



Chapter Two

Literature Review

2.0 Introduction

In this chapter, we review some previous works on modals in general and in Chinese. In section 2.1, we review several works on the semantic interpretations of modals as well as some analyses of three syntactic categories, the functional category, the lexical category and the semi-functional category. Then we summarize different approaches that linguists take to analyze the modal construction. In section 2.2, we lay out basic properties of Chinese modals and their distribution within a sentence. In section 2.3, based on the categorial distinction, two major types of Chinese modal analyses are reviewed— functional category analysis and lexical verb analysis. In section 2.4, we summarize this chapter.

2.1 Background

2.1.1 Semantic interpretations

2.1.1.1 Modals in general

Different modal interpretations have been analyzed in an attempt to correlate with different syntactic structures for a long time. In this section, we briefly review some previous works on types of modality in general.

Lyons (1977, 1995) divides modality into two types: deontic and epistemic. The term “epistemic” comes from a Greek word meaning knowledge, while the term “deontic” comes from another Greek word relating to the imposition of obligations. Generally speaking, epistemic modality is concerned with the notions of possibility and necessity, while deontic modality is related to permission and obligation. However, as noted by Coates (1983), Lyons’ system does not cover concepts such as ability and volition. Thus, Coates (1983) argues that a label “root” should replace “deontic”: “root modality” refers to the concepts of obligation, permission, ability, volition and so

on, whereas “epistemic modality” refers to possibility and necessity.

On the other hand, Palmer (1990:36) divides modality into three types: dynamic, deontic and epistemic. This three-part division corresponds roughly to Palmer’s (1974:100-103) earlier distinction: subject-oriented, discourse-oriented and epistemic. “Dynamic” modality has to do with the ability or volition of the subject of the sentence, so it is subject-oriented; “deontic” modality is related to the attitudes of the speaker while “epistemic” modality has to do with speakers’ knowledge of the world. Such trichotomy interpretation is also accepted by Warner (1993), Brennan (1993) and Palmer (2001). The comparison of analyses above is provided in Table 2-1.

Table 2- 1 Different division of modality in general

	Modality		
Lyons (1977)	Epistemic	Deontic	(N/A)
Coates (1983)	Epistemic	Root	
Palmer (1974)	Epistemic	Discourse-oriented	Subject-oriented
Palmer (1990, 2001), Warner (1993) and Brennan (1993)	Epistemic	Deontic	Dynamic

2.1.1.2 Modals in Chinese

Most linguists accept the modal division of “epistemic vs. root (deontic)” or the “epistemic-deontic-dynamic” one. Teng (1980, 1984) argues that modals in Chinese can be characterized in terms of “internal” and “external” modality. (Examples are taken from Teng (1980))

(1) 可以 ‘keyi’

a. Internal modality —Capacity

他的車可以坐六個人
 tā de chē kěyǐ zuò liù-gè rén
 he DE car may sit six-CL person
 ‘His car can seat six people.’

b. External modality — Constraint

他 也 可 以 來

he yě kěyǐ lái

he also may come

‘He can also come.’

(2) 會 ‘hui’

a. Internal modality — Ability

他 很 會 說 話

tā hěn huì shuōhuà

he very can talk

‘He can talk.’

b. External modality — Possibility

明 天 會 下 雨

míngtiān huì xià yǔ

tomorrow will rain

‘It will rain tomorrow.’

As shown in examples (1) and (2), he argues that “internal” modality defines a state referent as in a quality possessed by a noun, whereas “external” modality defines a circumstantial factor that affects an event. In his dichotomy interpretation, the “external” modality refers to epistemic and deontic modalities, whereas “internal” modality stands for dynamic modality. However, it is known that modals of permission and possibility also have different syntactic behaviors. Although such analysis of Chinese modals is on the right track and captures the main differences among modals, this dichotomy interpretation cannot fully reflect the modal distinction. Different from Teng (1980, 1984), Lin and Tang (1995) adopt the two-part division of modality: epistemic and deontic. The “deontic” refers to the concept of root modality given by Coates (1983). T. Tang and C. Tang (1997) and Zhang (1997) adopt the same division.

On the other hand, Tiee (1985), following Parmer (1990), diverges from a

dichotomy interpretation to a trichotomy interpretation. Tsao (1990) also adopts such division. A similar perspective has been taken for modals in Southern Min. Both Cheng (1980) and Hsin (1999) divide Southern Min modality into three-parts. The term “authority” in Cheng (1980) stands for Hsin’s (1999) “speaker-oriented modality”, and both refer to the interpretation of “deontics”. Cheng’s “contingency” is in analogy with Hsin’s “epistemics” and they both refer to the interpretation of “epistemics”. The third modality “volition” given by Cheng (1980) equates Hsin’s “subject-oriented” modality, which refers to the interpretation of “dynamics”.

Different from the analyses above, a detailed semantic analysis of Chinese modals is provided by Y. Huang (1999). Based on Hofmann’s (1993) analysis, she analyzes modals into five interpretational groups: epistemic, deontic, capacity, generic and volition. She further argues that “deontics” can be divided into personal deontic authority, personal deontic promise and social deontic. “Capacity”, on the other hand, has three sub-types: ability, circumstance and capability.

The summary of analyses mentioned above is presented in Table 2-2.

Table 2- 2 Modality in Chinese

	Modality						
Teng (1980, 1984)	External			Internal			
L& T (1995) T&T (1997) Zhang (1997)	Epistemic	Root (Deontic)					
Tiee (1985) Tsao (1990)	External	Deontic			Dynamic		
Hsin (1999)	Epistemic	Speaker-oriented			Subject-oriented		
Cheng (1980)	Contingency	Authority			Volition		
Y. Huang (1999)	Epistemic	* authority	** promise	*** deontic	Capaci ty	Generi c	**** V

* personal deontic authority ** personal deontic promise *** social deontic
**** volition

We found that modals with epistemic and deontic interpretations both fail to impose selectional restrictions on their subjects (e.g. (3a) to (3c)) and fail to be modified by *hen* (i.e. (4b) to (4d)); cf. Teng (1984), J. Hsieh (2004.); but dynamic modals exhibit both properties (e.g. (3d) and (4a)).

- (3) a. 張三 應該 明天 到家
Zhāngsān yīnggāi míngtiān dàojiā
ZS should tomorrow arrive-home
'Zhangsan should arrive tomorrow.'
- b. 這間 屋子 可以 讓 你 住 一輩子
zhè-jīān wūzi kěyǐ ràng nǐ zhù yībèizi
this-CL house can let you live the whole life
'You are permitted to live in this house for the whole life.'
- c. 張三 肯 倒下來
Zhāngsān kěn dǎoxiàlái
ZS be willing to fall down
'Zhangsan is willing to fall down.'
- d.*樹 肯 倒下來
shù kěn dǎoxiàlái
tree be willing to fall down
'*The tree is willing to fall down.'
- (4) a. 他 很 會 唱歌
tā hěn huì chàngē
he very can sing
'He is very good at singing.'
- b.*他 很 會 離開
tā hěn huì líkāi

he very will leave

‘It is very possible for him to leave.’

c* 他很 應該 到家 了

tā hěn yīnggāi dàojiā le

he very should arrive LE

‘It is very supposed to be the case that he arrived.’

d* 他很 可以 早點 回家

tā hěn kěyǐ zǎodiǎn huíjiā

he very can earlier arrive

‘He is permitted to go home earlier.’

