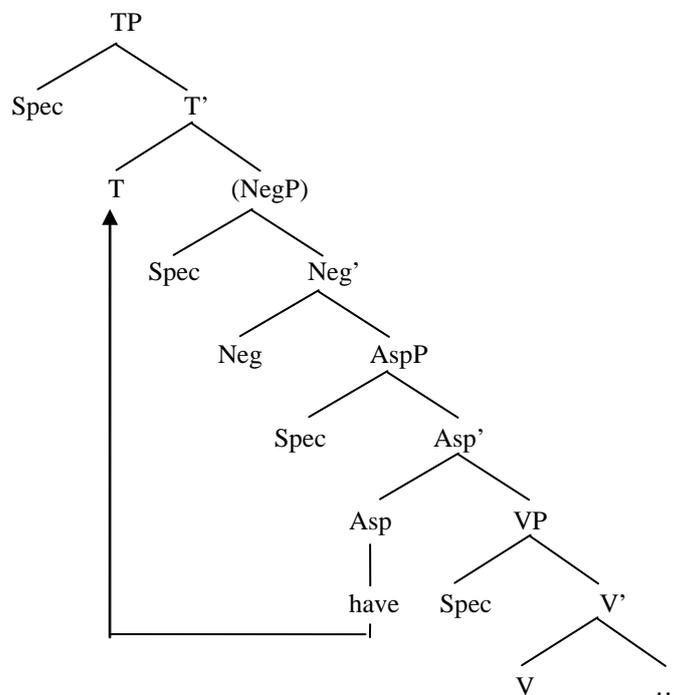


Assuming this to be the case, the structure and derivation of (21) in §2 will be outlined as in (35) below, where VR stands for Verb-raising, and BeI stands for Be-Insertion:

- (35) a. John is not reading a book.  
 b. DS: [TP John [T' T [NegP [Neg' not [AspP Asp [VP read a book]]]]]]  
 c. VR: [TP John [T' T [NegP [Neg' not [AspP [read] [Asp] [VP t<sub>read</sub> a book]]]]]]  
 d. BeI: [TP John [T' [Be] [T] [NegP [Neg' not [AspP [read] [Asp] [VP t<sub>read</sub> a book]]]]]]  
 e. SS: [TP John [T' [Be] [T] [NegP [Neg' not [AspP [read] [Asp] [VP t<sub>read</sub> a book]]]]]]

For the perfective Asp, Ouhalla (1991) assumes that *have*, which itself is an Asp element, is a verbal element base-generated under the Asp node. It moves to T, whereas the main verb remains in its D-structure position inside VP as in (36):

(36)



Then, the structure and derivation of (22) in §2 will be outlined as in (37) below, where HR stands for the have-raising:

(37) a. John has not read this book.

b. DS: [<sub>TP</sub> John [<sub>T'</sub> T [<sub>NegP</sub> [<sub>Neg'</sub> not [<sub>AspP</sub> [<sub>Asp</sub> have] [<sub>VP</sub> read a book]]]]]]]

c. HR: [<sub>TP</sub> John [<sub>T'</sub> [Have] [T] [<sub>NegP</sub> [<sub>Neg'</sub> not [<sub>AspP</sub> [<sub>Asp</sub> t<sub>have</sub>] [<sub>VP</sub> read a book]]]]]]]

d. SS: [<sub>TP</sub> John [<sub>T'</sub> [Have] [T] [<sub>NegP</sub> [<sub>Neg'</sub> not [<sub>AspP</sub> [<sub>Asp</sub> t<sub>have</sub>] [<sub>VP</sub> read a book]]]]]]]

### 3.2.2 AspP in Chinese

Compared with Tense, the postulation of the functional category of Aspect in Chinese is much less controversial. One strong empirical argument is that aspect is overtly expressed in Chinese. This subsection is divided into two. In the first one, we will discuss AspP in Chinese; and the second deals mainly with Chinese Asp-lowering.

#### 3.2.2.1 Aspects in Chinese

With respect to aspect, Chinese has a rich system of aspect. According to Lü Shuxiang

(1999:16), five aspects exist in Chinese: (a) progressive: *shuozhe hua*; (b) perfective: *shuole sangezi*; (c) experiential: *shuoguo zhejuhua* (d) delimitative: *ni shuoshuo, wo tingting*; (e) potential: *shuodeqing, tingbudong*. The *Encyclopedia of Linguistics* (Beijing: Encyclopedia of China Publishing House) (1994:145) holds the same view. Li and Thompson (1981), however, proposes that Chinese has four verbal aspects: (a) delimitative: reduplication of verb; (b) imperfective (duratives): *zai, -zhe*; (c) experiential: *-guo*; (d) perfective: *-le*<sup>8</sup>. In this section we will focus on Li and Thompson's four aspectual markers, namely, *-le, -guo, zai* and *-zhe*.

These four aspectual makers, according to Li (1999, 2007), are different in nature. Some examples from Li (2007:15-17) can make it clear (EXP: Experiential marker).

(38) a. *Lifan he le yi bei cha*

Lifan drink PERF a cup tea

“Lifan has had a cup of tea.”

b. \**Lifan he yi bei cha le*

Lifan drink a cup tea PERF

Intended reading: “Lifan has had a cup of tea.”

(39) a. *Lifan kan guo zhe ben shu*

Lifan read EXP this CL book

“Lifan has read this book.”

b. \**Lifan kan zhe ben shu guo*

Lifan read this CL book EXP

Intended reading: “Lifan has read this book.”

(40) a. *ta tou shang dai zhe yi ding hong maozi*

he head top wear PRO one CL red hat

“He was wearing a red hat on his head.”

b. \**ta tou shang dai yi ding hong maozi zhe*

he head top wear one CL red hat PRO

Intended reading: “He was wearing a red hat on his head.”

Examples (38-40) illustrate the fact that the three aspectual markers in Chinese, *-le, -guo* and *-zhe*, are required to follow the host verb immediately, with no intervening elements. This non-detachability of the aspectual markers from their host verbs suggests that they are suffixes. However, *zai*, is different, as in (41):

(41) a. *Lifan zai da dianhua*

Lifan PRO call telephone

<sup>8</sup> In this thesis, unless otherwise expressly noted, *le* refers to the verbal *le*, (or *le*<sub>1</sub>), which is almost undisputedly treated as the perfective aspect marker.

“Lifan is making a telephone call.”

b. *Lifan zai gei ta mama da dianhua*

Lifan PRO to his mother call telephone

“Lifan is making a telephone call to his mother.”

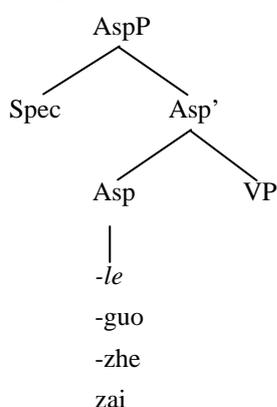
c. *Lifan zai yibian da dianhua yibian jilu*

Lifan PRO meanwhile call telephone meanwhile take notes

“Lifan was taking notes as he was making the phone call.”

(41) shows that *zai* precedes the verb, but it is not required to precede the verb immediately (*gei ta mama* “to his mother” is analyzed as an adjunct by Li). This indicates that *zai* should be treated as a particle. Following Chiu (1993) and Ernst (1995), we propose that AspP exists in Chinese. Aspectual markers are base-generated in the Head, Asp which selects VP as its complement. This can be represented as in the tree diagram below (Li 2007:18):

(42)



### 3.2.2.2 V-raising or Asp-lowering?

We suggested that the Chinese aspectual marker *zai* is a particle while the other three aspectual markers in Chinese, i.e., *-le*, *-guo* and *-zhe*, are suffixes; *zai* precedes the verb, while the other three follow immediately the host verb. However, the proposal that aspectual markers are base-generated in the Asp node raises the question of how the three aspectual markers, namely the perfective *-le* and *-guo* and the progressive *-zhe*, end up as suffixes of the verbs. Is that in the same as English?

In § 3.1, we assumed that English progressive Asp is formed by the verb in the lower position moving up to the higher Asp node to derive a complex [V+ing]. Does Chinese have the same mechanism? It seems that this is not the case; this is demonstrated when we take the following data (cited from Li (2007:20)) into consideration (De stands for the NP (or VP) modification marker).

(43) a. \**ta kan le zixi de zhe feng xin*  
 he read PERF careful De this CL letter

Intended reading: “He has read the letter carefully.”

b. \**ta kan guo zixi de zhe feng xin*  
 he read EXP careful De this CL letter

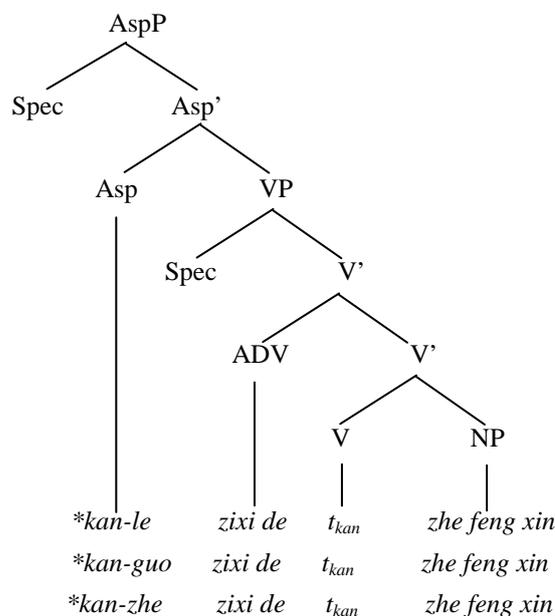
Intended reading: “He read the letter carefully.”

c. \**ta kan zhe zixi de zhe feng xin*  
 he read PRO careful De this CL letter

Intended reading: “He was reading the letter carefully.”

According to Tang (1990) and Ernst (1994), Chinese adverbs like *zixi de* in (43) are adjoined to V'.<sup>9</sup> Assuming this proposal is on the right lines, (43) must be derived by V-raising process, that is, the verb in the lower position moves up to the higher Asp node to form a derived complex [V+Asp], as is shown in diagram (44) (cited from Li (2007:20)):

(44)



Therefore, we conclude that V-raising (to Asp) is not applicable in Chinese. Then how can we account for the fact that the perfective *-le* and *-guo* and the progressive *-zhe* appear as suffixes of the verbs? Following Chiu (1993, Chapter 2) and Cheng (1997, Chapter 1), we assume that in Chinese, aspectual markers in the Asp head are lowered and right-adjoined to the verb at SS, deriving sentences in (45).

