



Chapter Three

Chinese Modals as Functional Categories

3.0 Introduction

In the preceding chapter, we have reviewed different approaches to modal analyses and sieved out basic properties of modals in Chinese. The purpose of this chapter is two-fold. First, we argue that modals in Chinese should be analyzed as functional categories in the INFL domain with the epistemic modal higher than the deontic modal. In turn, both of them are higher than the dynamic modal in the clausal structure. Second, with the help of new facts, we clarify that some misconceptions are based on the failure to distinguish dynamic modals from deontic ones. Then, we discuss how facts can be explained under our analysis and how they naturally support our proposal.

This chapter is organized as follows. In section 3.1, we present our arguments for modals as functional categories that they are different from lexical verbs and should be syntactically distinguished into three groups: epistemics, deontics and dynamics. In section 3.2, we propose a clausal structure for representing a Chinese modal construction and demonstrate our analyses of facts in relation to the modal construction. In section 3.3, we summarize this chapter.

3.1 Modals as three levels in INFL

As reviewed in Chapter Two, the dichotomy interpretation, epistemic and deontic (root) modalities, cannot fully reflect the differences among Chinese modals. We argued there that the trichotomy interpretation can better capture the facts of modals. Generally, epistemic modalities are a class of interpretations involving the speaker's attitude towards the status of the truth of a proposition, while deontic modalities involve permission or obligation with respect to some authority or a set of moral values. Dynamic modalities evaluate the occurrence of events or the existence of will, capacity, ability, volition, etc. Due to the obscure boundaries between semantic sub-types of Chinese modals, we are not going to discuss the subtle differences within each

interpretation in this thesis. Complied with the three fundamental interpretations, epistemic, deontic and dynamic, modals investigated in this thesis are listed in (1).

(1) List of Chinese modals:⁹

a. Epistemic modals:

可能 (it's possible), 應該 (it's necessary), 可以 (it's possible),
會 (it's possible), 能 (it's possible), 要 (it's possible)

b. Deontic modals:

應該 (ought to, have to), 可以 (permitted), 要 (ought to, have to),
得(ought to, have to), 能 (permitted)

c. Dynamic modals:

能 (be able to), 能夠 (be able to), 會 (be able to), 可以 (be able to),
要 (want to), 肯 (be willing to), 敢 (dare to)

With the help of new facts, we argue in the following sections that modals should be analyzed as functional categories in INFL and that, it is indeed necessary to syntactically distinguish modals into epistemics, deontics and dynamics.

3.1.1 Passivization of modals as the main predicate

In this subsection we verify that, contrary to the lexical verb analysis, modals cannot be in analogy with control verbs.

It is known that only verbs with an external argument allow passivization. This generalization also holds in Chinese (as shown in (2)).

- (2) a. 李四 被 張三 騙 了
Lǐsì bèi Zhāngsān piàn le
LS BEI ZS cheat LE
'Lisi was cheated by Zhangsan.'
b. 李四 被 騙 了

⁹ It should be noted that we only use one or some representative modals of each class in examples during our discussion. As for sentences of each modal listed in (1), refer to the appendix for details.

- Lǐsì bèi piàn le
LS BEI cheat LE
'Lisi was cheated.'
- c. 李四 被 張三 看到 了
Lǐsì bèi Zhāngsān kàndào le
LS BEI ZS see LE
'Lisi was seen by Zhangsan.'
- d. 李四 被 看到 了
Lǐsì bèi kàndào le
LS BEI see LE
'Lisi was seen.'
- e. *被 張三 明天 來
bèi Zhāngsān míngtiān lái
BEI ZS tomorrow come
'was come by Zhangsan tomorrow.'
- f. *被 明天 來
bèi míngtiān lái
BEI tomorrow come
'was come tomorrow.'

Consistently, only verbs with external argument allow passivization. Wurmbrand (2001) argues that in German only control verbs allow “long passives”,¹⁰ but raising verbs do not. It is shown in (3) and the same happens in Chinese as well (e.g. (4)).

- (3) a. dass der Traktor zu reparieren versucht wurde
that the tractor-NOM to repair tried was
'that they tried to repair the tractor'
- b. *als der Brief zu verlesen angefangen wurde
when the letter-NOM to read Part-started was

¹⁰ Argued by Wurmbrand (2001), the “long passive” refers to an A-movement operation for an NP to undergo a long distance movement. It is a test for distinguishing the effect of restructuring.

‘when they started to read the letter’

(4) Control—

- a. 這首歌被計畫發行很久了
zhè -shǒu gē bèi jìhuà fāxíng hěn jiǔ le
this-CL song BEI plan publish very long LE
‘This song has been planned to publish long time ago.’

Raising—

- b.* 這件事被開始討論
zhè-jìàn shì bèi kāishǐ tāolùn
this-CL matter BEI start discuss
‘*This matter was started to discuss.’

Based on these facts, a generalization is that passive voice is only possible when the predicate has an underlying external argument. Sentences in (3) and (4) illustrate that control verbs allow passivization, while raising verbs do not. Since raising verbs do not have an underlying external argument, it is not surprising that the passive voice can not be used in raising verb contexts.

Given the above generalization, it is expected that dynamic modals allow passivization, since the lexical verb analysis argues that they are control verbs. In (5), we examine all modals in passivization.

(5) Passivization of modals

- a.* 李四被張三應該騙了
Lǐsì bèi Zhāngsān yīnggāi piàn le
LS BEI ZS should cheat LE
‘Lisi was supposed to be cheated by Zhangsan.’
- b.* 李四被應該騙了
Lǐsì bèi yīnggāi piàn le
LS BEI should cheat LE
‘Lisi was supposed to be cheated.’