In terms of syntactic properties observed in (3) and (4), it seems that in addition to the distinction between epistemic and non-epistemic modals (so-called “deontic” modals), there is a need to take the third type of modality, dynamic, into consideration.

Before going to the analysis of Chinese modal construction, we review some syntactic approaches given in the literature in the next section.

2.1.2 Syntactic approaches

In many languages, it is found that some modals seem to impose selectional restrictions on their subjects in contrast to other modals. Thus, some modals may take idiom chunks and expletive elements as their subjects, but other modals may not. Due to different modal interpretations and the selectional restriction of some modals, different approaches are taken by linguists to accommodate these semantic properties into syntactic analyses.

2.1.2.1 Categories: functional, lexical and semi-functional categories

As for the discussion on syntactic analyses, to begin with, we need to consider three types of categories: functional category, lexical category and semi-functional category.

Lexical categories provide the descriptive content and the basic argumental

structure, whereas functional categories determine the grammatical specifications such as Tense and modality. They contribute to the determination of the interpretation and the form of linguistic expressions. Chomsky (1986a) proposes that the system regulating lexical categories could extend to the non-lexical categories as well. Thereby, from the perspective of ordering, Pollock (1989) and Cinque (1999, 2003) argue that the fixed ordering of sentence elements reflects the properties of functional categories. Pollock (1989) argues for the split INFL of TP and AgrP, and Cinque (1999) argues for multiple functional projections in the clausal structure. Given the above discussion, there are some basic criteria for distinguishing lexical categories from functional categories.

- (5) a. Complement selection (for head)
- b. Theta-role assignment (for lexical head)
- c. Fixed ordering (for functional head).

Although the distinction between lexical category and functional category is useful, Riemsdijk (1998), Wurmbrand (2001), Corver and Riemsdijk (2001), Cardinaletti and Giusti (2001) and Cardinaletti and Shlonsky (2004) find that certain lexical words have a degree of functionalness and that certain functional words have a degree of lexicalness. For instance, by examining motion verbs in Romance and German, Cardinaletti and Giusti (2001) argue that motion verbs should be treated as semi-lexical categories. Wurmbrand (2001), following Riemsdijk (1998), proposes that the dynamic modal in German is a semi-functional category. Therefore, a binary lexical/functional distinction is not sufficient to characterize verbal categories but that certain predicates display an intermediate status. In other words, there are categories, such as “semi-functional categories”, which simultaneously display both lexical and functional properties.

In sum, besides the traditional dichotomy division of functional and lexical categories, a mixture category is recently argued as “semi-functional category” in the literature. This idea gives better explanations to those categories that seem to

struggle between the line distinguishing functional and lexical categories. Taken the third type of category into consideration, we will show in the subsequent section that this mixture category exists in Chinese as well as in other languages.

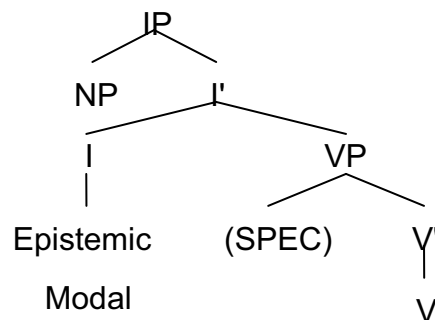
Before reviewing the previous analyses of Chinese modals (in section 2.3), we discuss two major types of approaches to the analysis of the modal construction in general. In section 2.1.2.2, we review some functional category analyses and in section 2.1.2.3, we review the lexical category analyses.

2.1.2.2 Functional category analysis

Starting from Chomsky (1981, 1986b), it is widely accepted that English modals are generated in INFL or Aux, because they have a defective inflectional paradigm and behave like other auxiliaries. It has also been argued that English modals are generated under a finite INFL, which carries Tense and agreement (i.e. T and Agr). Based on the facts in Catalan, Picallo (1990) argues that epistemic modals are base-generated in INFL.

(6) The D-structure configuration of epistemic modals in Catalan.

(Picallo 1990: 288)



Because modals in Catalan are followed by an infinitive and allow anaphoric clitics, the subject of epistemic modals, contrary to raising verbs, cannot be derived from raising.

Cinque (1999, 2003), based on languages that allow multiple modals, argues that the order delineates that epistemic modals c-command root modals. In such languages, a modal with a root interpretation cannot take scope over a modal with an epistemic interpretation. Given above observations, the inflectional paradigm and fixed ordering

can stand for certain properties of functional categories.

There is also a possible analysis noted by Huang (1993) that epistemic modals may be raising categories whereas deontic modals may be control categories. And both of epistemic and deontic modals are under INFL. This hypothesis holds that not all INFL categories in English are raising categories.¹

After the split-INFL hypothesis proposed by Pollock (1989), linguists start taking different viewpoints regarding the functional category analysis. Wurmbrand (1999, 2001), adopting the approach of “split IP parameter”, argues that modals in German are functional categories with their projections in INFL. That is, modalities are expressed by independent modal projections that can be set aside from Tense and agreement. She claims that German modals differ from English modals because “languages may vary in their inventory of functional projections” (Wurmbrand 2001:141), and thereby different analysis should be taken.

In her analysis, modals in German are functional categories with the property that the subject raises to the sentence subject position. As noted in Wurmbrand (1999), such raising movement is compatible with the Subject Internal Hypothesis. Furthermore, in order to accommodate the fact that certain modals impose selectional restrictions on their subjects, she argues that such modals are “semi-functional categories”. Following Chomsky (1995) and Marantz (1997) that the lexical domain should structurally correspond to vP ,² Wurmbrand (2001) argues that Voice and Aspect heads are functional heads, but they are also part of the thematic domain.³ Hence, these functional heads are also thematic heads, i.e. “semi-functional categories”. According to her, dynamic modals in German belong to the semi-functional category,

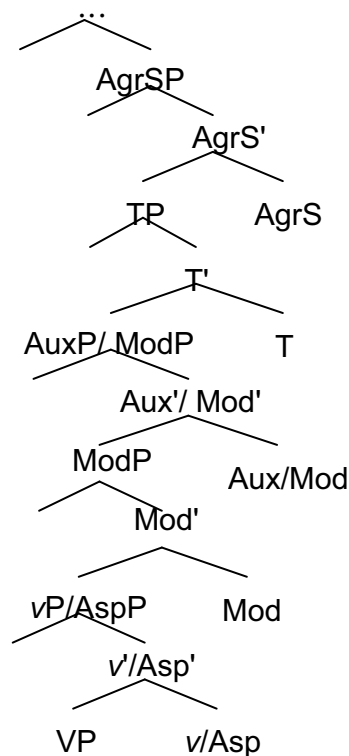
¹ In the literature, there is a different analysis of the modal construction. Under such analysis, root modals start in the head of a lower functional head such as the PerfP and move to INFL (e.g. Barbiers (1995) citing Abraham (1990)). However, we do not have much information on this analysis and thus do not discuss on it.