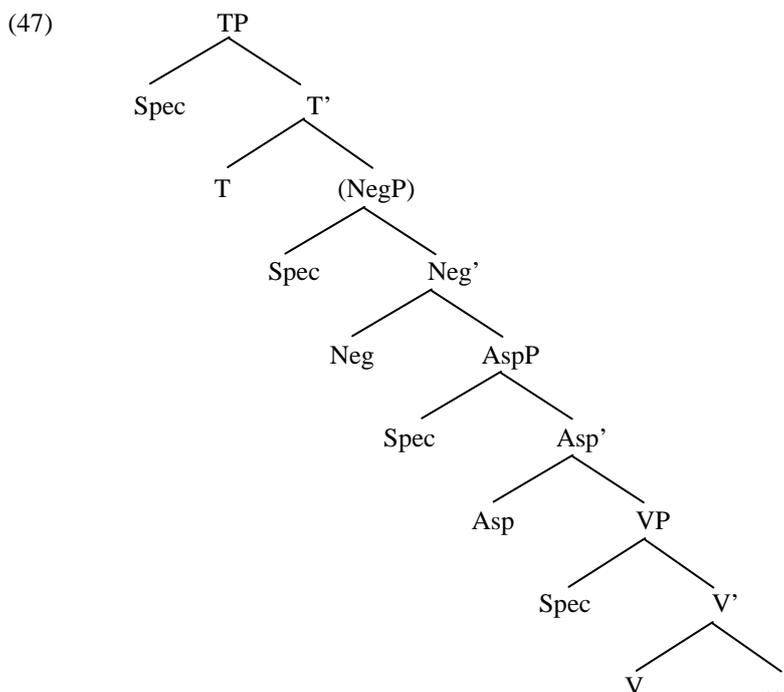
<sup>9</sup> In the literature, VP-adverbs are commonly used as a diagnostic for V-raising. It is also possible that *zixi de* is adjoined to VP, but here this makes no syntactical difference.



### 3.3 Hierarchy among TP, AspP and NegP and an account for the Asp-lowering

#### 3.3.1 Hierarchy among TP, AspP and NegP

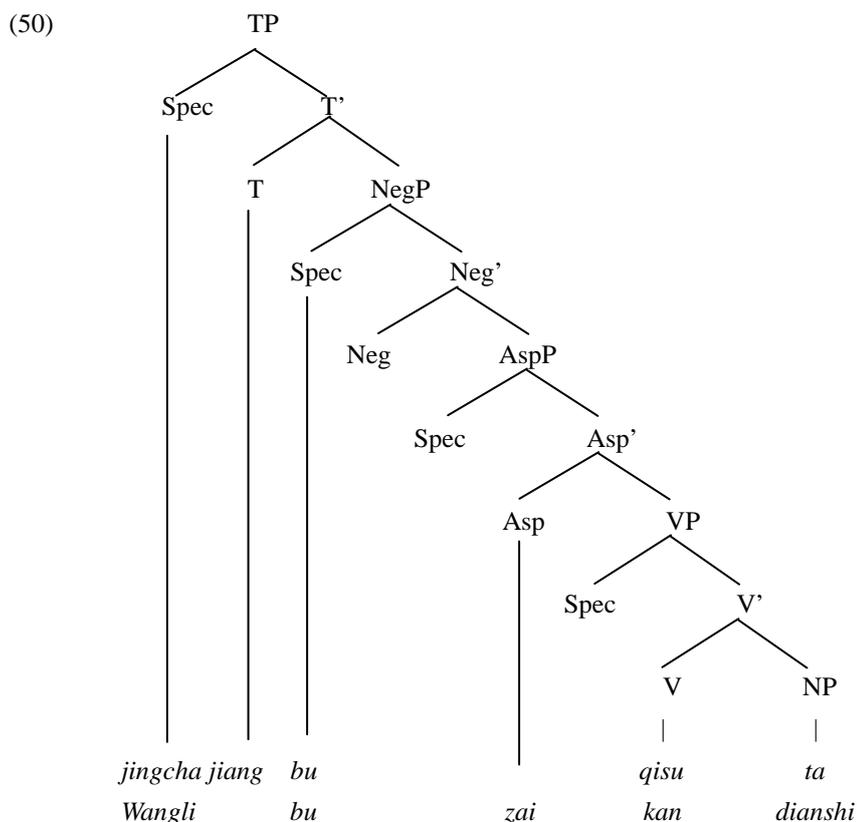
Three functional projections have been postulated in Chinese until now. They are TP, AspP and NegP. We argue that the hierarchy among them is in (47) below:



We propose that T heads its own projection and selects AspP as its complement when there is no negative marker *bu*. However, when there is the negative marker *bu*, T should select NegP (with the negative marker *bu* as its specifier) as its complement. This proposal is based on two empirical reasons: One is that the future tense marker *jiang* which fills the head position of TP is structurally higher than the negative marker *bu* which serves as the specifier of NegP, as in (48) from Li (2007:67); The other is that the negative marker *bu* is higher than aspectual marker *zai* which fills the head position of AspP, as in (49) From Li (2007:67). Their structures are shown in (50):

(48) a. *jingcha jiang bu qisu ta.*  
 police will not accuse him  
 "The police will not accuse him."

(49) a. *Wangli bu zai kan dianshi*  
 Wangli not PRO watch TV  
 "Wangli is not watching TV."



### 3.3.2 An account for the Asp-lowering

In §3.2.2.2, we proposed that aspectual markers in the Asp head are lowered and right-adjoined to the verb at SS. This gives rise to a potential ECP violation. How can we account for this? Recalling that in §2.1 and §3.1, we assumed that the ECP violation is obliterated through moving the whole [V+I] complex (to be more specific, [V+T] complex) up into the position of the starred trace at LF. The example is reproduced as (50).

- (50) a. John often kisses Mary.  
 b. DS: \*[TP John [T' T [VP often [VP kiss Mary]]]]  
 c. SS: \*[TP John [T' t<sub>i</sub> [VP often [VP [V [V kiss [T]] Mary]]]]]  
 d. LF: [TP John [T' [V [V kiss [T]] [VP often [VP t<sub>i</sub>[V [V kiss [T]] Mary]]]]]

Can we propose, in the same vein, the ECP violation be circumvented through moving the inflectional verbal complex [V+Asp] up into the position of the starred trace at LF? It seems that we cannot, because, as pointed out in Speas (1991), Ernst (1995) and Li (1999, 2007), such an approach, which allows lowering coupled with raising, reduces Baker's

(1985) Mirror Principle to near vacuity.

Confronted with this problem, Li (1999, 2007) retreats and resorts to Minimalist approach, proposing that verbs are generated fully fledged with aspectual suffixes, which are then get checked off at LF. This sounds appealing, but, as we decided at the beginning, we need to carry out our study in the framework of Government and Binding. We must, therefore, find a feasible approach to account for it. We will reconsider the ECP.

Empty Category Principle was not unchangeable. Many revisions have been provided ever since it was proposed, and different versions have been put forward. It seems that the one Li (1999, 2007) applies is from Chomsky (1986:17), “ECP states that a non-pronominal empty category must be properly governed,” where “proper government” is defined as, “ $\beta$  is properly governed by  $\alpha$  if it is governed by  $\alpha$  and a certain kind of connection holds between  $\alpha$  and  $\beta$ .” Chomsky understands this connection as “ $\alpha$  properly governs  $\beta$  iff  $\alpha$   $\bar{L}$ -governs or antecedent-governs  $\beta$ ”. Because the movement of Asp is a lowering movement, the trace left behind in the Asp node can’t be antecedent-governed. While the  $\bar{L}$ -government that Chomsky (1986:70) proposes is “ $\alpha$   $\bar{L}$ -governs  $\beta$  iff  $\alpha$  is a zero-level category that  $\bar{L}$ -marks  $\beta$ , and  $\alpha, \beta$  are sisters.” According to this definition, the trace can’t be  $\bar{L}$ -governed, either.

Since the trace left behind in the Asp node cannot satisfy ECP via neither  $\bar{L}$ -government nor antecedent-government, the version of ECP proposed by Chomsky (1986) should be abandoned in the present study. However, we find, in the literature, that the version of ECP put forward by Rizzi (1990) is just the one we are looking for. It is stated as (see Rizzi 1990:32):

(51) ECP: A non-pronominal empty category must be:

- (i) properly head-governed
- (ii) antecedent-governed or Theta-governed

Proper head-government is the first part that involves formal licensing, whereas the second part has to do with identification. This definition of the ECP thus can be simplified in such a way that only the first part is included, as in (52) (see Rizzi 1990:87):

(52) A non-pronominal empty category must be properly head governed.

How can we understand the proper head government? Rizzi (1990:31) defines proper government as “governed by  $X^0$  within X’,” making a distinction between specifiers and complements. The head-government, according to Anagnostopoulou and Fox (2007:6), can be defined as in (53):

(53) X head-governs Y iff

- (i)  $X \in \{\text{Adj, N, P, V, Agr, T}\}$
- (ii) X m-commands Y

- (iii) no barrier intervenes
- (iv) Relativized Minimality is respected

Kosmeijer (1992:93) interprets the idea of Rizzi's (1990) proper head-government, and defines it as in (54):

(54)  $\alpha$  properly head-governs  $\beta$  in  $\underline{\alpha}$  [ $\text{XP}$   $\beta$ ] if

- (i)  $\alpha$  and  $\beta$  are heads
- (ii)  $\beta$  is head of XP

Therefore, it is by no means venturesome now to say that, in affirmative sentences, the trace left behind in the Asp node by the moved head is properly head governed. The governor should be T, which heads its own projection TP and selects AspP as its complement. However, in negative sentences, when there is an intervening NegP, which is higher than AspP and lower than TP, nothing will properly head govern the trace left behind in the Asp node. As discussed in §2.2, the negative marker *bu* serves as the specifier of NegP (Spec,NegP), leaving the head Neg position of NegP null. Therefore, there is nothing head-governing the trace left behind in the Asp node. An ECP violation thus arises. We will discuss this in next section.

#### 4 The Negative Marker *bu* and Aspect

The relationship between Chinese negation and Aspect has long been of interest to Chinese linguists. Almost all the previous studies have unavoidably touched upon one fact, that is, the inability of the negative marker *bu* to occur with the perfective aspect marker *-le*. A relevant example is given in (55) (cited from Ernst (1995:666)):

- (55) a. *Wo chi le mugua.*  
 I eat PERF papaya  
 "I ate papaya."  
 b. *Wo bu chi mugua.*  
 I not eat papaya  
 "I do not eat papaya."  
 c. \**Wo bu chi-le mugua.*  
 d. *Wo mei-you chi mugua.*  
 I not-PERF eat papaya  
 "I didn't eat papaya."

In the literature, various proposals have been put forward to account for this. Careful study shows that none of them are very satisfactory. In this section, we first review the previous analyses, and then we will proceed to present our own explanation.