- c.*李四 被 張三 應該 給 一百 元
Lìsì bèi Zhāngsān yīnggāi gěi yī-bǎi yuán
LS BEI ZS should give one-hundred dollar
'Lisi was supposed to be given \$100 by Zhangsan.'
- d.*李四被應該給一百元
Lìsì bèi yīnggāi gěi yībǎi yuán
LS BEI should give one-hundred dollar
'Lisi was supposed to be given \$100.'
- e.*這 一次 李四 被 張三 可以 幫
zhè yī-cì Lìsì bèi Zhāngsān kěyǐ bāng
this one-CL LS BEI ZS can help
'This time, Lisi was be able to be helped by Zhangsan.'
- f.*這 一次 李四 被 可以 幫
zhè yī-cì Lìsì bèi kěyǐ bāng
this one-CL LS BEI can help
'This time, Lisi was be able to be helped.'
- g.*歌 被張三 很 會 唱
gē bèi Zhāngsān hěn huì chàng
song BEI ZS very can sing
'Songs are able to be sung by Zangsan very well.'
- h.*歌 被 很 會 唱
gē bèi hěn huì chàng
song BEI very can sing
'Songs are able to be sung very well.'

The prediction, however, is contrary to facts. Both long-passives and short-passives are unacceptable with all modal interpretations. It follows that modals cannot be analyzed as control verbs. Such observation is testified in German as well. Wurmbrand (2001) shows that lexical verbs allow long-passives (i.e. (6a)) and that functional categories cannot (i.e. (6b)).

- (6) a. Der Wagen wurde zu reparieren versucht
The car-NOM was to repair tried
'They tried to repair the car.'
- b. *Der Wagen wurde zu reparieren geumsst/muussen
The car-NOM was to repair must-PART/INF
'They had to repair the car.'

In sum, these examples transparently show that modals in Chinese as well as the functional categories in German cannot be analyzed as control verbs. Examples insofar seem to indicate that modals are similar to raising verbs. Thus, analyzing dynamic modals as control verbs contrary to other modals is implausible.

In the next sections, we further argue that modals cannot be analyzed as lexical verbs, according to the distribution of the particle *suo* and preverbal adverbs.

3.1.2 The particle *suo*

In a typical control and raising construction, the particle *suo* can occur in the position before raising and control verbs or in the position after them.

- (7) a. 張三 (所) 打算 (所) 完成 的 工作
Zhāngsān (suǒ) dǎsuan (suǒ) wánchéng de gōngzuò
ZS SUO plan SUO finish DE work
(至今 還沒 完成)
(zhìjīn hái méi wánchéng)
until now yet not finish
'The work that Zhangsan plans to finish hasn't finished yet.'
- b. 張三 (所) 打算 (所) 邀請 的 客人
Zhāngsān (suǒ) dǎsuan (suǒ) yāoqǐng de kèrén
ZS SUO plan SUO invite DE guest
(都 是 政商名流)

(dōu shì zhèng shāngmíng liú)

all be celebrity in business and politics

‘The guests that Zhangsan plans to invite are all celebrities
in politics and business.’

c. 張三 (所) 開始 (所) 編寫 的 劇本

Zhāngsān (suǒ) kāishǐ (suǒ) biānxiě de jùběn

ZS SUO start SUO write DE script

(是以 青少年 為 主角 的)

(shì yǐ qīngshàonián wéi zhǔjiǎo de)

be based-on teenage be main actor DE

‘The script that Zhangsan starts to write is about the teenagers.’

d. 張三 (所) 開始 (所) 進行 的 工程

Zhāngsān (suǒ) kāishǐ (suǒ) jìnxíng de gōngchéng

ZS SUO start SUO proceed DE construction

(和 學校 的 擴建 有關)

(hé xuéxiào de kuòjiàn yǒuguān)

and school DE extension related

‘The construction that Zhangsan starts to superintend

is related to school’s extension.’

Under the lexical verb analysis, modals are analyzed as raising/control verbs. Thereby, the particle *suǒ* is predicted to have the same distribution in a modal construction as what is shown in the raising/control construction. However, with respect to their relative order to the particle *suǒ*, we find that *suǒ* is only allowed to precede modals, but not to ensue them.

(8) a. 張三 (所) 應該 (*所) 看完 的 書 (有十幾本)

Zhāngsān (suǒ) yīnggāi (*suǒ) kàn-wán de shū (yǒu shí jǐ běn)

ZS SUO should SUO read-WAN DE book have ten-s CL

‘The books that Zhangsan would finish reading are about ten.’

- b. 張三 (所) 可以 (*所) 回家 的時間
 Zhāngsān (suǒ) kěyǐ (*suǒ) huíjiā de shíjiān
 ZS SUO can SUO go home DE time
 (只有 九點 以後，之前 得 留 在 公司)
 (zhǐyǒu jiǔ diǎn yǐhòu, zhīqián děi liú zài gōng sī)
 only nine o'clock after before must stay LC office
 ‘The time that Zhangsan is allowed to go home is nine o’clock,
 before that he has to stay at the office.’

- c. 張三 (所) 能夠 (*所) 唱 的歌 (都是中文歌)
 Zhāngsān (suǒ) nénggòu (*suǒ) chàng de gē (dōu shì Zhōngwén gē)
 ZS SUO willing SUO sing DE song all be Chinese song
 ‘The songs that Zhangsan is willing to sing are all Chinese songs.’

The contrast between (7) and (8) is not expected under the lexical verb analysis, since modals are analyzed as lexical verbs, and it is not clear why modals impose such restriction on the distribution of *suo* while raising and control verbs do not.¹¹

Ting (2003) argues that as a particle with optional occurrence, the particle *suo* is a resumptive pronominal clitic with the properties of Romance-like clitics. She suggests that *suo* should be treated as the head of a nominal projection, which is licensed by a null operator and eventually adjoins to INFL via head movement.¹² She

11 Note that sentence in (8b) and (8c) are disyllabic modals. It is in an attempt to avoid the prosodic effect. Prosody is known to interfere with syntax in Chinese for determining the acceptability of an otherwise grammatical expression. In (i), monosyllabic modals also behave in the same way as what is shown in (8).