² This lexical domain is where the thematic properties come from. The ‘ vP ’ is equal to Bowers’ (1993) PreP, Johnson’s (1991) PrP and Collins’ (1997) TrP, but there are slightly different properties regarding the projections in individual analysis.

³ Generally, the thematic relation is established between a predicate and its argument. As pointed out by Prof. Li-mei Sung, it is interesting how aspect can be in relation to thematic properties. Nevertheless, according to Wurmbrand (2001), Aspect belongs to a functional category in the INFL domain rather than in the lexical domain. The thematic properties are only utilized to differentiate “semi-functional categories” from functional/lexical categories. At the present study, we do not have strong evidence to prove this proposal; we assume that this approach still works, though.

which share the functional properties with other modals but impose thematic restrictions on subjects, whereas epistemic modals and deontic modals are fully functional categories. The tree structure is shown in (7). The node “Aux/Mod” in (7) indicates the position of epistemic modals, and the node “Mod” is the position of deontic modals. The node “vP/AspP” indicates where the dynamic modals are.

(7) German clause structure
(Wurmbrand (2001: 144))



In addition to the preceding analyses, there are also different ways to syntactically accommodate the semantic differences among modals. In the following section, we review some works that analyze modals from perspectives of the lexical category.

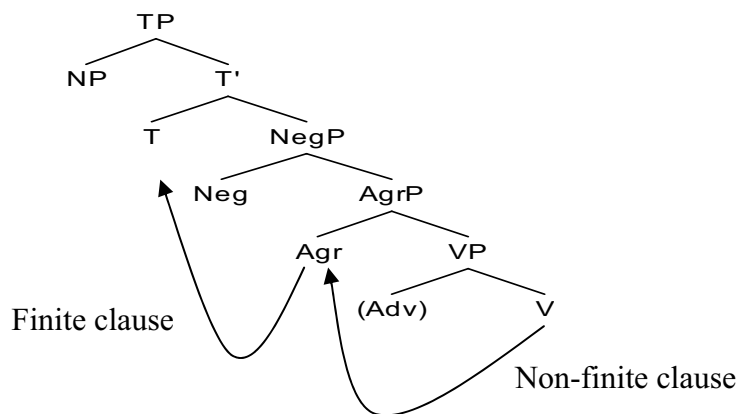
2.1.2.3 Lexical category analysis

Roberts (1985) and Pollock (1989) have justifications for the position that modals (and auxiliaries) undergo “V to I” movement. Roberts (1985) argues that epistemic modals, like all other verbs, undergo such movement. The differences are that (epistemic) modals are “reanalyzed” as auxiliaries after such movement and that

modals can no longer assign theta-roles. However, dynamic modals do not pattern along with this line. They still impose certain selectional restriction on their subjects. Following Zubizarreta's (1982) theory, Roberts (1985) proposes that dynamic modals assign an "adjunct theta role" to the surface subject, and thereby dynamic modals behave like modifiers that are analogous to a class of sentential adverbs, agent-oriented adverbs, given by Jackendoff (1972, 1977).

Regarding French modals, Pollock (1989) argues that modals move out VP to the INFL domain and further move to the position of T, because modals always show up in a finite clause.

(8) Pollock (1989)
(In French)



Moreover, Pollock (1989) notices that modals do contribute something to the interpretation of sentences and that such semantic effect cannot be associated with ordinary theta-role assignment. It is shown by the contrast in (9).

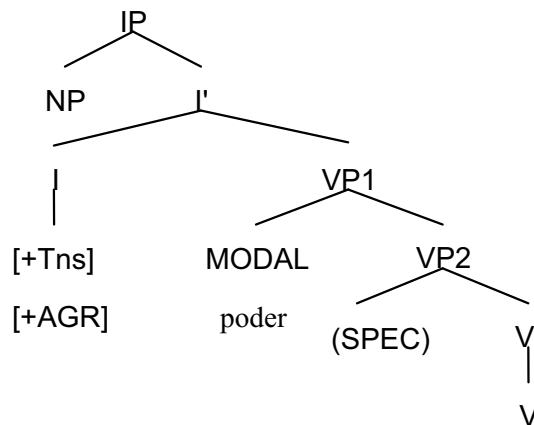
- (9) a. ?Je pensais ne pouvoir pas dormir dans cette chambre
 I think NE to can not sleep in this room
 b.*?Je pensais ne supporter pas dormir dans cette chambre
 I think NE to can not sleep in this room
 ‘I thought I wouldn't be able to sleep in this room.’
 c.? Pierre dit ne vouloir pas que Jean reste.
 Pierre say NE to want not que Jean to stay
 d.*Pierre dit n'envisager pas que Jean reste.

Pierre say NE to want not que Jean to stay
 ‘Pierre says he does not want Jean to stay.’

When having regular verbs with same meanings to replace the modals in (9a) and (9c), sentences become ungrammatical (i.e. (9b) and (9d)). Such difference cannot be explained by theta-role assignment. He thereby grants that modals contribute their semantic interpretation via modification but not via ordinary theta-role assignment.

Picallo (1990) has noticed a similar phenomenon. As mentioned in section 2.1.2.2, Picallo (1990) argues that, unlike raising verbs, epistemic modals in Catalan should be analyzed as base generated in INFL. On the other hand, based on the different properties between control verbs and root modals, Picallo (1990) argues that, unlike epistemic modals, root modals in Catalan are generated as VP-adjuncts and participate with the main verbs in the selection of their subjects. The structure of root modals is shown in (10).

(10) The D-structure of root modals in Catalan (Picallo (1990))



According to the analyses above, dynamic modals are analyzed as verbs assigning an adjunct theta-role, or as adjuncts of the sentence. It is important to note that under the adjunction analysis, the adjunct theta-role has to be assigned obligatorily. If these adjunct theta roles were optional, the grammaticality would be wrongly predicted. As noted by Wurmbrand (2001), it is not clear what kind of status the adjunct theta-role is