#### 4.1 Previous Analyses

All the studies of Chinese negation within the generative framework can all be divided into two types, namely, those with a non-NegP based approach and those with a NegP based approach. In the following subsection, six analyses will be reviewed, namely, Wang (1965), Huang (1988), Ernst (1995) and Lee and Pan (1999, 2001), from the first type, and Cheng and Li (1991) and Chiu (1993), from the second type.

##### 4.1.1 Non-NegP Based Approaches

Wang (1965) was the first one to analyze the pattern in (55) within the generative framework. He, in his well-known *you/-le* alternation transformational analysis, proposes an aspect marker *you* which precedes the verb in DS and the negative marker *bu* which precedes the aspect marker *you*. Rules are formulated to derive sentences marked with perfective *-le* and their negative counterparts. The two relevant transformation rules may be expressed informally as: (i) *you* is transposed to follow the verb and then changed to its alternate *-le* in the case of affirmative clauses, a movement later known as ‘affix-hopping’; (ii) *Bu* is changed to its allomorphic form *mei* in the case of negative clauses. These two transformation rules correspond to Wang’s T5 and T4, which are repeated here for those who are not familiar with the arguments.

T5: Condition: X -you (-guo) Y Verb Z

1 2 3 4 5

(-you (-guo) shift)

and: (i) 1 ≠ BU and 3 ≠ BU; (ii) 3 does not contain Verb; and (iii) if 5 = *le* (sentence particle), then (A), otherwise (B).

Change: (A) 1 3 4 (-guo) -le; (B) 1 3 4 -le 5

-guo (-le)

T4: Condition: BU -you X

1 2 3

(*mei* change)

and: (i) If 3 = # (sentence boundary), then only Change (A) is possible.

Change: (A) *mei* 2 3

(B) *mei* 3

As is pointed by Huang (1988), “Wang’s treatment seems to be an accurate description of an important pattern in Chinese grammar, though the very existence of this pattern remains to be explained.”

As a step toward a possible explanation of the ungrammaticality as (55c) illustrated,

Huang (1988) proposes Principle P. This has been the most influential principle until today (for discussions of it, see Ernst, 1995; Wible & Chen 2000; Lee & Pan, 1999, 2001; Lin 2003; Lin 2006; Li 1999, 2007; just to mention a few).

(56) Principle P

The negative morpheme *Bu* forms an immediate construction with the first  $V^0$  element following it.

According to Huang, “*bu* is locally (Chomsky)-adjoined to  $V^0$ ,” creating a negated  $V$ . Therefore, the relevant portion of the structure of (55c) is as follows:

(57)  $[[V^0 bu [V^0 chi]] le]$   
not eat PERF

This structure shows that *bu* is first attached to the verb *chi*, forming the negated  $V$  complex [*bu-chi*] to which the perfective *-le* is then attached. However, such a structure is bound to be ill-formed for semantic reasons: “it is absurd to assign the perfective *-le* to a negated verb, just as it is contradictory to assert the completion of some event that one says does not happen” (Huang 1988:284).

Huang also observes that there exist cases where *bu* can occur with perfective *-le*. The first case is illustrated in (58):

(58)  $[S tamen [INFL bushi][VP pian-le Lisi]]$ .  
they not-be cheat-PERF Lisi

“It is not the case that they cheated Lisi.” (Huang 1988:285)

In (58) the insertion of *shi* keeps the *bu* in INFL, and the result is a negated *shi* having scope over the entire VP containing *-le*. The use of preverbal *shi* thus has the effect of “do-support”, in preventing *bu* from being cliticized to the main verb in cases where this would lead to absurdity.

Huang’s account looks appealing as a possible explanation for the fact that the negative marker *bu* does not co-occur with the perfective marker *-le* as illustrated above. However, it has conceptual weakness as well as empirical problems.

First, as Lee and Pan (1999) argue, Huang’s proposal is based on a clitic assumption, which is conceptually problematic. “There is no strong evidence showing that clitics exist in Chinese.”<sup>11</sup>

Second, as Ernst (1995) points out, *bu* may occur separated from the verb, as is shown in (59). This is against the cliticization in Huang’s proposal: *bu* is base-generated as a bound form in the INFL node, required to be attached to an element in INFL or  $V^0$ .

<sup>11</sup> We believe that clitics exist in Chinese. However, *bu* should not be treated as a clitic. According to Hu (2007:110), “generally speaking, clitics cannot be stressed.” It is clear that *bu* can be stressed on many occasions.

(59) a. *Jinrong bu mashang huida.*  
 Jinrong not immediately answer  
 “Jinrong doesn’t answer immediately.”

b. *Tamen bu huxiang bang mang.*  
 they not each-other help busy  
 “They don’t help each other.” (Ernst 1995:672)

Last, as Ernst argues, Huang’s analysis depends crucially on *bu* being “forced by cliticization to take narrow scope with respect to perfective aspect since in the structure [*v bu V*] *-le* the negator and the verb must combine semantically before they combine with the aspect marker” (1995). That is to say, *bu* cannot extend its scope over *-le*. However, evidence shows that *bu* clearly takes scope over not just the verb but also other constituents:

(60) *ta bu xihuan shenme.*  
 he not like anything  
 “He does not like anything.” (Ernst 1995:647)

In (60), *shenme* ‘anything’ must be in the scope of negation in order to be licensed as a negative polarity item, thus the scope of *bu* cannot be restricted to the verbs as Huang’s analysis assumes.

Ernst (1995) suggests that the Chinese negative marker *bu* is an adverb in Spec,AUXP (i.e. Auxiliary Phrase) or Spec,VP. In order to exclude sentences like (55c), he claims that *bu* is a proclitic on the following word rather than a verbal clitic; and it aspectually requires an unbounded situation as its complement. This can be stated as in (61):

(61) a. *Bu* is a proclitic on the following adjacent word.  
 b. *Bu* requires aspectually an unbounded situation.

(61a) is put forward because there exist sentences that allow adverbials to appear between *bu* and verbs, as is shown in (59).

In line with Ernst’s proposal, the incompatibility between *bu* and *-le* results from a conflict between the unboundness requirement of *bu* and the boundness requirement of *-le*. That is to say, semantically, the aspectual situation signaled by the perfective *-le* is not compatible with the aspectual situation required by *bu*. Although Ernst’s analysis above seems reasonable, it has empirical problems:

First, *bu* should not be treated as a clitic as we discussed above.

Second, Ernst’s account for the syntactic distribution of Chinese negative markers is very complex, and its aspectual requirement is difficult to operate. For example, Lin (2003) argues that it fails to explain why the following unbounded situation marked with the progressive *-zhe* cannot be negated by *bu*.

(62) \* *ta bu tui-zhe yi liang jiaotache.*

he not push-Asp one CL bicycle

Intended reading: “He is not pushing a bicycle.” (Lin 2003:431:13c)

If we judge in accordance with (61b), (62) should be grammatical since the aspect marker *-zhe* semantically means unboundness, but the fact is that it is unacceptable.

Given the above problems with Huang’s and Ernst’s analyses, Lee and Pan (1999, 2001) suggest that the negative marker *bu* is a focus-sensitive operator and an unselective binder, while the perfective *-le* is a selective binder of event or situation variables.<sup>12</sup> They claim that within the negation domain of *bu*, there actually exist two tendencies in negation; namely, association with focus and the adjacency tendency, as in (63):

(63) Two Tendencies of Negation

Tendency 1: Negation of focus

The negator *bu* associates with the focus of the sentence.

Tendency 2: Adjacency tendency

The negator *bu* tends to negate the following word.

The two tendencies act complementarily to each other and which tendency comes into play is governed by an interpretation condition (IC), as stated below:

(64) The Interpretation Condition (IC)

The negator *bu* associates with the focus if there is one to its right, and thus introduces a tripartite structure; otherwise it negates the adjacent word.

The ill-formedness of sentence (55c) can then be explained by IC and the scope interaction between perfective *-le* and *bu*. As there is no focus in (55c), *bu* will negate the adjacent verb *chi* ‘eat’. Thus, *bu* takes a narrow scope with respect to perfective *-le*, as shown in (65), and the semantic representation of (65) is (66).

(65) \**-le (bu-chi mugua)*

(66)  $Le [Bu_e [Chi(e) \wedge Subject(e, wo) \wedge Object(e, mugua)]]$

From the representation shown in (66), we can see that *bu*, being an unselective binder, binds the event variable *e*. Since *e* is already bound by *bu*, there is no free event variable for *-le* to bind. Hence, this would lead to a violation of the Prohibition against Vacuous Binding, “an operator or a quantifier must bind a variable”.

Lee and Pan provide a better explanation for the ill-formedness of (55c) than Huang’s and Ernst’s analyses. However, some scholars argue against the two tendencies. For example, Hu (2007) argues that the two tendencies run into difficulty in explaining the

<sup>12</sup> Notice that in Lee & Pan, most examples allowing the co-occurrence of *bu* and the perfective aspect marker *-le* or the manner phrase are conditional sentences, which are beyond the scope of the present study.

following sentences:<sup>13</sup>

(67) \**ta bu [zai xuexiao] du le xiaoshuo.*  
 he not at school read PERF novel

(68) \**ta bu zai xuexiao du le [xiaoshuo]*<sup>F</sup>.  
 he not at school read PERF novel (Hu 2007:103)

In (67), *bu* negates the adjacent word, and in (68), *bu* negates *xiaoshuo* “novel”. Both of the two sentences should be grammatical, but in fact they are not.

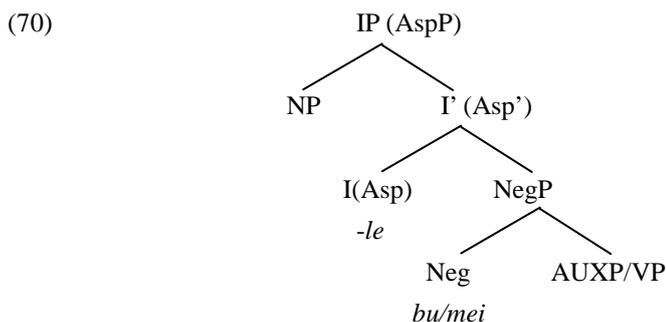
#### 4.1.2 NegP Based Approaches

As is mentioned above, ever since the proposal of the NegP hypothesis by Pollock (1989), many scholars also have extended this hypothesis to Chinese negation. Of them, the most frequently cited ones are Cheng and Li (1991) and Chiu (1993). They also show much interest in providing an explanation for the ill-formedness illustrated by (55c).