- (i) a. 張三 (所) 能 (*所) 回家 的時間 (只有 九點 以後，之前 得 留 在 公司)
 Zhāngsān (suǒ) néng (*suǒ) huíjiā de shíjiān (zhǐyǒu jiǔ diǎn yǐhòu, zhīqián děi liú zài gōng sī)
 ZS SUO can SUO go home DE time only 21:00 after before must stay LC office
 ‘The time that Zhangsan is allowed to go home is nine o’clock, before that he has to stay at the office.’
 b. 張三 (所) 肯 (*所) 唱 的歌 (都是中文歌)
 Zhāngsān (suǒ) kěn (*suǒ) chàng de gē (dōu shì Zhōngwén gē)
 ZS SUO willing SUO sing DE song all be Chinese song
 ‘The songs that Zhangsan is willing to sing are all Chinese songs.’

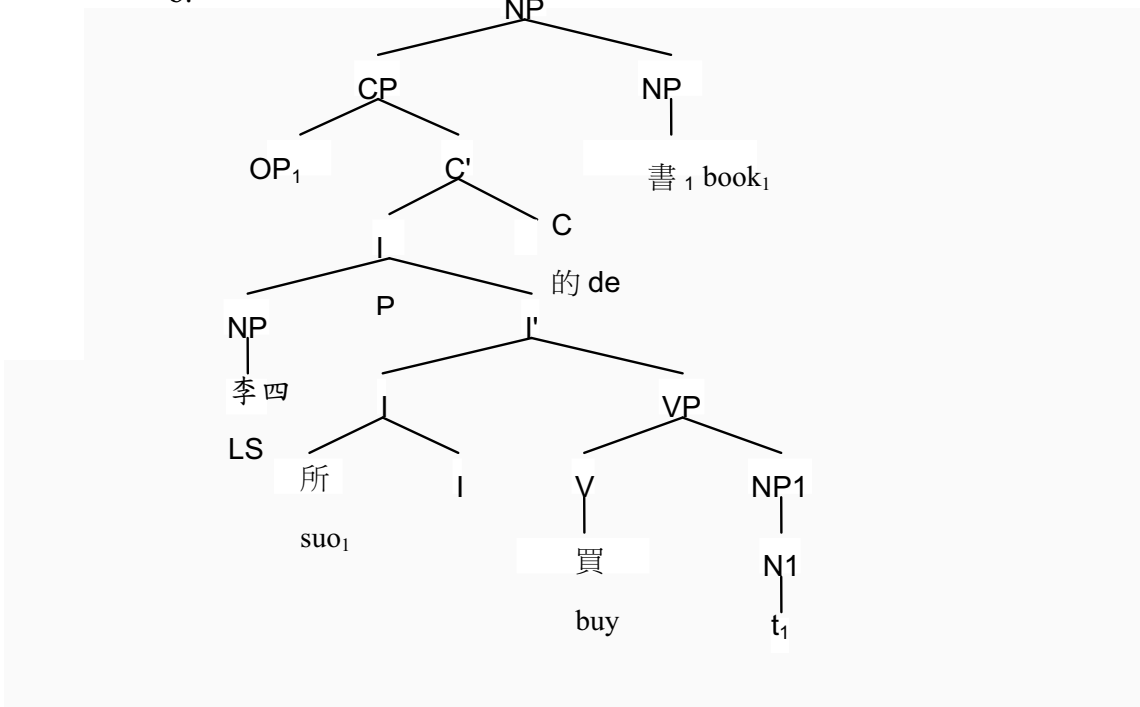
Thus, we got supports that the particle *suo* can only occur before modals but not occur between the modal and the following VP.

¹² The position of *suo* within the INFL domain is beyond the scope of our research; thus, we do not discuss this point in depth.

provides the structure as shown in (9):

- (9) a. 李四 所 買 的 書
 Lǐsì suǒ mǎi de shū
 LS SUO buy DE book
 ‘the books that Lisi bought’

b.



In the spirit of Ting (2003), it follows that the particle *suo* can only precede modals and never follow them regarding the INFL domain (as examples in (8)). The reason why the particle *suo* can occur in the position before or after raising/control verbs can be explained by that raising verbs subcategorize an IP and that control verbs subcategorize a CP.

On the other hand, stacking modals involve a mono-clausal sentence, since modals are in INFL. Given the result above, it is conjectured that the distribution of *suo* should be subject to the position of modals. *Suo* should precede modals, sit between modals but cannot locate in the position between the modal and the following verbs. The stacking infinitives of the control and raising constructions, however, form a bi-clausal or multi-clausal sentence. Thereby, *suo* should be able to precede or follow

raising/control verbs. This distinction between raising/control verbs and modals is shown in (10).

- (10) a. 張三 (所) 應該 (所) 能夠 (*所) 研究 的
Zhāngsān (suǒ) yīnggāi (suǒ) nénggòu (*suǒ) yánjiū de
ZS SUO should SUO can SUO analyze DE
(資料 都 在架子 上)
(zīliào dōu zài jiàzi shàng)
data all LC shelf on
'The data that Zhangsan is supposed to be able to analyze are
on the shelf.'

- b. 張三 (所) 開始 (所) 嘗試 (所) 演奏 的
Zhāngsān (suǒ) kāishǐ (suǒ) chángshì (suǒ) yǎnzòu de
ZS SUO start SUO try SUO play DE
(曲子 都 很 難)
(qǔzi dōu hěn nán)
tune all very difficult
'The tunes that Zhangsan starts to try to play are very difficult.'

While *suo* is prevented from sitting between the modal and the verb as shown in (10a), (10b) with the stacking infinitives do not have the same restriction. This contrast supports our proposal that modals are functional categories in INFL, which are different from raising and control verbs.

Furthermore, based on the distributions of *suo*, we can distinguish lexical verbs from modals. As shown in (11), *suo* can only occur before modal such as *yao* 'want' and *ken* 'be willing to' (i.e. (11a) and (11b)), but can not follow them. Verbs as *yuanyi* 'be willing to' and *xihuan* 'like' do not have such restriction (e.g. (11c) and (11d)).