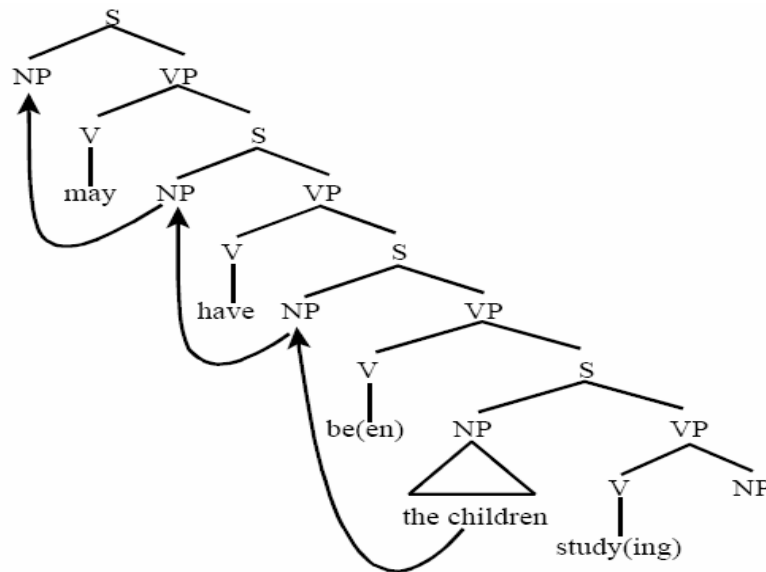
of. There are also wonders how the difference between true theta roles and adjunct theta-roles is implemented in the grammar and how it can be predicted. Given the “adjunct theta-role” analysis, we suggest that it is just a label to delineate the special semantic influence denoted by modals, rather than an argument for modals as “adjuncts.” The reason is that although analyzing modals as adjuncts seems to be superior in avoiding the theta-role assigning problem, it is the fact that modals behave as part of the predicate that is different from adjuncts. Thereby, the adjunct analysis does not seem to be plausible.

Also note that the preceding discussions involve the mono-clausal analysis. Taking a different viewpoint, some other linguists analyze the modal construction as involving a bi-clausal structure. In Ross (1969),⁴ Pullum et al. (1977) and Gazdar et al. (1982), modals are argued to be analyzed as lexical verbs. In an attempt to achieve “simplicity”, they lay out the simplest structure of sentences, and then utilize “feature” descriptions and multiple movements to derive the surface structure of sentence. Pullum et al. (1977) assume that after the movement, all the COMP nodes are deleted. Gazdar et al. (1982) argue that the analysis given by Pullum et al. (1977) cannot explain the ungrammaticality of the placement of sentence adverbs and some facts related to extraction. In terms of “modals”, they argue against the postulation of a node “AUX”. Technicalities aside, the spirit of this approach is that modals take a clausal complement, indicated as S in (11).⁵

⁴ Ross (1969) has been cited in many works of the lexical analysis of the modal construction. However, we do not have a chance to get the original paper.

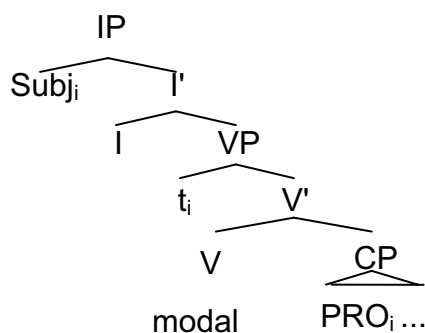
⁵ The tree (11) is a simplified summary of the analyses given by Pullum et al. (1977) and Gazdar et al. (1982). Although their analyses are with slight difference and the tree structures given by them are different, the spirit of their analyses is the same as shown in (11). Both of them describe the syntactic properties by showing the features at the Spec/S position.

(11) The structure given by lexical verb analysis

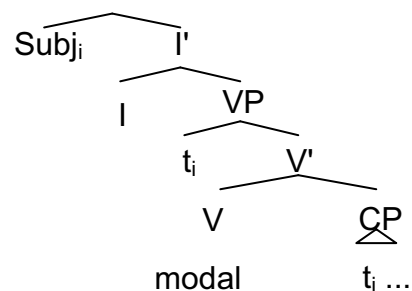


Following the spirit of these precursors and extending this idea under the framework of Government and Binding theory, some linguists argue that modals can be analyzed in terms of the argument structure.⁶ In other words, root modals are two-place verbs (i.e. control verbs), and epistemic modals are one-place verbs (i.e. raising verbs); Tense and Agr alone constitute INFL. The structures are shown in (12).

(12)a. Root modal



b. Epistemic modal



Thus, INFL is always a raising category, but modals may be raising or control categories. However, such distinction faces some difficulties as well. One problem that comes along with the raising/control analysis is related to the selectional restriction.

⁶ Note that Picallo (1990) and Wurmbrand (1999, 2001) argue against such approach without specifying the sources. To the best of our knowledge, the earliest work of such approach seems to be Ross (1969) (cf. footnote 3).

Under this approach, the clause has a bi-clausal structure, in which modals directly impose selectional restrictions on their subjects. However, in addition to the epistemic meaning, sentences such as (13) have a root interpretation.

(13) This letter must be in Taipei before noon.

‘It is possible/ obligatory that this letter be in Taipei before noon.’

The modal *must* can have epistemic (i.e. possible) or root (i.e. obligatory) interpretation. Note that no selectional restriction is imposed on the subject of the sentence under either interpretation, contrary to the inference drawn from the lexical verb analysis. Thereby, the contrast between raising and control verbs does not hold between epistemic and root modals. A similar point is also observed by Wurmbrand (1999, 2001) in terms of German modals.

Furthermore, it is observed by Wurmbrand (1999) that modals in general cannot be passivised. Since dyadic verbs assign an external theta role and satisfy the condition for passivization, the prohibition of passiviation is unexpected if some modals are analyzed as control verbs.

Under the GB framework, the raising and control verb analysis need to postulate a CP complement taken by modals, but Wurmbrand (2001) argues that this complement phrase of modals must be smaller than a CP or TP. In her analysis, German modals involve one type of restructuring. Within such construction, C-elements such as complementisers are impossible in the complement of a modal, as is embedded *wh*. That infinitival *to* is obligated to be absent in most modal contexts describes that the complement of modals is not a TP either, if infinitival *to* is regarded as a T-element (Wurmbrand (2001: 112)). Moreover, that higher adjuncts such as evidential and modal adverbs cannot partake in the complement of modals also indicates that complements of modals are smaller than CP. These, thus, cast doubt on the analysis of modals as raising and control verbs. Besides, Wurmbrand and Bobaljik (1999) and Wurmbrand (2001) specify that both epistemic and root modals resemble raising predicates that the subject of which can take scope under the predicate or over the

whole sentence. However, such scope ambiguity is impossible for control verbs.

Based on the discussion above, we conclude that analyzing epistemic modals as raising verbs and root modals as control verbs is in fact implausible. The approaches and analyses above are summarized in Table 2-3.

Table 2- 3 The syntactic analyses of modals in general

	Epistemic modals	Root modals
Chomsky (1981, 1986b),	In INFL	
Cinque (1999, 2003)	Functional Projection (with fixed ordering)	
Wurmbrand (1999, 2001)	Split INFL for epistemic, deontic and dynamic	
Picallo (1990)	In INFL	VP-adjunction
Jackendoff (1972, 1977)	Modification of the sentence	
Roberts (1985), Pollock (1989)	Lexical verbs which undergo the V to I movement	Lexical verbs undergo the movement to INFL and behave as adverbials with “Adjunct theta-role”
Followers of Ross (1969), Pullum et al. (1977), Gazdar et al. (1982)	Raising verbs	Control verbs

2.2 Basic properties of modals in Chinese

Like some English modals, only certain modals in Chinese impose selectional restrictions on their subjects; but unlike English, some modals in Chinese can locate in the sentence initial or final position. The properties of Chinese modals are explored by Chao (1968), Lu (1980), Li and Thompson (1981), Zhu (1982), among others. In (14) to (22), we list the basic properties of modals in Chinese.