Cheng and Li (1991) were the first to extend the NegP hypothesis to Chinese. They suggest that the Neg morphemes *bu* and *mei* in Chinese are heads of NegP, projecting a structure essentially, and selecting either a VP or AUXP complement. This is shown in (69):



Their main arguments for this structure are based on the syntactic distribution between the negative elements *bu* and *mei*(*you*), and the apparent non-occurrence of *bu/mei* (*you*) and the perfective marker *-le*. The discussion goes like this: *-le* is the head of AspP, which is generated higher in the structure than NegP, while *you*, which often follows *mei*, is the head of an AUXP generated under NegP. The structure can be shown like (70):



To explain the example shown in (55c), they use “blocking effect” of the Neg head on the

<sup>13</sup> In fact, Hu argues against the two tendencies put forward in Lee and Pan (2005), but it is obvious that his argument also applies to argue against the two tendencies in Lee and Pan (1999, 2001).

lowering of *-le* onto V. *-le* is analyzed as the head of AspP, which is generated higher in the structure than NegP. Being a suffix, *-le* must be lowered down onto the verb, while the presence of Neg provides an intervening head, which blocks the lowering of the aspect marker (due to HMC).

This approach can explain the inability of *bu* to occur with the perfective aspect marker *-le*. However, it introduces many problems.

First, as argued in §2.2, it does explain the inability of *bu* to occur with the perfective aspect marker *-le*, but at the same time it excludes grammatical sentences like (71):

(71) *ni bu yinggai chi le pingguo.*

you not should eat PERF apple

“You shouldn’t have had an/the apple.”

Second, as noted by Ernst (1995), it fails to account for the experiential aspect illustrated in (72):

(72) a. *wo mei-you chi guo mugua.*

I not-PERF eat EXP papaya

“I haven’t eaten papaya.”

b. *\*wo bu chi guo mugua.*

I not eat EXP papaya

Intended reading: “I have not eaten papaya.”

(Ernst 1995:688)

Besides, Chao (1994) criticizes of Cheng and Li’s (1991) approach, too. He argues:

(i) There is a conceptual problem in putting Aspect above the projection for modal auxiliaries such as *hui* ‘will’. In languages that distinguish between tense and aspect elements morphologically, it is generally found that tense and modals are structurally higher than aspectual elements. However, *-le* is not a past tense marker, but an aspect marker. It should not be positioned higher than modal auxiliaries.

(ii) Empirically, if *-le* is base-generated higher than auxiliaries, then as a kind of head movement, *-le* lowering should respect the locality condition; however, the examples below show that this is not the case.

(73) a. *\*ta e yinggai le yijing lai.*

he e should PERF already come

b. *ta yinggai yijing lai le.*

he should already come PERF

“he should already have come.”

(Chao 1994)

Based on the interaction of *-le*, *-guo* and negative maker *bu*, Chiu (1993) suggests that *bu* is used when a non-past event or state is negated, while *mei(you)* is used to negate a past event. Non-past tense is not morphologically marked. Past tense is realized as *-le*, which is

base-generated in T, whereas *-guo* is base-generated in Asp. As to the explanation of the example shown in (55c), she also uses the “blocking effect” of the Neg head on the lowering of *-le* onto V. Assuming that *-le* is in the Tense node, the ill-formedness in (55c) is accounted for naturally.

This analysis, as observed by Li (1999, 2007), though appeals at the outset, involves many problems. First, it is obvious that *-le*, which is widely accepted as a perfect aspect marker, should be treated as past tense marker. This is especially true when we take (74) into consideration.

(74) *mingtian wo jiu kaichu le ta.*  
tomorrow I then expel PAST him

“I will expel him tomorrow.” (Li, 2007: 11)

Furthermore, in her analysis, Chiu claims that *bu* is used when a non-past event or state is negated, while *mei(you)* is used to negate a past event. This is obviously problematic, as illustrated in (75a) and (75b) respectively:

(75) a. *qunian wo bu hui jiang yingyu.*  
last year I not can speak English

“I could not speak English last year.”

b. *mingtian zhe shihou wo hai mei xiaban.*  
tomorrow this time I yet not finish working

“I will not have finished work this time tomorrow.”

According to Chiu, the temporal adjunct *qunian* “last year” in (75a) indicates past time and it should exclude the appearance of *bu*. While future time *mingtian* “tomorrow” in (75b) is semantically incompatible with *mei*. The two sentences are grammatical.

Some other important works account for the syntactic distribution of *bu* in terms of its aspectual selection, such as Lin (2003), Su (2007) and Li (1999, 2007). It is a pity that due to the limitation of space, we have to stop at this point to present our own explanation.

## 4.2 Our Analysis

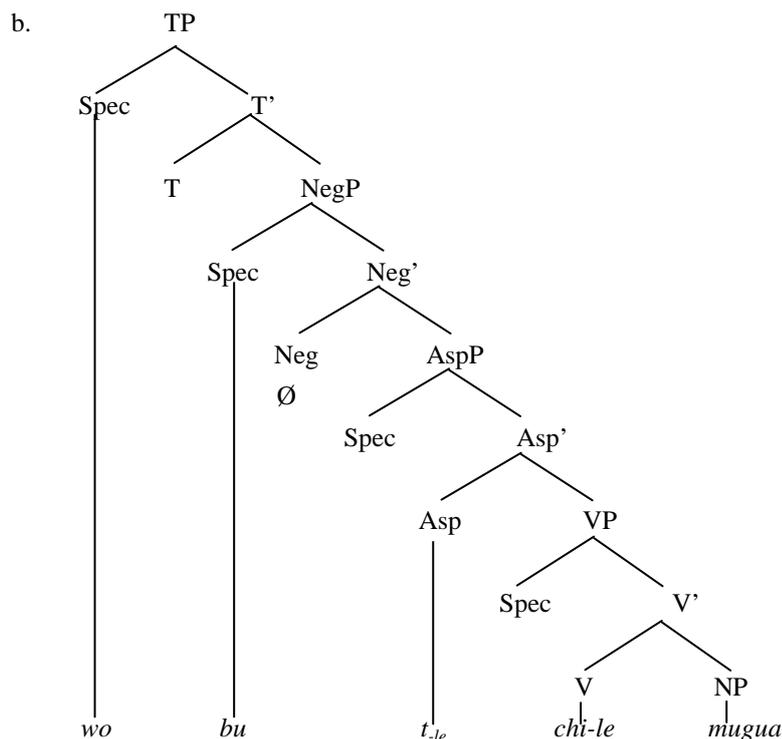
In §4.1, we reviewed various explanations of the incompatibility of *bu* and *-le*. Although a number of principles have been put forward to account for this incompatibility, but none of them seem very satisfactory. In this subsection, we will argue that the TG framework also provides an explanation, which can better explain this incompatibility.

As discussed in §3, Chinese is a language allowing Asp-lowering. The trace left behind in the Asp node by the moved head is properly head governed by T when there is no NegP intervening. However, when there is a NegP intervening, an ECP violation will arise.

Because the Chinese negative marker *bu* serves as the specifier of NegP (Spec,NegP), leaving the head Neg position of NegP null, nothing therefore head-governs the trace left behind in the Asp node. Assuming this analysis to be on the right lines, how can we account for the ill-formedness shown in (55c)? To make our explanation more explicit, we will represent (55c) in a tree diagram, as in (76):

(76) a. \**Wo bu chi le mugua.*

I not eat PERF papaya



As the tree diagram shows, the perfect aspect marker *-le* is base-generated in the head position of AspP, which is higher than the VP containing *chi*, onto which *-le* is lowered. The lowering process leaves a trace behind in the Asp node. This trace must be licensed, i.e., must satisfy ECP. In affirmative sentences, it can satisfy ECP via proper head government by T, which is essential<sup>14</sup>. However, in negative sentences, there is a NegP intervening between TP and AspP. Because the Chinese negative marker *bu* serves as the specifier of NegP, as is shown in §2.2, its head Neg is left empty<sup>15</sup>. Nothing head-governs the trace left

<sup>14</sup> According to Chomsky (2000), the core functional categories are C, T and v, and in note 6 of Chomsky (1999) he indicates that for expository purposes he use T and C as cover terms for a richer array of functional categories, as in MI. Zanuttini (2001) also considers T to be nucleus of the clause.

<sup>15</sup> We must emphasize that the emptiness of Neg here should be of a different nature from that of T. T is not empty in fact; it is covert; while Neg is empty overtly and covertly, otherwise, it can be crossed

behind in the Asp node, and ECP violation thus arises. Therefore (55c) is excluded.

It seems that the ill-formedness arises only when the trace left behind in the Asp node is not properly head governed. Assuming this assumption to be on the right line, the question we still need to answer is: Can we avoid the problems involved in the previous analyses? To answer this, we will examine all the other relevant facts mentioned above, namely, example (49) from §3, examples (62), (71), (72b) in the present section. They are reproduced in (77-80).

(77) *Wangli bu zai kan dianshi*

Wangli not PRO watch TV

“Wangli is not watching TV.” (Li 2007: 67)

(78) \**Ta bu tui zhe yi liang jiaotache.*

he not push Asp one CL bicycle

Intended reading: “He is not pushing a bicycle.” (Lin 2003:431)

(79) *ni bu yinggai chi le pingguo.*

you not should eat PERF apple

“You shouldn’t have had apple.”