- (11) a. 張三 (所) 要 (*所) 還的 錢 (多達五億)
Zhāngsān (suǒ) yào (*suǒ) hái de qián (duōdá wǔ yì)

‘The money that Zhangsan has to give back (is five hundred millions)’

b. 張三 (所) 肯 (*所) 聘請 的 員工 (多半 不是 老年人)

Zhāngsān (suǒ) kěn (*suǒ) pìnqǐng de yuángōng

ZS SUO willing SUO hire DE employee

(duōbàn bùshì lǎoniánrén)

most not the elder

‘Most of the employees that Zhangsan wants to hire are not the elder.’

c. 企業 (所) 願意 (所) 招聘 的 員工 (多半 不是 老年人)

qǐyè (suǒ) yuànyì (suǒ) zhāopìn de yuángōng

enterprise SUO willing SUO hire DE employee

(duōbàn bùshì lǎoniánrén)

most not the elder

‘Most of the employees that Zhangsan wants to hire are not the elder.’

d. 張三 (所) 喜歡 (所) 購買 的 衣服 (都很 流行)

Zhāngsān (suǒ) xǐhuan (suǒ) gòumǎi de yīfú (dōu hěn liúxíng)

ZS SUO like SUO buy DE clothes all very fashion

‘The clothes that Zhangsan likes to buy are all very fashion.’

Thus, we rule out the two verbs, *xihuan* ‘like’ and *yuanyi* ‘be willing to’, from our modal group.

3.1.3 Preverbal adverbs

Considering the distribution of preverbal adverbs, we argue that modals should be analyzed as INFL elements, and the result echoes what is shown in section 3.1.2.

Tang (1990, 2001), following Travis’s (1998) analysis of adjuncts, argues that the distribution of adjuncts has to do with the structure of functional categories (although they are also related to certain semantic effects). With respect to the grammaticality and scope interpretations, the sequence among adjuncts cannot be free and not all sorts of adjuncts are licensed by V. She observes that preverbal adverbs show a rigid sequence and that the sequence reflects the clausal hierarchy. We substantiate her

observations in (12).

(12) [_{IP} sentential adverb— frequency adverb —[manner adverb [_{VP}]]]

Under her analysis, sentential adverbs are licensed in INFL whereas manner adverbs are licensed in a functional projection that takes VP as its complement. Given the system of Tang (1990), modals are in the INFL domain, since all modals have to be followed by manner adverbs but follow sentential adverbs.

(13) Manner adverb:

a. 張三 (#¹³慢慢地) 應該 (慢慢地) 走路
Zhāngsān (#mànmàn dì) yīnggāi (mànmàn dì) zǒulù
ZS slowly should slowly walk
'Zhangsan should walk slowly.'

b. 張三 (*努力地) 肯 (努力地) 學 中文
Zhāngsān (*nǔlì dì) kěn (nǔlì dì) xué Zhōngwén
ZS diligently willing diligently learn Chinese
'Zhangsan is willing to learn Chinese diligently.'

(14) Sentential adverb:

a. 張三 (大概) 可以(*大概) 加班 到 十一點
Zhāngsān (dàgài) kěyǐ (*dàgài) jiābān dào shíyī diǎn
ZS probably can probably work overtime to 11:00
'It is probably that Zhangsan can work overtime to 11:00.'

b. 張三 (大概)應該 (*大概) 完成 這些 工作 了
Zhāngsān (dàgài) yīnggāi (*dàgài) wánchéng zhèxiē gōngzuò le
ZS probably should probably finish this work LE
'It is supposed that Zhangsan probably can finish the work.'

¹³ The adverb *manman-de* in the pre-modal position is acceptable under the interpretation as 'gradually', which belongs to sentential adverbs rather than manner adverbs. Thus, we mark as “#” (indicating the unacceptability in the required environment which is grammatically correct).

Based on the facts in (13) and (14), we argue against the lexical verb analysis that modals are in the INFL domain and precede the projection that takes VP as its complement.¹⁴

¹⁴ Assuming the sequence given by Tang (1990) that frequency adverbs sit between sentential adverbs and manner adverbs, we found epistemic modals have to precede frequency adverbs.

(i) Epistemic

我猜想張三 (*常常)應該 (常常)放假就馬上回家
wǒ cāixiǎng Zhāngsān (*chángcháng) yīnggāi (chángcháng) fàngjià jiù mǎshàng huíjiā
I guess ZS often should often have break just immediately go home
'I guess it must be the case that Zhangsan often go home directly whenever there is a break.'

This observation indicates that frequency adverbs may be licensed by a functional projection that follows epistemic modals. In terms of deontic and dynamic modals, we find that they behave differently from epistemic modals.

(ii) a. 父母身體不好, 作子女的(*常常)應該(常常)回家看看

fùmǔ shēntǐ bù hǎo, zuò zǐnǚ de (chángcháng) yīnggāi (chángcháng) huíjiā kànkàn
parent body not good being as children DEoften should often go home look
'Since parents are sick, the children should often go home to take care of them.'

b. 老闆說張三從今天開始(#常常)可以 (常常)回家吃飯了

lǎobǎn shuō Zhāngsān cóng jīntiān kāishǐ (*chángcháng) kěyǐ (chángcháng) huíjiā chīfàn le
boss say ZS from today start often can often go home eat LE
'The boss commanded that from now on Zhangsan is permitted to go home for his meal.'

Under the deontic interpretation, the frequency adverb is acceptable in the position after modals but not before them. It follows that frequency adverbs may be licensed by one functional projection which precedes VP but follows modals. For example, when the frequency adverb precedes the deontic modal *keyi* 'may', its interpretation tends to be the dynamic meaning of "be able to" rather than "be permitted to".

On the other hand, frequency adverbs can either precede or follow dynamic modals. That is, frequency adverbs can take a scope within dynamic modals (which is the same as in the situation of deontic and epistemic modals), and can also take a scope over them.