- (14) It is the modal that is used to form interrogative sentences, not the main verb. Modals can be used as a short answer as well.

a. 我 可 以 吃 東 西 嗎 ？

wǒ kěyǐ chī dōngxi ma?

I may eat something MA

‘May I eat something?’

b. 我 可(以)不 可 以 在 這 裡 吃 東 西 ？

wǒ kě(yì) bùkěyǐ zài zhèlǐ chī dōngxi?

I may-not-may LC here eat something

‘May I eat at this place?’

c. 可 以 。

kěyǐ

can

‘(Yes,) you can.’

(15) Modals are followed immediately by the main verb and cannot take the argument directly.

a. 他 可 以 回 家 了

tā kěyǐ huíjiā le

he can go-home LE

‘He can go home.’

b.* 他 能 歌

tā néng gē

he can song

‘*He can song.’

(16) Unlike English, Chinese modals can be stacked in one sentence.

他 應 該 會 答 應 跟 你 去

tā yīnggāi huì dáying gēn nǐ qù

he should would agree with you go

‘It is supposed that he would agree to go with you.’

(17) Modals can be negated by *bu*.

他 不 應 該 不 會 參 加 會 議

tā bù yīnggāi bù huì cānjiā huìyì

he not should not will attend meeting

‘It shouldn’t be the case that he won’t attend the meeting.’

(18) Some modals can occur after a full clause, especially in colloquial speech.

他們 這樣 做 不 應該

tāmen zhèyàng zuò bù yīnggāi

they this way do not should

‘They shouldn’t do it this way.’

(19) Some modals can occur sentence-initially.

可以 你去,也 可以 他 去

kěyǐ nǐ qù, yě kěyǐ tā qù

can you go, also can he go

‘It is possible for either you or him to go.’

(20) Modals do not have a duplication form.

a. *這裡 應應該該 整理

zhèlǐ yīngyīnggāigāi zhěnglǐ

here should*2 clean out

b. *這裡 應該 應該 整理

zhèlǐ yīnggāi yīnggāi zhěnglǐ

here should should clean out

c. 這裡 應該 整理 整理

zhèlǐ yīnggāi zhěnglǐ zhěnglǐ

here should clean out clean out

‘(You) should clean out here.’

(21) Modal cannot take aspect suffixes *-le*, *-zhe*, *-guo*.

*我能著 唱歌 呢

wǒ néngzhe chànggē ne

I can-ZHE sing NE

‘I am able to sing now.’

(22) Some modals can be modified by *hen*.

他很 會 做 生意

tā hěn huì zuò shēngyì
he very can do business
'He is good at doing businesses.'

The orthodox position of modals is between the subject and the VP (e.g. (14a) and (15a)). Modals are similar to regular verbs in having A-not-A forms (e.g. (14b)) and being negated by *bu* (e.g. (17)). Moreover, modals can be used in answering questions (e.g. (14c)), but cannot have a duplicated form (e.g. (20)) or take Aspect suffixes (e.g. (21)). Some of the modals can occur in the sentence final position (e.g. (18)) and in the sentence initial position (e.g. (19)).

Like their English counterparts, Chinese modals do not take arguments (e.g. (15b)). They are followed immediately by the main verb (e.g. (15a)) and do not have a duplicated form (e.g. (20)). However, different from English modals, Chinese modals can be stacked (e.g. (16)) and may occur in a sentence initial or final position (e.g. (18) and (19)).

In the following sections, we review the major approaches to analyses of Chinese modals.

2.3 Previous analyses of Chinese modals

There are two major types of approaches to modal constructions in Chinese—functional category analysis and lexical verb analysis. In section 2.3.1, we review functional category analyses, whereas in section 2.3.2, we discuss lexical verb analyses.

2.3.1 Functional category analysis

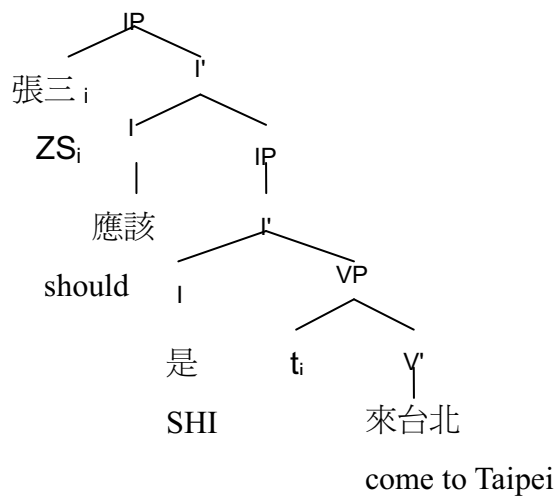
Similar to an INFL analysis of English modals, many linguists, such as Chao (1968), Li and Thompson (1981), Zhu (1982) and others observe that Chinese modals have similar behaviors to their English counterparts. Li and Thompson (1981) argue that modals should be treated as a distinct category from verbs and adverbs. They distinguish between modals and adverbs by using “short answer” and “A-not-A form” as tests and discriminate modals from verbs by arguing that modals cannot take

arguments and that a complement of modals cannot have an overt subject.

T. Tang and C. Tang (1997) proposed that modals are functional categories rather than lexical categories that should be distinguished from modal particles and modal adverbs. According to them, modals belong to a closed class or a minor class that lacks productivity, denote grammatical meanings rather than lexical meanings, and have a fixed position in the sentence structure.

Huang (1982 [1998]) and Li (1985, 1990) argue that modals in Chinese are under INFL, and that since there is no Tense marker in Chinese, the INFL only contains modals and the abstract AGR. Huang (1988b) observes that Chinese modals share properties with the cleft *shi* and are quite different from regular verbs. Thus, he suggests one possible analysis that the cleft *shi* and modals can be in INFL.⁷ The structure is shown in (23).

(23) The cleft *shi* structure
(Huang (1988b))

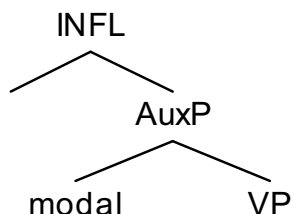


Under this analysis, *shi* and modals sit in the INFL domain, and their positions can freely change in certain conditions. Nevertheless, although Huang (1988b) points out the similarity between these INFL elements, he does not indicate the distinction among them.

Similar to this perspective, Ernst (1994) argues that modals in Chinese are the complement of a null INFL labeled as 'AuxP' directly dominates VP.