(80) \**wo bu chi guo mugua.*

I not eat EXP papaya

Intended reading: “I have not eaten papaya.” (Ernst 1995:688)

Since the Chinese negative marker *bu* is in Spec,NegP, the explanations for (77), (78) and (80) are very simple now. (77) does not involve Asp-lowering (*zai* is a particle, §3.2.2.1), and there is no ECP violation involved at all. (78) and (80) are excluded on the same grounds as (76): lack of proper head government leads to ECP violation. (79), however, seems different. It involves an AUXP which we have not discussed until now. We need to consider AUXP first before we can give an explanation. First look at two sentences: (81) a. She may not be enjoying syntax.

b. She is not enjoying syntax. (Radford 2004:167)

In (81a), *not* occupies the head position of NegP, and the modal auxiliary *may*, which is higher than *not*, should occupy the head position of TP. We assumed that in English the verb raises from V to the higher Asp node to derive a complex [V+ing] (§3.2.1). That is to say, *enjoying* occupies the head position of AspP; *be* therefore must occupy some intermediate position between the NegP and AspP. Since *be* is an auxiliary verb, we suppose that *be* in (81a) occupies the head position of an AUXP. Then (81b) can be analyzed as follows: *be* originates as the head of AUXP, but moves from AUX to T. This is

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by the *suo* (Ting 2006; see also the discussion in §2.2). However, the T cannot be crossed like that although it is covert.

shown in (82-83) below:

(82) [CP [C Ø] [TP She [T may] not [AUXP [AUX be] [AspP [Asp enjoying [VP [V t<sub>enjoy</sub>] syntax]]]]]]

(83) [CP [C Ø] [TP She [T be] not [AUXP [AUX t<sub>be</sub>] [AspP [Asp enjoying [VP [V t<sub>enjoy</sub>] syntax]]]]]]

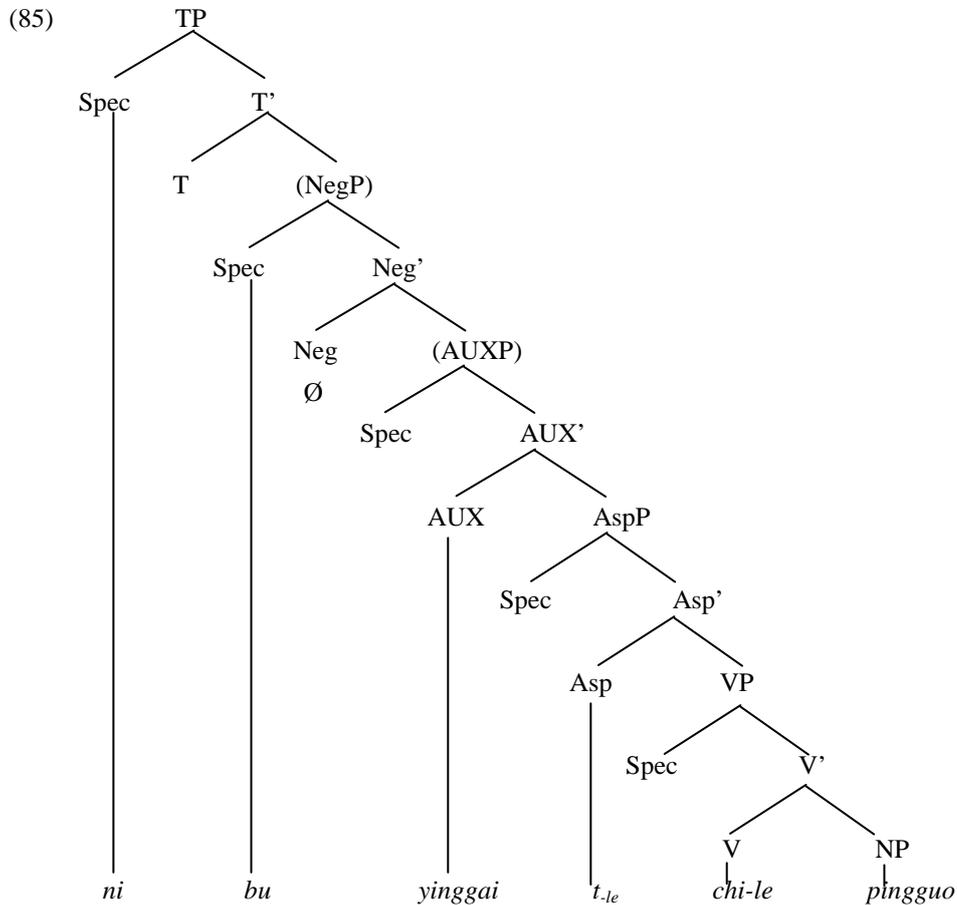
The different between (81a) and (81b) can be mirrored by the perfect auxiliary *have* in (84):

(84) a. He may not have done it.

b. He has done it. (Radford 2004:167)

The head T position of TP in (84a), according to Radford (2004), is occupied by *may* and the head V position of VP by *done*. Hence the infinitive form *have* must occupy some position intermediate between the two, namely, the head of AUXP.

Suppose that an AUXP also exists in Chinese, as in (85) (We put AUXP in parentheses to accommodate constructions which do not contain auxiliaries):



With this assumption, the phenomena illustrated by (77-84) can be explained naturally. As a

modal auxiliary verb<sup>16</sup>, *yinggai* “should” must occupy the AUX position which heads AUXP. Since the affix hoping (Asp-lowering) must be local, the AUXP can only be positioned higher than AspP. Then the perfect aspect marker *-le* is lowered onto *chi* in VP, leaving a trace behind in the Asp node, which is properly head governed by *yinggai* in AUX, therefore it satisfies ECP.

This analysis also enables us to predict that if there is a modal auxiliary verb in AUX properly head governing the trace left behind in the Asp node, the sentence should be well-formed. The following examples demonstrate that our prediction is right.

(86) *ta bu yinggai tui zhe yi liang jiaotache.*  
 he not should push Asp one CL bicycle  
 “He should not be pushing a bicycle.”

(87) *wo bu yinggai chi guo mugua.*  
 I not should eat EXP papaya  
 “I have not eaten papaya.”

(88) *Wangli bu yinggai zai kan dianshi*  
 Wangli not should PRO watch TV  
 “Wangli should not be watching TV.”

Some readers may argue that to place AUXP lower than NegP will run into difficulty in explaining sentences such as the following (from Li 2007:280):

(89) *ta yinggai bu qu faguo*  
 he should NEG go France  
 “It should be obligatory for him not to go to France.”

(90) *ta hui bu qu faguo*  
 he will NEG go France  
 “It is possible that he will not go to France.”

(91) *ta keyi bu qu faguo*  
 he may NEG go France  
 “It is permissible for him not to go to France.”

(92) *ta neng bu qu faguo*  
 he can NEG go France  
 “It is permissible for him not to go to France.”

(93) *ta bixu bu qu faguo.*  
 he must not go France

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<sup>16</sup> There has been no standard list of modal auxiliary verbs in Chinese. According to Yuen-Ren Chao (1968), Li & Thompson (1981), Tsang (1981), etc., there are at least five. They are *yinggai* “should”, *hui* “will”, *keyi* “may”, *neng* “can”, *bixu* “must”.

“He must not go to France.”

The modals in (89-93) obviously have wide scope with respect to negation whereas *yinggai* in (85-88) has narrow scope with respect to negation. How can we account for that? According to Roberts (1998), wide-scope modals (like *must* in English) are directly generated in T, whereas narrow-scoped modals (like *need* in English) are initially generated in some position below T (perhaps the head position of AUXP). In accordance with his proposal, we argue that *yinggai*, *hui*, *keyi*, *neng* and *bixu* in (89-93) should be base-generated in T, while *yinggai* in (85) is base-generated in AUX. With this assumption, we can easily explain the properties of (89-93), both syntactic and semantic. For lack of evidence, we will not go on to pursue this question here.<sup>17</sup>

## 5 Understanding *meiyou*

As is mentioned previously, Chinese Grammarians have identified quite a number of negative markers. Primarily, only two are in common use, *bu* and *mei*. *Bu*, as is shown, may precede all predicates with the exception of the item *you*, which, as a lexical and an aspectual auxiliary, is exclusively negated by the negative marker *mei*. In contemporary Chinese, *mei* and *meiyou* have hardly any difference in meaning. From §2 to §5, we focus mainly on *bu*. This section deals with *meiyou* exclusively. We will first review the previous analysis, and then we present our own analysis.

### 5.1 Previous Analyses of *mei(you)*

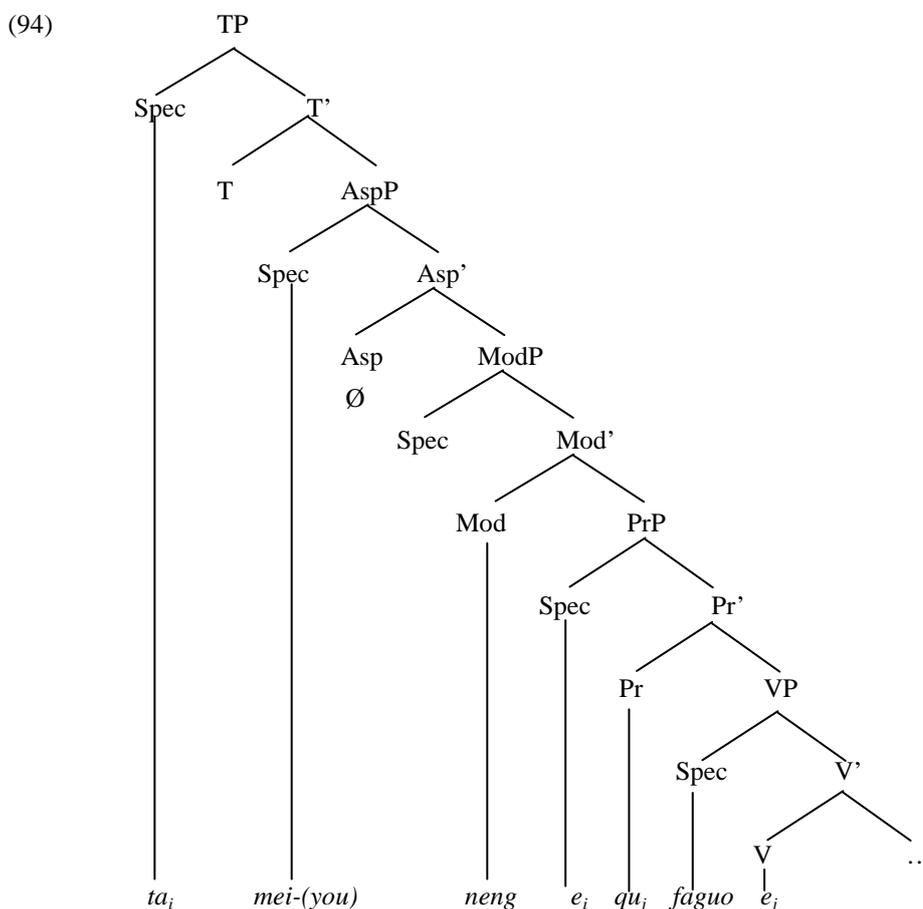
In the literature, *mei(you)*<sup>18</sup> has been discussed by many scholars. The most well-known discussion is Wang (1965)'s *you/-le* alternation transformational analysis, which we discussed in §4.1.1.1.

Some other proposals have been put forward by other scholars. For example, Cheng and Li (1991) suggest that *mei(you)* heads NegP, and *mei* is an alternant of *bu*; Chiu (1993) argues that NegP is headed by *bu* and *mei*; Ernst (1995) treats *mei* as a prefix realizing [+NEG] on *you*; Li (1999, 2007) proposes that *mei* is a prefix to *you*, which is base-generated under Asp<sup>0</sup>. Since Cheng and Li (1991) and Chiu (1993)'s analyses are much the same as Wang's, which we discussed in §4.1.1.1, here we will discuss only Li's.

<sup>17</sup> Actually, an anonymous expert has pointed that the claim that modals are located in T position will be considered a stipulation and this inconsistency weakens the argument of this paper. He/She suggests that the authors take into account the cartographic approach (Rizzi1997, 2004, Cinque 1999, Bulter 2003, etc.).