(iii) a. Dynamic- dare

張三膽子很大, 他 (總是)敢 (?總是)坐夜車回家
Zhāngsān dǎnzi hěn dà, ta (zǒngshì) gǎn (?zǒngshì) zuò yèchē huíjiā
ZS courage very great he always dare always take night train go home
'Zhangsan is brave, he always dares to take the night train home.'

b. Dynamic- ability

張三 (常常)可以(常常)閉眼睛走路不跌倒
Zhāngsān (chángcháng) kěyǐ (chángcháng) bì yǎnjīng zǒulù bù diēdǎo
ZS often can often close eyes walk not fall down
'Zhangsan could often walk with his eye closed and not fall down.'

The facts support our claim that dynamic modals should be discriminated from deontic ones (See section 3.1.4 for the same result). Note that the pre-modal frequency adverb in (ii) a) seems to be acceptable by some native speakers. Semantically, we found the interpretation of pre-modal adverb in (ii) a) has the scope over the whole event, which is different from the original function of frequency adverbs. Similar effect is noted by Cinque (1999) as well.

(iv) a. Texans often drink beer.

b. Texans drink beer often.

In the following section, we further argue that modals should be divided into three levels in INFL through examining the interaction between modals and the cleft *shi*.

3.1.4 The cleft *shi*

In this section, we verify that the trichotomy interpretation is reflected by the syntactic behaviors of modals according to the interaction between modals and the cleft *shi*. In other words, modals split into three distinct groups: epistemic modals precede deontic modals; they have to precede dynamic modals.

Being a pioneer, Teng (1979) indicates many fundamental phenomena which separate the cleft *shi* from the copula *shi*. Besides Teng (1979), Paris (1979), Huang (1988b), Chiu (1993), Shi (1994), Tsao (1994), Wei (2004) and Lee (2005) also explore the property of Chinese cleft construction from various perspectives.¹⁵

Cinque (1999) argues that in (iva), the former *often* may act as an “adverb of quantification” which takes scope over the whole sentence and indicates the interpretation as “Most of the Texans drink beer”, which is different from the later *often* in (ivb). Thus, he argues that there may be two distinct positions for such adverb to be simultaneously filled.

In the spirit of Cinque (1999), we suggest that for typical frequency adverbs, they are permitted to follow modals or precede dynamic modals, but not precede deontic and epistemic modals. The acceptability of sentence such as (iia) involves another type of adverbs. At the present study, we leave open which position are their licensed positions and what specific type of adverbs can behave in this way.

¹⁵ Recently, the *de* in cleft structure has received attentions. In many of the analyses regarding the cleft construction, the optional *de* is always perplexing. The fact is that the presence of *de* does not cause a dramatic difference in interpretation. Consider sentences like (i) and (ii).

- (i) a. 張三 不 應該 有 我的 信
 Zhāngsān bù yīnggāi yǒu wǒde xìn
 ZS not should have mine letter
 ‘Zhangsan shouldn’t have my letter.’
 b. 張三 不 應該 會 唱歌
 Zhāngsān bù yīnggāi huì chànggē
 ZS not should can sing
 ‘Zhangsan wouldn’t be able to sing.’
- (ii) a. 張三 不 應該 有 我的信 的
 Zhāngsān bù yīnggāi yǒu wǒde xìn de
 ZS not should have mine letter DE
 ‘Zhangsan shouldn’t have my letter.’
 b. 張三 不 應該 會 唱歌 的
 Zhāngsān bù yīnggāi huì chànggē de
 ZS not should can sing DE
 ‘Zhangsan wouldn’t be able to sing.’

In terms of epistemic modals, sentences in (i) are not as good as in (ii), though they are still grammatical. However, the details of *de*’s analysis are beyond the scope of this thesis. See Shi (1994) for arguing *de* in the cleft construction as an aspect marker.

As Huang (1988b) observes, the cleft *shi* has several unique properties which are different from those of regular verbs.

(15) The cleft *shi* can occur in the sentence initial position, while lexical verbs cannot.

- a. 是我昨天 看到 張三 的
shì wǒ zuótiān kàndào Zhāngsān de
be I yesterday see ZS DE
'It is I that saw Zhangsan yesterday.'
- b. *買了一本書 李四
mǎi le yī-běn shū Lìsì
buy LE one-CL book LS
'Lisi BOUGHT a book.'
- c. *是這本書 我最喜歡的¹⁶
shì zhè-běn shū wǒ zuì xǐhuan de
be this-CL book I do like DE
'I like THIS BOOK most.'

(16) The cleft *shi* cannot be embedded under non-finite clause.

- *我設法是打開 窗子 了
wǒ shèfǎ shì dǎkāi chuāngzi le
I try be open window LE
'I TRIED to open the window.'

(17) The cleft *shi* must precede prepositional phrase (if there is one).

- *張三 到 紐約 是去了
Zhāngsān dào Niǔyuē shì qù le
ZS to NYC be go LE
'Zhangsan has GONE to NYC.'

(18) The cleft *shi* is interchangeable with modals as *yinggai*.

¹⁶ The unacceptability of this sentence reveals the distinction between the cleft *shi* and the copular *shi*: as pointed out by Huang (1988), only the cleft *shi* can occur in the initial position while the copula *shi* cannot.

- a. 張三 是 應該 到 紐約 去了
Zhāngsān shì yīnggāi dào Niǔyuē qù le
ZS be should to NYC go LE
'It is obligatory that Zhangsan should go to NYC.'
- b. 張三 應該 是到 紐約 去了
Zhāngsān yīnggāi shì dào Niǔyuē qù le
ZS should be to NYC go LE
'Zhangsan must have GONE to NYC.'

(19) The cleft *shi* is not interchangeable with modals as *neng*.

- *張三 能 是 三天 不 睡覺
Zhāngsān néng shì sān tiān bù shuìjué
ZS can be three day not sleep
'Zhangsan is able to KEEP AWAKE FOR 3 DAYS.'

Thus, Huang (1988b) suggests that the cleft *shi* should be treated as an emphatic modal in INFL and is similar to modals such as *yīnggāi* 'should'. Tang (1990), Tsao (1994), Shi (1994) and Wei (2004) agree with this observation.

Moreover, Huang (1988b) points out that in terms of modals, there is a contrast between (18) and (19). The cleft *shi* seems to be interchangeable with non-dynamic modals, but has to precede dynamic modals. We agree with this observation, but in this section, we further argue that the difference between (18a) and (18b) should be distinguished: modals in (18a) involve deontic meanings whereas modals in (18b) involve epistemic meanings.