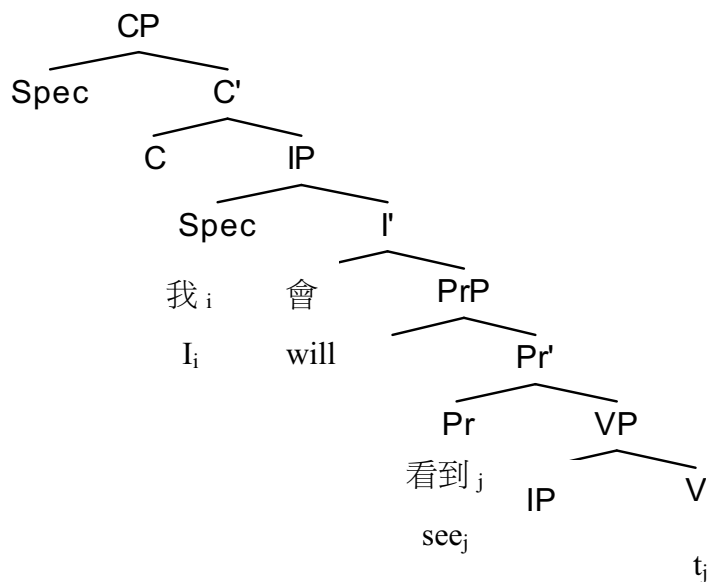
⁷ In Huang (1988b), although he argues that modals in Chinese should be analyzed as modals in English, he also suggests the other possibility that modals could be analyzed as raising and control verbs.

(24) The clausal structure given by Ernst (1994)



In addition, Tang (1990), following Bowers (1988, 1989), argues that Chinese sentences are projections of CP-IP-PrP-VP, which contain complementizers, modals and AGR (also Tense markers or others, if possible), a non-lexicalized head and verbs respectively. The structure is shown in (25).

(25) The clausal structure given by Tang (1990)



Under her analysis, lexical categories may assign theta-roles and C-roles whereas functional categories solely assign C-roles. Tang (1990), along with Chomsky (1986a), suggests that the C-role assignment is subject to a sisterhood condition and is subject to the selectional relation between heads and their complements. Assuming modals as INFL components, Tang (1990) argues that manner adverbs are licensed in

PrP whereas sentential adverbs are licensed in IP.

In sum, modals in Chinese can also be analyzed in INFL as modals in western languages. Although it has been perceived that modals have certain similar behaviors to those of the cleft *shi*, no further distinction or discussion is given.

2.3.2 Lexical verb analysis

In this subsection, we review some of the literature on modals in the other approach-- lexical category analysis.

McCawley (1992:212) argues, against Li and Thompson (1981), that modals are lexical verbs. The reason why modals behave differently from other verbs can be accounted for by the assumption that if a given Chinese modal is a verb, one cannot expect it to syntactically resemble all other verbs. To McCawley (1992), it is a commonplace for verbs to have diverse properties. However, he does not provide a specific analysis.

Lin and Tang (1995), following a suggestion given in Huang (1988b), argue that modals in Chinese can be analyzed as raising and control verbs, because modals can occur in the sentence initial position and the sentence final position.

Before going to discuss their analysis at length, we first define the raising verb and the control verb, which arouse disputes because of their similar behavior to modals. Control verbs include *dasuan* 'plan', *changshi* 'try' and *jihua* 'plan'. On the other hand, the status of raising verbs in Chinese is more controversial. Following the analyses given by Teng (1978) and Li (1990) on raising verbs, we agree that verbs such as *kaishi* 'start' are raising verbs in Chinese.

In terms of the lexical analysis of modal constructions, Lin and Tang (1995) propose the structure in (26) for the control type modals and (27a) for the raising type modal. To them, modals take a CP as the complement. When the complement raises, the derived sentence is shown as (27b) with modals in the final position. If the CP is infinitive, the subject needs to raise to the Spec/IP position; the structure is yielded as in (27c).

(26) [IP 張三_i 不 [VP 敢 [CP[IP PRO_i 睡覺]]]]

Zhāngsān bù gǎn shuìjiào

ZS not dare sleep

‘Zhangsan dare not sleep.’

(27) ‘You shouldn’t do it in this way.’

a. [IP Neg [VP MODAL [CP[IP ...]]]]

不 應該 你 這樣 做

bù yīnggāi nǐ zhèyàng zuò

not should you this way do

b. [IP [CP[IP 你 這樣 做]_i] 不 [VP 應該 t_i]]

nǐ zhèyàng zuò bù yīnggāi

you this way do not should

c. [IP 你_i 不 [VP 應該 [CP[IP t_i 這樣做]]]]

nǐ bù yīnggāi zhèyàng zuò

you not should this way do

According to such derivation, Lin and Tang (1995) capture the facts with modals in the sentence initial position, in the sentence final position and in the position between the subject and the predicate. In table 2-4, we summary the reviewed syntactic analyses.

Table 2- 4 The syntactic analyses of modals in Chinese

	Epistemic	Deontic	Dynamic
		Root	
Li and Thompson (1981)	A kind of auxiliary		
T. Tang and C. Tang (1997)	Functional categories		
Huang (1982 [1998]), Li (1985, 1990), Huang (1988b), Tang (1990)	In INFL		
Ernst (1994)	The complement of a null INFL, labeled as ‘AuxP’ and directly dominate VP		

McCawley (1992)	Lexical verbs	
Huang (1988b) ⁸ , Lin and Tang (1995), Zhang (1997)	Raising verbs	Control verbs

Especially worth noting is that given the analysis of Lin and Tang (1995), it is predicted that all modals can be in the sentence initial and final positions, since modals are lexical verbs that take a CP as the complement. This expectation, however, cannot be a generalization of modals. Although some modals may occur in the sentence initial or final position in colloquial speech, not every modal can behave in this way (e.g. **hui mingtian xiayu ma?*). Moreover, such word order is regarded as marginal by many native speakers, e.g. *?keyi Zhangsan bu qu shangxue* (cf. Li and Thompson (1981), McCawley (1992) and Ernst and Wang (1995) deem such sentences as unacceptable).

In terms of modals in the sentence final position, Lin and Tang (1995) argue for the lexical verb analysis based on the assumption that it is awkward for an INFL element to occur sentence finally. However, such assumption is not tenable. In English, *will* as an INFL element is also possible to be stranded.

(28) They said she may attempt to leave and attempt to leave she will.

Also worth noting is that given Lin and Tang's (1995) analysis, all modals can or should occur in the sentence final position; however, the fact is that only *yinggai* 'should' and *keyi* 'may' are allowed to occur in the sentence final position, while other modals do not. Such analysis overgeneralizes the marginal facts to every modal is implausible. All these cast doubt on Lin and Tang's (1995) analysis.

On the other hand, instead of treating all epistemic modals as raising verbs and all deontic modals as control verbs, Lin and Tang (1995) argue that deontic *yinggai* 'should' and deontic *keyi* 'may' should be in line with epistemic modals and should be separated from other deontic modals. It is because deontic *yinggai* 'should' and *keyi*

⁸ The lexical verb analysis of Chinese modals is only a suggested alternative in Huang (1988b).

‘may’ do not impose selectional restrictions on subjects as other deontic modals do. Thereby, Lin and Tang (1995) claim that (29b) involves a raising type deontic whereas (29c) involves a control type deontic. (Examples are from Lin and Tang (1995) and modified with brackets.) This analysis is also followed by Zhang (1997).