<sup>18</sup> Following tradition, we put *you* in brackets to indicate that *you* can be either overt or covert. In this thesis, we assume that the covert *you* is only covert phonetically, but not syntactically.

Li (1999, 2007) treats *you* as an aspectual marker, and *mei* as a prefix base-generated on *you* under Asp. This is shown in (94) from Li (2007:281) (PrP stands for Predicate Phrase):



However, she proposes that *zai* is also under Asp (Li 2007:18). If her assumption is right, (95) must be problematic.

(95) *wo mei(you) zai kan dianshi.*

I not (have) PRO watch TV

“I was not watching TV.”

A even worse problem may also arise from her proposal that modals occur below AspP (Li 2007:281). This gives rise to the wrong prediction illustrated by (96):

(96) *\*ta zai keneng kan dianshi.*

He PRO may watch TV

Intended reading: “He may be watching TV.”

In order to avoid the problem (95) illustrates, we should not treat *you* as an aspect marker;

and to avoid problem in (96), modals should be higher than AspP.

## 5.2 Our Analysis of *mei*(*you*)

We follow Wang (1965), treating *mei* as the alternant of *bu* before *you*.<sup>19</sup> This view has been accepted widely (e.g. Huang (1988), Cheng and Li (1991), Chiu (1993), Liu (2005)).

In order to thoroughly understand *mei*(*you*), we have to discuss *you*. Two types of *you* can be distinguished. First *you* can act as a lexical verb conveying both possessive and existential meanings. This is shown in the following examples (cited from Li (2007:48)):

(97) *Weifang you qian.*

Weifang has money.

“Weifang has money.”

(98) *zhuozi shang you yi ben shu.*

table surface have one CL book.

“There is a book on the table.”

Second, *you* acts as an auxiliary verb. The occurrence of *you* as an auxiliary is restricted to negative clauses in standard modern Chinese where it is obligatorily negated by the negative item *mei*.

A further distinction should be made between two kinds of *you* as auxiliary verb: The first type is *you* as an aspectual auxiliary verb, with aspectual meaning, as in (99), where there are no aspectual markers such as *-le*, *-guo*, *-zhe* and *zai*; the second type is *you* as a pure auxiliary verb (or structural auxiliary verb), without aspectual meaning, as in (100), (101) and (102), where there are aspectual markers such as *-guo*, *-zhe* and *zai*, but not *-le*.<sup>20</sup>

(99) *wo mei(you) kan dianshi.*

I not (have) watch TV

“I did not watch TV.”

(100) *wo mei(you) kan guo dianshi.*

I not (have) watch PERF TV

“I have not watched TV.”

(101) *wo mei(you) kan zhe dianshi.*

I not (have) watch PRO TV

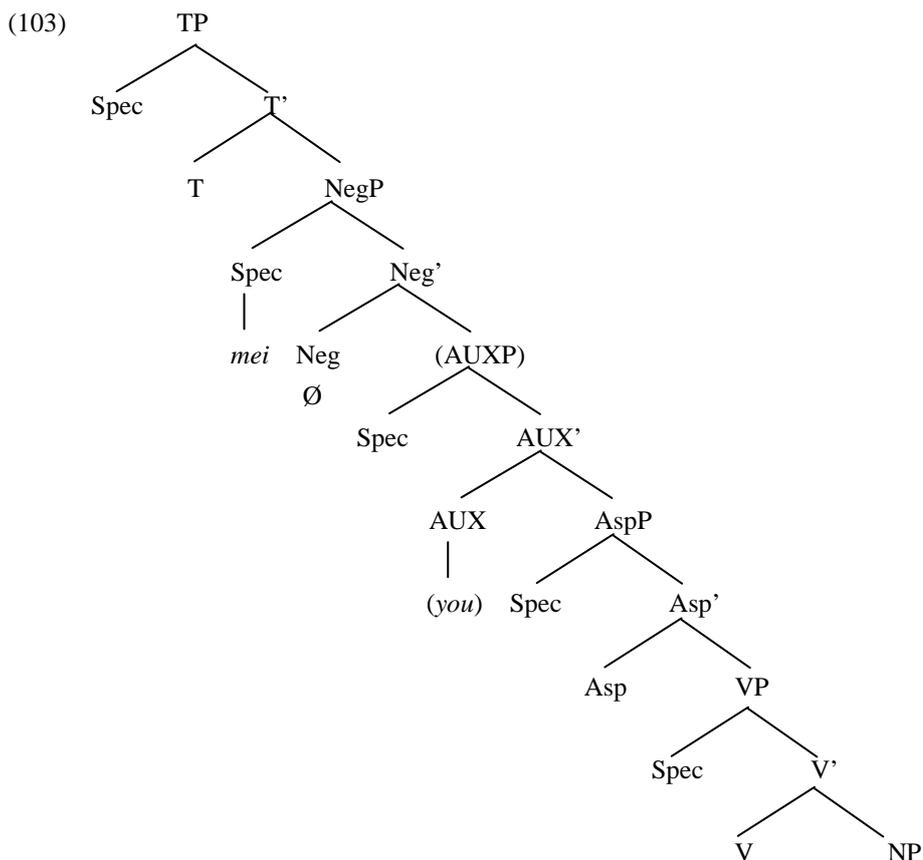
“I was not watching TV.”

<sup>19</sup> Attention should be paid that *mei* and *bu* have different origins, according to Shi (2001).

<sup>20</sup> Almost all the previous studies distinguish only the lexical verb *you* and the aspectual auxiliary verb *you*. This will mislead the reader to take *you* in (7), (8) and (9) as an aspectual marker. Actually, the aspects of (7), (8) and (9) are not determined by *you* (which is a perfective aspect marker), but by *guo*, *zhe* and *zai* respectively. This is especially true in (8) and (9), where the aspectual markers *zhe* and *zai* do not co-occur with perfective aspectual marker *le*.

- (102) *wo mei(you) zai kan dianshi.*  
 I not (have) PRO watch TV  
 ‘‘I was not watching TV.’’

Obviously, the first type of *you* is simple, because here *you* is just a common verb, occupying the head of VP in the tree diagram. However, the second type of *you* is complex, because *you* here is an auxiliary verb, occupying the head of AUXP. A structural analysis of *mei(you)* (when *you* is an auxiliary verb) is shown as in (103):



This structure can explain (99-102) naturally. In (99) and (102), no Asp-lowering is involved, and no ECP violation arises. (100) and (101) involve Asp-lowering, but the traces left behind in the Asp node are properly head governed by *you* in AUX.

We may notice that the perfective aspect marker *-le* is not only incompatible with *bu*, but also with *mei(you)*. This is shown in (104).

- (104) \**ta mei(you) kan le dianshi.*  
 he not (have) watch PERF TV  
 Intended reading: ‘‘He did not watch TV.’’

How can we account for this? According to Cinque (1999)'s UBH<sup>21</sup>, the functional head can be realized in several possible ways, at least two. For example, tense can be realized as the bound affix on the verb, or as the independent tense element (like the auxiliary). Then we can assume, in accordance with the usual practice of traditional linguists, that *-le* is the bound affix form expressing perfective aspect and *you* is the auxiliary form expressing perfective aspect. In one sentence we cannot have two candidates to be the potential realization for one functional head.<sup>22</sup>

### 5.3 *mei*(*you*) and Modals

It seems that *mei*(*you*) is incompatible with modals.<sup>23</sup> Consider the following examples (Cited from Li (2007:278-9)):

- (105) \**ta mei yinggai qu faguo*  
 he not should go France  
 Intended reading: "He shouldn't go to France."
- (106) \**ta mei hui qu faguo*  
 he not will go France  
 Intended reading: "He will not go to France."
- (107) \**ta mei keyi qu faguo*  
 he not may go France  
 Intended reading: "He may not go to France."
- (108) \**ta mei bixu qu faguo*  
 he not must go France  
 Intended reading: "He must not go to France."

With our structural analysis of *mei*(*you*) in (103), *mei* is placed at Spec, NegP, and the auxiliary verb *you* heads AUXP. The ungrammaticality of these examples is easy to explain. Since the head of AUXP is occupied by *you*, it is impossible for other auxiliaries to appear in the AUX. However, if we consider more sentences, we find some counterexamples. One

<sup>21</sup> Universal Base Hypothesis, that is, all languages have the same fundamental hierarchical structure at the clausal level, and that every clausal projection in this hierarchy is necessarily associated with a semantic interpretation. This proposal is consistent with the view that the syntactic level of LF is itself universal in nature, since it provides systematic input to a universal interpretive component. In its weakest formulation, this view is based on the plausible assumption that the formal aspects of grammatically-encoded semantic interpretation are universal in nature.

<sup>22</sup> This fact is accounted for by Wang (1965) in terms of "affix-hopping", which obligatorily shifts a base-generated *you* to a postverbal position in affirmative contexts (followed by a morphophonemic rule of *you* → *-le*) but is blocked otherwise.

<sup>23</sup> Here we limit our discussion to the modals that follow negation. There are still occasions where the modals precede negation. We do not discuss this here. See some explanation in §4.2.

example from Li (2007:279) is reproduced in (109):

(109) *ta mei neng qu faguo*

he not can go France

“He was not able to go to France.”

As illustrated in (109), *mei(you)* is found to be compatible with the modal *neng*. The problem presented in (109) seems to have aroused little attention in the research field of Chinese linguistics. There is a mention without discussion of the compatibility of *mei(you)* with *neng* as an exceptional case in Cheng, Huang and Tang (1996:46, (iii) of Footnote. 3), as well as in Li (2007:279). We do not pursue this question here, either.

## 6 The Negative Marker *bu* and Postverbal Adjuncts

Concerning the negative marker *bu*, two facts are in focus. They are:

(i) inability of the negative marker *bu* to occur with the perfective aspect marker *-le*.

(ii) incompatibility of *bu* and the manner phrase in the V-*de* construction.

As is explained, the first one can be explained simply by proper-head government in the framework of GB. In this section, we will go on to discuss the second fact.

### 6.1 Previous Analyses

Consider two sentences from Huang (1988:274):

(110) *wo pao de hen kuai.*

I run DE very fast

“I run very fast.”

(111) *tamen tiao de hen lei.*

they jump DE very tired

“They jumped till they got very tired.”

According to Huang, sentences like (110) are traditionally referred to as Descriptive Complement Constructions, and those like (111) are Resultative Complement Constructions. Negative forms of these kinds of sentences are shown in (112) (Huang 1988:278):

(112) a. *tamen pao de bu kuai.*

they run DE not fast

“They don’t run fast.”

b. *\*tamen bu pao de kuai.*

they not run DE fast

As is shown, *bu* is incompatible with the manner phrase in the V-*de* construction. Therefore,

the negative form of these kinds of sentences must be constituent negation<sup>24</sup>, as shown in (112a), in contrast with sentential negation. Why do these kinds of sentences permit (112a), but not (112b)? In other words, why is the negative marker *bu* incompatible with the manner phrase? Previous studies have put forward many hypotheses. In this subsection, we will review some of these studies.