Given the analysis that the cleft *shi* is a kind of modal in INFL, we examine the interaction between it and other modals. First, we find that when the cleft *shi* is between the subject and the verb, modals have distinct distributions corresponding to their interpretations.

(20) Subject+是

a. Epistemic

(應該) 張三 (應該) 是 (*應該) 去過 台北(的)
(yīnggāi) Zhāngsān (yīnggāi) shì (*yīnggāi) qù guò Táiběi (de)
should ZS should be should go GUO Taipei DE
'Zhangsan must have gone to Taipei.'

b. Deontic-obligation

(*應該) 張三 (*應該) 是 (應該) 上台 領獎 (的)
(*yīnggāi) Zhāngsān (*yīnggāi) shì (yīnggāi) shàngtái lǐngjiǎng (de)
should ZS should be should on stage award DE
'It is Zhangsan who should get this award.'

c. Deontic-permission

(*可以)張三 (*可以)是 (可以)不用 上班 (的)
(*kěyǐ) Zhāngsān (*kěyǐ) shì (kěyǐ) bù yòng shàngbān (de)
can ZS can be can unnecessary work DE
'It is Zhangsan who is permitted to have a break.'

d. Dynamic

(*會) 張三 (*會) 是 (會) 唱歌 (的)
(*hui) Zhāngsān (*hui) shì (hui) chànggē (de)
can ZS can be can sing DE
'Zhangsan CAN sing.'

As shown in (20), the epistemic modal has to precede the cleft *shi*, but it can occur before or after the subject. On the other hand, deontic and dynamic modals ensuing *shi* that cannot precede it. The sequence is shown in (21).

(21) Epistemic modals— cleft *shi*— deontic modals and dynamic modals

Given that the cleft *shi* and modals are in INFL, such distribution indicates that epistemic modals locate in the position higher than the cleft *shi* and both of them in turn

are higher than non-epistemic modals.

Furthermore, consider distributions of modals in sentences with *shi* in the sentence initial position.

(22) 是+Subject

a. Epistemic

(應該) 是 (*應該) 張三 (*應該) 去過 台北 (的)
 (yīnggāi) shì (*yīnggāi) Zhāngsān (*yīnggāi) qù guò Táiběi (de)
 should be should ZS should go GUO Taipei DE
 ‘It is Zhangsan who is supposed to have gone to Taipei.’

b. Deontic- obligation

(*應該) 是 (應該) 張三 (應該) 負責 那件事 (的)
 (*yīnggāi) shì (yīnggāi) Zhāngsān (yīnggāi) fùzé nà-jiàn shì (de)
 should be should ZS should manage that-CL case DE
 ‘It is Zhangsan that he should responsible for that case.’

c. Deontic-permission

(*可以)是 (可以)張三 (可以) 當 代表 (的),
 (*kěyǐ) shì (kěyǐ) Zhāngsān (kěyǐ) dāng dài biǎo (de),
 can be can ZS can be representative DE
 (老闆 昨天 批准 了)¹⁷

17 Under the deontic interpretation, *yīnggāi* ‘should’ and *kěyǐ* ‘may’ in the initial position can only be accepted under the construction with *shi* as a copular rather than an emphatic modal, because in such construction, *de* cannot co-occur in the sentence as the contrast between (ia) and (ib). Moreover, as shown in (ic), the sequence of ‘*yīnggāi+shi*’ can only be allowed when *shi* serves in the pseudo-cleft, but still, not the case of cleft sentences.

- (i) a. 據 規定, 這件事 應該 是張三 負責 (*的)
 jù guīding, zhè jiàn shì yīnggāi shì Zhāngsān fùzé (*de)
 according regulation this-CL case should be ZS manage DE
 ‘According to the regulation, it should be Zhangsan to responsible for this case.’
 b. 據 規定, 這件事 是 應該 張三 負責 (的)
 jù guīding, zhè jiàn shì shì yīnggāi Zhāngsān fùzé (de)
 according regulation this-CL case be should ZS manage DE
 ‘According to the regulation, it should be the case that ZS responsible for this case.’
 c. 應該 是 張三 負責 的事 我才 關心
 yīnggāi shì Zhāngsān fùzé de shì wǒ cái guānxīn
 should be ZS manage DE case I then care
 ‘I only care about the thing that is supposed to be taken care of by Zhangsan.’

(lǎobǎn zuótiān pīzhǔn le)

‘It is Zhangsan who is allowed to be the representative.’

d. Dynamic-ability

(*會) 是 (*會) 張三 (會) 唱歌 (的)

(*hui) shì (*hui) Zhāngsān (hui) chànggē (de)

can be can ZS can sing DE

‘It is Zhangsan who is able to sing.’

e. Dynamic-willingness

(*肯) 是 (*肯) 張三 (肯) 捐錢 (的)

(*kěn) shì (*kěn) Zhāngsān (kěn) juānqián (de)

willing be willing ZS willing donate-the-money DE

‘It is Zhangsan that is willingly to donate the money.’

As shown in (23), only the epistemic modals have to be followed by *shi*; deontic and dynamic modals have to follow *shi*. In addition, deontic modals can precede the subject whereas dynamic modals cannot.

(23) Epistemic — Cleft *shi* — (Subject* —) Deontic — (Subject* —) Dynamic

The asterisks in (23) indicate the flexible occurrence of the subject in either position. (23) shows that dynamic and deontic modals have different syntactic behaviors with respect to the subject of the sentence and thereby should be distinguished. In other words, sentences represented in (20) and (22) illustrate the distinct positions of modals. Under the lexical verb analysis, one might argue that (22a) through (22c) involve

When we add *de* into the emphatic sentence, the sentence in (ia) sounds strange and (iia) is not acceptable unless *keyi* ‘may’ is interpreted as epistemic reading that “it is possible....” (e.g. (iib)).