(29) a. Raising type epistemic modals

[張三_i [可能 / 應該[t_i吃過 飯了]]]
Zhāngsān kěnéng / yīnggāi chī-guò fàn le
ZS may / should eat-GUO rice LE

‘Probably, Zhangsan has had his meal already.’

b. Raising type deontic modals

[書_i[應該 / 可以[t_i漲價 了]]]
shū yīnggāi / kěyǐ zhǎngjià le
book should / may raise price LE

‘It should be the time to raise the price of books.’

c. Control type deontic modals

[張三_i [敢 / 願意 / 能[PRO_i吃飯]]]
Zhāngsān gǎn / yuànyì / néng chīfàn
ZS dare/ willing / can eat rice

‘Zhangsan dares/is willing/ is able to have his meal.’

However, this analysis leaves a mismatch between the semantic and syntactic representations of modals.

In contrary, we argue that the lexical verb analysis is not the only way to account for the selectional properties of dynamic modals. Analyzing modals as functional categories can also be compatible with such selectional restrictions. Similar to its counterpart in Chinese, the English modal *can* has the same selectional restriction as shown in (30).

- (30) a. *The tree can cut.
b. The table can go over there.

(30a) is only grammatical with the implication that the tree is going to pick up a knife or pair of scissors and cut something. However, this is not a common situation for it. In addition, in (30b), this sentence has only one interpretation that ‘someone is putting things away, or setting up a room’, but this sentence cannot refer to ‘a walking table’. In other words, although modals are functional categories in English, they also pose selectional restrictions on their subjects. This kind of selectional restriction does not have to be a lexical property as argued by Lin and Tang (1995).

Likewise, as noted by Roberts (1985) and Pollock (1989), such selectional restrictions cannot be associated with the ordinary theta-role assignment. We found that the restriction is not as rigid as the regular theta-role assignment. As shown in (31a) and (31b), it seems that it is the main verbs that decide on having an animate subject or not, and the contrast between (31c) and (31d) can be explained in the same way.

- (31) a. 碗 裝 湯
wǎn zhuāng tāng
bowl load soup
‘Bowl loads with soup.’
b. *桌子 裝 湯
zhuōzi zhuāng tāng
table load soup
‘*Table can load with soup.’
c. 碗 能 裝 湯
wǎn néng zhuāng tāng
bowl can load soup
‘Bowl can load with soup.’
d. *桌子 能 裝 湯

zhuōzi néng zhuāng tāng
Table can load soup
‘*Table can load with soup.’

On the other hand, we also found sentences as shown in (32) which dynamic modals do show the selectional restrictions.

- (32) a. 這間房間能住四個人
‘This room can contain four people in it’
b. *這間房間敢住四個人
‘*This room dare to contain four people in it.’

The contrast between (31) and (32) displays that dynamic modals do impose certain thematic influence on their subjects. Such semantic relation, however, cannot be in analogy with the theta-role assignment between argument and lexical verbs. Given the lexical verb analysis of modals, one would wrongly predict the grammaticality of (31c) or overgeneralized the ungrammaticality of dynamic modals with inanimate subjects.

Moreover, some fundamental facts are missed or wrongly predicted in the lexical verb analysis. As shown in (33), a control verb may precede a raising verb, because the infinitives can have another lexical verb phrase as their complement.

- (33) a. Susan decided to try to seem to have been punched.
b. He promised to appear to be brave and confident.
c. ?He wants to appear to be a hero.
d. 他 開始 打算 唱歌 了
tā kāishǐ dǎsuan chàngē le
he start plan sing LE
‘He starts to plan to sing.’
e. 他 打算 開始 唱歌 了

tā dǎsuan kāishǐ chàngē le
he plan start sing LE
'He plans to start to sing.'

It follows that a deontic/root modal may precede an epistemic modal, if modals should be analyzed in the line with control and raising verbs. Such inference, however, is not borne out; an epistemic modal may precede ((34a) and (34c)) but never follow a deontic modal ((34b) and (34d)).

(34) 'Zhangsan must be able to play the piano.'

- a. 張三 應該 可以 彈琴
Zhāngsān yīngāi kěyǐ tánqín
ZS should can play-piano
- b. *張三 可以 應該 彈琴
Zhāngsān kěyǐ yīngāi tánqín
ZS can should play-piano
'Would Zhangsan dare to cheat?'
- c. 張三 會 敢 騙人 嗎?
Zhāngsān huì gǎn piànrén ma?
ZS will dare cheat MA
- d. *張三 敢 會 騙人 嗎?
Zhāngsān gǎn huì piànrén ma?
ZS dare will cheat MA

In sum, the analysis of modals as raising and control verbs leads to the wrong prediction of ordering. The discussions above show that the analysis of modals as raising and control verbs does not hold.

Next, we review the arguments given by Lin and Tang (1995) and demonstrate that the facts do not have to be analyzed as suggested by them but can have alternative analyses.

2.3.3 Against the arguments in Lin and Tang (1995)

The first argument for the lexical verb analysis comes from the topic construction. Assuming that a base-generated topic is generated in a CP, they argue that modals involving such topic should be analyzed as lexical verbs taking CP complements.

- (35) 小孩子 不 應該 [CP 水果 只 吃 蘋果]
 xiǎoháizi bù yīnggāi shuǐguǒ zhǐ chī píngguǒ
 children not should fruit only eat apple
 ‘As for fruit, Children shouldn’t only eat apples.’

However, such sentences do not have to be analyzed as taking a CP complement. In the spirit of Ernst and Wang (1995) and Paul (2002), we suggest that the post-modal NP is a secondary topic moved to or base generated within the INFL domain. Such sentence can be analyzed as the structure shown in (36).

- (36) [IP Subj. Modal [IP TOP [IP [VP VP]]]]]

The second argument for the CP complement comes from the reason clause. Following Lin’s (1989) analysis of *suoyi* ‘so’ as a complementizer, Lin and Tang (1995) argue that modals, such as *yīnggai* ‘should’ in (37), are the main lexical verbs that take a CP as the complement, because modals take the *yinwei*-phrase ‘because phrase’ as complement and the *yinwei*-phrase ‘because phrase’ always precedes *suoyi* ‘so’. Since *suoyi* ‘so’ is a COMP, the *yinwei*-phrase ‘because phrase’ preceding it should be a CP.

- (37) 你不應該 [CP 因為李四是個名人 [CP 所以就讓他免費入場]]
 nǐ bù yīnggāi yīnwei Lǐsì shì gè míngrén
 you not should because LS is CL celebrity
 suǒyǐ jiù ràng tā miǎnfèi rùchǎng
 so just let him free enter
 ‘You shouldn’t let Lisi enter just because he is a celebrity.’

However, in general, *yinwei* ‘because’ and *suoyi* ‘so’ do not have to co-occur within a sentence. As shown in (38), they can occur in the sentence alone without the presence of the other.