Huang (1988) proposed Principle P (§4.1.1.2) to account for the incompatibility of the negative marker *bu* and postverbal adjuncts. When Principle P is applied to (112b) above, it would be analyzed as having the structure in (113):

(113) \**ta* [[*bu pao*] *de hen kuai*]

The structure in (113) shows that *bu* is adjoined to the verb, but at the same time the descriptive expression has wide scope over the negative verb. However, this structure results in a semantic anomaly: someone is slow with respect to some event, but, at the same time, the sentence presupposes the non-existence of the relevant event. Therefore, the sentence is ruled out for semantic reasons (Huang 1988, p284).

In Huang's analysis, *bu* is assumed to be base-generated in an INFL node. When *bu* is adjoined to an element in INFL before the verb, the negated element in INFL may have wide scope over the entire VP, shown as follows (cited from Huang (1988:285)):

(114) a. *ta mei-you pao de hen kuai.*

he not-have run DE very fast.

“He did not run fast.”

b. *ta bu-shi pao de hen kuai.*

he not-be run DE very fast

“It is not the case that he runs fast.”

c. *ta bu-hui pao de hen kuai.*

he not-will run DE very fast

“He will not run fast.”

As observed by Ernst (1995) and Li (1999, 2007), Huang's account appears to be attractive as a possible solution for the question under discussion, but it runs into several problems, both empirically and conceptually.

First, in Huang's theory, *bu* is a negative morpheme in INFL, which must be attached to an element in INFL or V<sup>0</sup>. However, (115) provides a counterexample:

(115) *wo bu zongshi pao de kuai.*

I not always run DE fast

<sup>24</sup> In accordance with Teng (1974), sentential negation is generated through phrase structure rules, whereas constituent negation is specified in the lexicon. Here, we made this judgment simply because *bu* in (3a) is not contained within NegP (if it is, *bu* should be placed before *pao* as in (3b)).

“I do not always run fast.”

Second, it is assumed that when *bu* is adjoined to V, it has narrow scope over V only. In the same vein, when *bu* is attached to an element in INFL, we would expect it also to have narrow scope over the element in INFL only; but it does not. Consider example (116):

(116) *wo conglai bu deng hen jiu.*

I ever not wait very long

“I never wait for long.”

In (116), clearly *bu* cannot just take narrow scope over V, because what is negated is not the verb itself, but the VP *deng hen jiu* “wait for long”.

Ernst (1995) proposes that “*bu* is a proclitic on the following word” to account for the second fact. Consider the following sentences from Ernst (1995:666)

(118) a. *ta jiang de (hen) qingchu.*

he speak DE very clear

“He speaks clearly.”

b. \**ta bu jiang de (hen) qingchu.*

he not speak DE very clear

Intended reading: “He does not speak very clearly.”

c. *ta jiang de bu (hen) qingchu.*

he speak DE not very clear

“He doesn't speak clearly.”

Ernst assumes that “at DS while preverbal manner expressions are of the form [AP *de*], their postverbal variety is of the form [*de* AP]” (Ernst 1995:677). Since *de* in [AP *de*] is cliticized to the preceding AP, thus satisfying the morphological requirement, no movement is necessary. On the contrary, since *de* in [*de* AP] is not yet cliticized to a preceding element, it must postpose to meet its morphological requirement. Based on this assumption, Ernst (1995:667) explains the ill-formedness of (118b) by proposing that “the manner adverbial can only be generated between *bu* and the verb and must move to postverbal position, leaving a trace.” Therefore, this trace blocks cliticization, violating (118b).

Ernst’s morphological approach looks appealing. However, serious problems exist. The main problem with Ernst’s approach lies with the assumption of the base position of adjuncts. In Ernst’s proposal, preverbal manner expressions are of the form [AP *de*] and their postverbal counterparts are of the form [*de* AP], but both of them are generated to the left of the verb. In fact, they are fundamentally distinct. Consider (119):

(119) a. *ta pao de hen man. → ta hen man de pao.*

he run DE very slow      he very slow De run

- “He runs very slowly.” “He runs very slowly.”  
 b. *yifu xi de hen ganjing.* → *\*hen ganjing de xi yifu.*  
 clothes wash DE very clean very clean De wash clothes  
 “The clothes come clean after the wash”

Semantically, as reflected by the English glosses, in (119a), the preverbal manner expression states the manner in which the actor has performed the action, while the postverbal counterpart indicates the speed of the action. What's more, as is shown in (119b), all the structures with a preverbal manner expressions do not have postverbal counterparts.

Li (1999, 2007) argues that the incompatibility of *bu* and postverbal adjuncts arises in some cases from semantic anomaly. In order to explain this, she proposes *Bu-Requirement*:  
 (120) *Bu-Requirement*: *bu* places a semantic requirement of non-completion upon its co-occurrence situation.

Now consider the following examples from Li (2007:167-8):

- (121) *\*ta bu lai san ci.*  
 he not come three times  
 Intended reading: “He did not come here three times.”
- (122) *\*ta bu ku liang xiaoshi.*  
 she not cry two hour  
 Intended reading: “She did not cry for two hours.”
- (123) *\*ta bu pao de hen man.*  
 he not run DE very slow  
 Intended reading: “He did not run very slowly.”
- (124) *\*ta bu zou de hen lei.*  
 he not walk DE very tired  
 Intended reading: “He did not feel tired from walking.”
- (125) *\*ta bu tiao zai chuang shang.*  
 he not jump onto bed surface  
 Intended reading: “He did not jump onto the bed.”

With the *Bu-Requirement*, it becomes easy to account for the ill-formedness of (121) to (125). They are not acceptable because the semantic requirement of the non-completion of the situations co-occurring with the negative marker *bu* is not satisfied: the VPs in these examples all denote events that are completed, which is in conflict with the semantics of *bu*. Therefore the sentences are ruled out on the grounds of semantic anomaly.

Her explanation is very interesting, but the data based on which she proposes her *Bu-Requirement* are more interesting. We will just discuss (121) (122) and (125), and leave

(123) and (124) to be discussed later. First let us reconsider (121) (122) and (125), and think about what their affirmative forms are. If we simply take out the negative marker *bu*, we will get (126-128):

(126) ?*ta lai san ci.*  
 he come three times  
 “He comes here three times.”

(127) ?*ta ku liang xiaoshi.*  
 she cry two hour  
 “She cries for two hours.”

(128) ?*ta tiao zai chuang shang.*  
 he jump onto bed surface.  
 “He jumped on the bed.”

Obviously, (126-128) do not sound very natural. In the literature, these sentences are regarded as incomplete sentences, meaning sentences that cannot stand alone as independent utterances (Tang & Lee 2000). A serious question arises now: if the base on which a theory is built not solid enough, how can we say that the theory is sound? We will come back to discuss this question later.

## 6.2 Our Analysis

In §4.2, we assumed that ill-formedness arises when the trace left behind in the Asp node is not properly head governed. In this subsection, we will stick to this principle and try to account for the incompatibility between *bu* and the *V-de* construction in a formal and simple way. To make our analysis easy to follow, let us first analyze an example with the *V-de* structure. The negative form of (129) should be (130a), but not (130b).

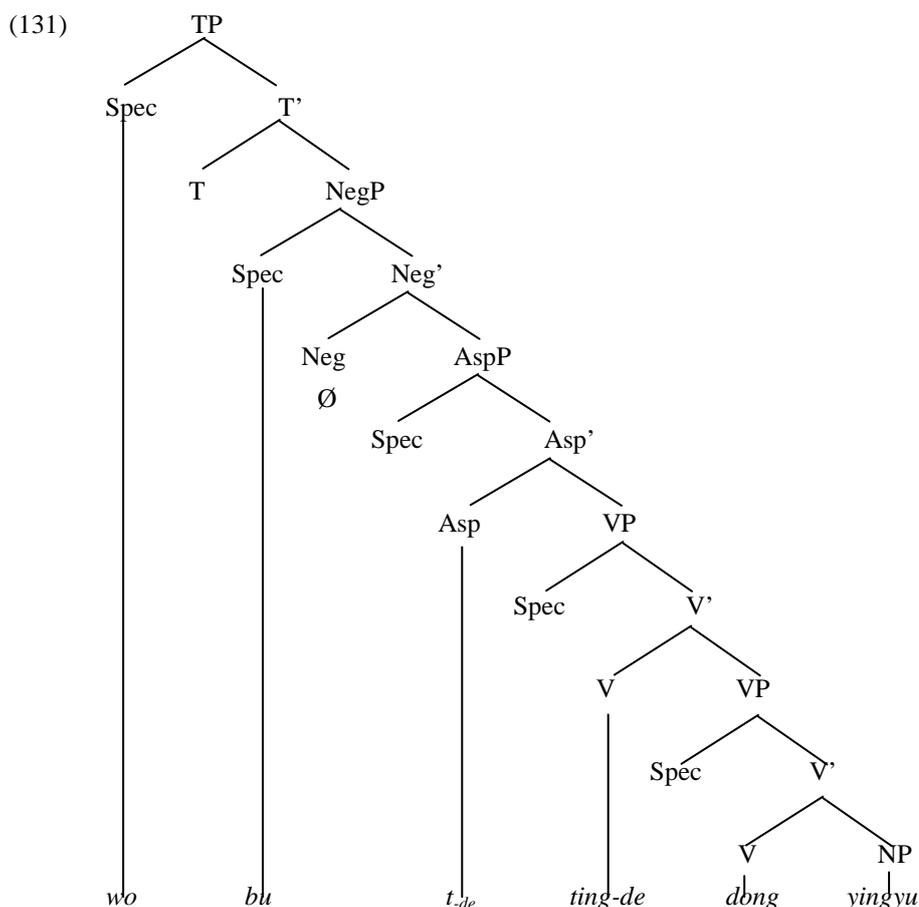
(129) *wo ting de dong yingyu.*  
 I listen DE understand English  
 “I can understand English.”

(130) a. *wo ting bu dong yingyu.*  
 I listen not understand English  
 “I cannot understand English.”

b. \**wo bu ting de dong yingyu.*  
 I not listen DE understand English  
 Intended reading: “I cannot understand English.”