(ii)a. 可以是 張三 當 代表 (*的), 老闆 昨天 批准 了
kěyǐ shì Zhāngsān dāng dàibiǎo (*de), lǎobǎn zuótiān pīzhǔn le
can be ZS be representative DE boss yesterday ratify LE
‘Boss ratified yesterday that it is permitted for Zhangsan to be the representative.’

b. 可以是 張三 當 代表 (的), 老闆 說 人人 都有 機會
kěyǐ shì Zhāngsān dāng dàibiǎo (de), lǎobǎn shuō rén rén dōu yǒu jīhuì
can be ZS be representative DE boss said everyone all have chance
‘Boss said that it is possible for ZS to be the representative since everyone has chance.’

raising predicates, while (22d) and (22e) involve control predicates. However, the lexical approach faces a problem with respect to the contrast shown between (20) and (22a) to (22c). The fact that epistemic modals have to precede the cleft *shi* and deontic modals must follow it is hard to explain. Since both epistemic modals and deontic modals are raising verbs, it is not clear why such restriction occurs.

Based on the above discussion, we argue that modals should be divided into epistemic, deontic and dynamic because of the rigid sequence and that such sequence should be reflected in the clausal hierarchy. In the following section, we will propose a clausal structure, indicating that modals are distinct projections as three layers in INFL.

3.2 Proposal—Modals as part of the split INFL in Chinese

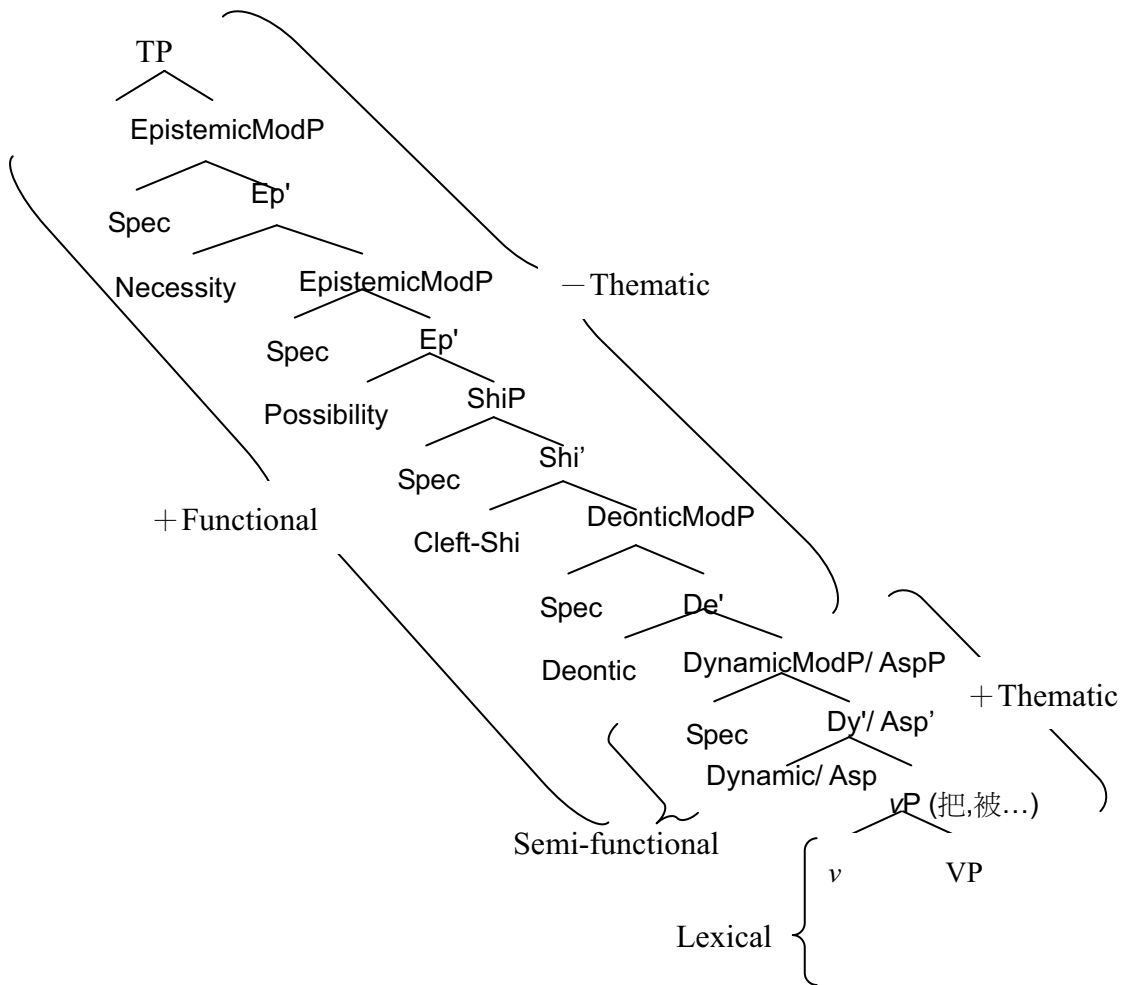
Adopting the split INFL approach, we argue that there are projections of modals (hereafter ModP) split in the INFL domain. The clausal structure is shown in (24) where ModP and TP are functional categories; projections below *v*P belong to the lexical domain (cf. Chomsky (1995) and the discussion in Chapter Two 2.1.2.2).

TP here stands for the projection of Tense. Following Chomsky (1995), many linguists argue that the Tense projection, TP, exists in Mandarin Chinese. In terms of this issue of Tense in Chinese, there are different perspectives and analyses in the literature. For example, Chiu (1993:8-25) argues that *-le* is a realization of Tense that is base-generated in T, while T. Lin (2001:29-37) proposes that TP in Chinese is a projection of an empty operator, Op, which “receives a value from the intra- or extra-sentential context.” J. Lin (2002a) argues that Tense in Chinese would be represented overtly or covertly (See Chiu (1993), J. Lin (2002a, 2002b) and T. Lin (2001) for further discussion of Tense in Chinese). Following the analyses given in the literature related to Tense in Chinese, we assume a higher functional projection hosting Tense, i.e. TP, which is separated from modals and Aspect (cf. Wurmbrand (2001) and references therein).