- (38) 張三 (因為) 想念 父母, (所以) 一直 打電話 回家
Zhāngsān (yīnwei) xiǎngniàn fùmǔ, (suǒyǐ) yīzhí dǎdiànhuà huíjiā
ZS because miss parents so always call back-home
‘Zhangsan keeps giving phone call to his home because he misses his parents.’

When the reason clause occurs in the modal construction, *suoyi* ‘so’ can be omitted, but the *yinwei* ‘because’-phrase has to occur in the sentence; if there is no *yinwei* ‘because’-phrase, *suoyi* ‘so’ cannot occur.

- (39) a. 張三不應該[因為李四是個名人](所以)就讓他入場
Zhāngsān bù yīnggāi [yīnwei Lǐsì shì gè míngrén]
ZS not should because LS is CL celebrity
(suǒyǐ) jiù ràng tā rùchǎng
so just let him enter
‘Zhangsan should not let Lisi enter because he is a celebrity.’
b.*張三不應該李四是個名人所以讓他入場
Zhāngsān bù yīnggāi Lǐsì shì-gè míngrén suǒyǐ ràng tā rùchǎng
ZS not should LS be-CL celebrity so let him enter
‘Zhangsan should not let Lisi enter because he is a celebrity.’

In any case, it is rather doubtful to rely on the occurrence of *suoyi* ‘so’ as argued by Lin and Tang (1995). As shown in (39), the *yinwei* ‘because’ clause is under the scope of negation. In the spirit of Ernst et al. (1995), we suggest that the *yinwei* ‘because’-phrase is an adverbial clause adjoining to VP and *suoyi* ‘so’ is an adverb indicating the result. Thus, the sequence that a modal takes a *yinwei* ‘because’ clause

can be analyzed as a modal taking a VP complement instead of a CP.

The third argument provided by Lin and Tang (1995) is that the raising and control distinction can be reflected in the *lian...duo* ‘even’ construction. They argue that control modals are acceptable in the *lian...duo* ‘even’ construction, because they are control verbs and the fronting PRO is not subject to the ECP. On the other hand, sentences with the raising type modals are suggested to be ungrammatical because the subject is moved from the embedded subject to the matrix subject position and leaves a trace which should be properly governed. According to them, the trace is not head-governed because *lian* ‘even’ could not be “a proper head governor” (Lin and Tang (1995: 85)). Given Lin and Tang’s (1995) analysis, it follows that deontic (e.g. (40a)) and epistemic (e.g. (40b)) modals are ungrammatical under the *lian...duo* ‘even’ construction whereas dynamic modals are grammatical ((40c) and (40d)). Nevertheless, as shown in (40), this inference is contrary to facts.

- (40)a. 連[ti 借給王五 一百元], 李四都 不應該 /可以
 lián jiègěi Wángwǔ yībǎi yuán Lǐsì dōu bù yīnggāi/ kěyǐ
 even lend WW one hundred dollar LS all not should/ may
 ‘Lisi is not supposed/permitted to lend Wangwu even one hundred dollars.’
- b.? 連[ti 借給王五 一百元], 李四 都不 可能
 lián jiègěi Wángwǔ yībǎi yuán Lǐsì dōu bù kěnéng
 even lend WW one hundred dollar LS all not can
 ‘It is not possible that Lisi will lend even one hundred dollars to Wangwu.’
- c. 連[PRO 借給王五 一百元], 李四都 不 肯 /敢
 lián jiègěi Wángwǔ yībǎi yuán Lǐsì dōu bù kěn / gǎn
 even lend WW one hundred dollar LS all not willing/ dare
 ‘Even lend Wangwu one hundred dollars, Lisi is not willing to/ dare not.’
- d. 連[PRO 寫字], 李四都 不會
 lián xiězì Lǐsì dōu bù huì
 even write-word LS all not can
 ‘Even write characters, Lisi is not able to.’

Here, there is no such contrast between so-called raising and control modals. Therefore, this argument based on *lian...duo* ‘even’ construction does not hold.

The fourth argument given by Lin and Tang (1995) is in terms of the stacking of modals. It has been argued in section 2.3.2 that the lexical verb analysis of modals would lead to wrong predictions regarding the ordering. Here, we further examine one argument given by Lin and Tang (1995) on this issue of modal stacking.

Following Huang’s (1988a) analysis that *bu* ‘not’ is base-generated as a bound form in INFL and forms an immediate constituent with the first V^0 element, Lin and Tang (1995) argue that modals resemble lexical verbs in the negation of stacking modals. The structure is shown in (41).

- (41) a. 張三 [IP 不 應該 [IP 不 會 [IP 不來]]]
 Zhāngsān bù yīnggāi bù huì bù lái
 ZS not should not will not come
 ‘It is not supposed to be the case that Zhangsan will not come.’
- b. 你 應該 [IP 不 會 還 [IP 沒有 吃飯]] 吧?
 nǐ yīnggāi bù huì hái méiyǒu chīfàn ba?
 you should not will yet not-have eat BA
 ‘It should not be the case the you haven’t eaten your meal yet.’

On the contrary, Ernst (1995) demonstrates that the analysis given by Huang (1988a) is not plausible. First, *bu* ‘not’ is not always adjacent to the verb (e.g. (42a)) and Huang’s analysis would wrongly predict the grammaticality of (42b), if *bu* ‘not’ has to form a constituent with the first V^0 element such as *jiǎng* ‘say’.

- (42)a. 他們 不 互相 幫忙
 tāmen bù hùxiāng bāngmáng
 they not mutually help
 ‘They don’t help mutually.’

b.*張三 不 講 得 很 清 楚

Zhāngsān bù jiǎng de hěn qīngchū

ZS not say DE very clearly

‘Zhangsan doesn’t say it clearly.’

Hence, regarding adjacent modals with negation, Lin and Tang’s (1995) argument does not hold. If modals are functional categories as the structure to be shown in (24) in section 3.2, the stacking of modals are predicted since modals project their own projections. Furthermore, Ernst (1995) proposes that *bu* ‘not’ is a pro-clitic word that can adjoin to AuxP or VP (the AuxP is parallel to the ModP in our analysis). Following Ernst (1995), the stacking of modals with negation is also straightforwardly predicted under our analysis.

2.4 Summary

In this chapter, we have reviewed some previous works on modals. Given the review of the semantic properties of modals, we found that the trichotomy interpretation could best capture the behaviors of modals semantically and syntactically. In addition, many linguists observe the thematic property of dynamic modals and also the great similarity between dynamic and other modals. After the review of several classic works of modal analyses, we observed some common properties of modals cross-linguistically. Under scrutiny, we found that the lexical verb analysis of the modal construction is implausible. Several problems and wrong predictions arise under such analysis.

In Chapter Three, we will adopt the split-INFL approach and argue that modals in Chinese should be analyzed as a functional category in the INFL domain instead of being analyzed as a bi-clausal construction as raising/control verbs. In the course of our argumentation, we will take *kaishi* ‘start’ as typical raising verbs in Chinese and verbs such as *dasuan* ‘plan’, *changshi* ‘try’ and *jihua* ‘plan’ as typical control verbs. The contrast between raising/control verbs and modals will be manifested throughout our discussions.