Why is (130b) ruled out? This can be explained via ECP. According to Lü (1999:16), *-de* in (129) is a potential aspect marker. As discussed in §3.2.2, an aspect marker is supposed to

originate in the Asp of AspP, and then be lowered onto V. This is shown in (131):



As (131) shows, the potential aspect marker *-de* is lowered from Asp onto V, leaving a trace behind in the Asp node, which must be properly head governed. However, the negative marker *bu* serves as the specifier of NegP, leaving the head Neg null (§2.2). Nothing properly head governs the trace left in the Asp. ECP violation therefore arises.<sup>25</sup>

Now we come to the discussion of the incompatibility between *bu* and the V-*de* construction in (110) and (111). According to Huang (1988), “[-*de*] has been historically derived from the verb *de* “obtain”. Phonologically, *de* is attached to the preceding verb, either as a suffix or a clitic, depending on one’s theory...” Let us assume that *-de* is a suffix. In the framework of GB, suffixes are supposed to be generated under I, and lowered down onto V. *-de*, of course, is not an exception. However, recall that we have split the INFL into TP, NegP and AspP in §3.1 and AUXP in §4.2. Then, where exactly is *-de* generated?

<sup>25</sup> According to Wang (1989, p.214), in some dialects, the word order *bu ting de dong* is possible. This is beyond the scope of this paper.

It is obvious that *-de* is not generated in T. If it is, we cannot explain (132):

(132) *wo jiang pao de hen kuai.*

I will run DE very fast.

“I will run very fast.”

In (132), *jiang* “will” has already occupied the position T of TP. It is impossible for *-de* to be generated in the head position of TP. Then the only two options are Asp and AUX. Some scholars, for example, Chao (1968), Fan (1992) and Chen (2001), tend to treat *-de* as an auxiliary, but the auxiliary does not mean the AUX here. Since we treated the *-de* in (129) as a potential aspect marker originating in Asp of AspP, for the reasons of uniformity and consistency, we assume that *-de*'s in Descriptive Complement Constructions and Resultative Complement Constructions also originate in the Asp of AspP. We would argue for our assumption from three aspects.

First, it seems not possible for *-de* to be generated in the position AUX: for one thing, this involves lowering, but none of the auxiliaries we have discussed lower; for another thing, if they do originate from AUX, it is hard to handle the lowering process, because it must cross the Asp.

Second, in the literature, Gao (1986, pp.194-6) treats *-de* as a resultative aspect.<sup>26</sup> Yang (1998) also holds the idea that *-de* has many similarities with aspect markers.

Third, it is very possible that *-de* is an aspect marker. Whenever *-de* is attached to a verb, no aspectual markers will appear in the sentence, either before or after the *-de*. This is shown in the examples below:

(133) a. *wo pao de hen kuai.*

I run DE very fast

“I run very fast.”

b. \**wo pao de le/guo/zhe hen kuai.*

I run DE PERF/EXP/PRO very fast

c. \**wo zai pao de hen kuai.*

I PRO run DE very fast

Intended reading: “I am running fast”

d. \**wo pao le/guo/zhe de hen kuai.*

I run PERF/EXP/PRO DE very fast

Our conclusion, therefore, is that *-de* should be treated as suffix that originates in Asp. Assuming this analysis to be on the right lines, The explanation to the incompatibility of *bu* and the V-*de* construction in (110) and (111) becomes simple: the aspect marker *-de* is

<sup>26</sup> The examples about *-de* Gao cited are all from ancient Chinese. His attitude to *-de* in modern Chinese should be the same.

lowered from Asp onto V, leaving a trace behind in the Asp node, which must be properly head governed. However, the negative marker *bu* serves as the specifier of NegP, leaving the head Neg null. Nothing properly head governs the trace left in the Asp, therefore ECP violation arises. Therefore these kinds of sentences permit only constituent negation, as in (112a). However, if there is an auxiliary verb in AUX, the trace left behind in the Asp can be properly head governed, and we will then have sentential negation, as in (134):

(134) a. *wo mei-you pao de hen kuai.*

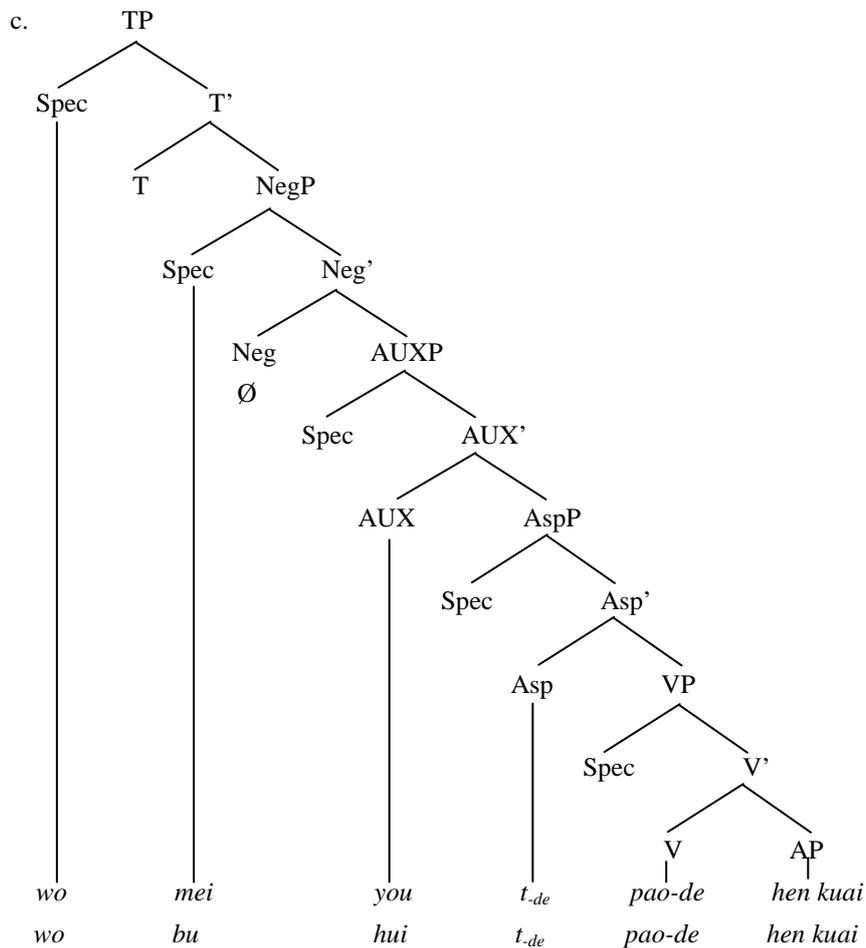
I not-have run DE very fast.

“I did not run fast.”

b. *wo bu-hui pao de hen kuai.*

I not-will run DE very fast

“I will not run fast.”



Let us now give some consideration to the ungrammaticality of (121), (122) and (125).

Obviously, no ECP violation is involved in these examples. Why are they unacceptable? We pointed out that their affirmative equivalents are incomplete sentences, as is shown in (126-128), if they are not considered ungrammatical. According to Generalized Anchoring Principle (GAP), “Every sentence must be either tensed or focused at the LF interface level” (Tang 2001). (126-128), obviously, violate this principle. However, if we read them in certain way, they can be acceptable, as shown in (135-137):

(135) *ta bu lai san ci, ta lai si ci.*

he not come three times, he come four times

“He does not come here three times, but four times.”

(136) *ta bu ku liang xiaoshi, ta ku san xiaoshi.*

she not cry two hour, she cry three hours

“She does not cry for two hours, but three hours.”

(137) *ta bu tiao zai chuang shang, ta tiao zai di shang.*

he not jump onto bed surface, he jump onto ground surface.

“He does not jump onto the bed, but ground.”

(135-137) are acceptable, for two reasons: first and the most important is that no ECP violation arises; furthermore they are focused, in accordance with GAP.

Let us step forward to examine whether they are acceptable if they are tensed. We will consider their complete forms of their affirmative equivalents, which are in (138-140):

(138) *ta lai le/guo san ci.*

he come PERF/EXP three times

“He has come here three times.”

(139) *ta ku le liang xiaoshi.*

she cry PERF two hour

“She has cried for two hours.”

(140) *ta tiao zai le chuang shang.*

he jump onto PERF bed surface.

“He jumped onto the bed.”

(138-140) obviously cannot be negated simply through adding the negative marker *bu* for the reason we discussed in §4.2, the perfective aspect marker *-le* is lowered from Asp onto V, leaving a trace behind in the Asp node, which must be properly head governed. However, the negative marker *bu* serves as the specifier of NegP, leaving the head Neg null. Nothing properly head governs the trace left in the Asp. ECP violation therefore arises.

Like all the other sentences with perfective aspect or experiential aspect, (138-140) can be negated by *mei(you)*. This is shown in (141-143):

- (141) a. *ta mei(you) lai san ci.*  
 he not-have come three times  
 “He did not come here three times.”  
 b. *ta mei(you) lai guo san ci.*  
 he not-have come EXP three times  
 “He did not come here three times.”
- (142) *ta mei(you) ku liang xiaoshi.*  
 she not-have cry two hour  
 “She did not cry for two hours.”
- (143) *ta meiyou tiao zai chuang shang.*  
 he not-have jump onto bed surface  
 “He did not jump onto the bed.”

## 7 Conclusion

Based on this assumption that the NegP hypothesis can be extended to Chinese and the negative marker *bu* is placed in Spec,NegP and the head Neg is left empty, we explained the facts that the negative marker *bu* does not occur with the perfective aspect marker *-le* and postverbal adjuncts, in accordance with Rizzi’s (1990) proper head government.

The head of NegP, being empty, cannot properly head govern the trace left behind in the Asp node by the moved head. Therefore, *bu* cannot co-occur with those aspect markers which behave like a suffix, lowering to V, such as *-le*, *-zhe*, *-guo*, but not *zai*, which behaves like a particle, not lowering to V. However, when there are auxiliary verbs, which head AUXP, this will be different, because the head of AUXP can properly head governs the trace left behind in the Asp node by the moved head. Another negative marker in Chinese, *mei*, which occurs exclusively before *you*, is treated as an alternant of *bu*. By dividing *you* into two types, the lexical verb *you* and the auxiliary verb *you*, we succeed in explaining many phenomena associated with *mei(you)*.

In explaining the interaction between the negative marker *bu* and postverbal adjuncts, we strictly abided by the principle of proper head government, and suggested that the negative marker *bu* cannot co-occur with postverbal adjuncts for the same reason that it cannot co-occur with suffix-like aspect markers. This explanation is based on the assumption that the Chinese postverbal adjunct marker *-de* originates in the Asp of AspP, and lowers onto V.

Our analysis is both theoretically and empirically desirable. It succeeds in providing a principled analysis for a wide range of data concerning the syntactic distribution of the

negative marker *bu*. In particular, our analysis presents a formal solution which solves a number of long-term controversies over negation in Chinese.

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