Furthermore, we propose that the three interpretations of modals indicate three different layers in INFL. The projection of epistemic modals is the complement of TP

and what follows are projections of deontic and dynamic modals. The position of the cleft *shi* as demonstrated in section 3.1.4 has to sit between epistemic modals and deontic modals.

(24) Clausal structure of Mandarin Chinese



Following Bulter (2004), we divide epistemic modals into necessity and possibility modals because of a consistent and rigid sequence of modals with these two interpretations.

- (25) 明天 張三 應該 會 記得 繳錢
 míngtiān Zhāngsān yīnggāi huì jìde jiǎo-qían
 tomorrow ZS should will remember pay-money

‘It is supposed that Zhangsan would possibly remember to pay the money.’

As shown in (25), such sequence of *yinggai hui* ‘would possibly’ for denoting the epistemic reading is never reversed as **hui yinggai* ‘possibly would’.¹⁸ Except this point, these two epistemic modals behave identically and thus, we consider them as one unit in the course of discussion.

In our analysis, epistemic and deontic modals are functional categories. Dynamic modals share the resemblance with other modals as a functional category and share the thematic property with lexical categories. According to Riemsdijk’s (1998) and Wurmbrand’s (2001) analyses, functional categories with thematic functions can be labeled as a ‘semi-functional category’.¹⁹ The mixture of properties confirms the idea that dynamic modals are of a “semi-functional category”. Moreover, as presented in section 3.1.4 that the cleft *shi* follows epistemic modals but precedes deontic and dynamic modals, we propose the structure in (24) where the cleft *shi* is one type of modal (e.g. an emphatic modal as argued by Huang (1988b)) that is structurally higher than deontic and dynamic modals but lower than epistemic modals.

Note that our clausal structural representation much resembles the German clausal structure proposed by Wurmbrand (2001), except that the dynamic modal in German heads a projection that coincides with *vP*. To us, dynamic modals and Aspect markers

¹⁸ Cinque (1999), citing Brown (1992), mentions that Hawick Scots shows a construction with “triple modals”. As shown in (ia), *will* marks the futurity whereas *might* marks ‘possibility’ and last *could* marks the meaning of ability.

- (i) a. He’ll might could do it for you (Cited from Brown (1992:75))
 ‘he might be able to do it for you in the future’
 ‘he might possibly do it for you’
 b. He will can do it

He also mentions that in such a language, *can* in (ib) is ambiguous between the sense of ‘ability’ or ‘possibility’. In other words, (ib) allows the co-occurrence of the epistemic *will* and the epistemic *can*. This observation supports our proposal of two levels of epistemic modals.

¹⁹ Note that related to this categorial issue, there is another term called “semi-lexical categories” in the literature. This label refers to lexical categories with mixture functional properties, such as the motion verbs examined in Cardinaletti and Giuliana (2002). In the spirit of such analysis, it seems that the so-called *ba* construction in Chinese might be relevant in this respect. However, we leave it open here for further study. On the other hand, we will argue in the following sections that dynamic modals are referred to such mixture categories as “semi-functional categories”, because they behave intrinsically as functional category but show certain lexical properties.

compete for the same position which dominates ν P (in section 3.2.1).²⁰ In addition, the position of ν P in Chinese is in fact occupied by *ba* (in section 3.2.3) and *bei* in short passives (in section 3.2.4).

Given the proposed clausal structure in (24), at the outset, we discuss the interaction between modals and Aspect markers.

3.2.1 Aspect markers

In Chinese, it is known that regular verbs can take Aspect markers as suffixes, while modals cannot. Tang (1900:88), citing T. Tang (personal conversation), indicates that only epistemic modals can appear concurrently with Aspect marker, although root modals cannot.

- (26) a. 都 兩點 了,她應該 吃(了)午飯
dōu liǎng diǎn le, tā yīnggāi chī (le) wǔfàn
all two o'clock LE she should eat LE lunch
'It is already two o'clock, she should have had lunch.'
- b. 醫生 指示, 她可以 吃 (*了)蘋果
yīshēng zhǐshì, tā kěyǐ chī (*le) píngguǒ
Dr. prescribe she can eat LE apple
'The Dr. said that she is allowed to eat apples.'
- c. 如果 裝 了假牙, 她能 吃(*了)飯
rúguǒ zhuāng le jiǎyá, tā néng chī (*le) fàn
if set up LE denture she can eat LE rice
'If she has a set of denture, she can eat.'

Given the observations above, in this section, three viewpoints at issue are proposed in an attempt to clarify the misconception about modals and Aspect markers. First, we argue that the ungrammaticality of (26c) is because dynamic modals and Aspect markers compete for the same position. Second, we illustrate that the observation

²⁰ Since dynamic modals and Aspect compete for the position in the functional domain, and dynamic modals in Chinese are proposed as “semi-functional categories” which impose thematic influences, it follows that Aspect sit in the functional domain, i.e. INFL, but also in the thematic domain. See Wurmbrand (2001) for similar argumentation.

shown in (26) is only partially correct because of the failure to distinguish dynamic modals from deontic ones. Last but not least, we verify that the ungrammaticality of (26b) is because of the diverse meaning of Aspect denoted by *-le* rather than due to the co-occurrence of modals and Aspect markers.

Cross-linguistically, there are many languages distinguishing Tense from Aspect. Briefly, Tense marks the relation between the event time and the speech time. Aspect, on the other hand, signals the speaker's viewpoint on the progress of the event. For example, the perfective Aspect focuses typically on the final state of the event and the progressive Aspect on an internal somewhere between the event's initial state and final state.

- (27) a. Anakin was flying to Tatooine.
b. Anakin is flying to Tatooine.

Whether a clause is in the past Tense (e.g. (27a)) or the present Tense (e.g. 27b), the same *-ing* form remains for the progressive Aspect. It is clear that the Tense morphemes are separated from the aspectual morphemes.

In terms of Chinese, Smith (1991) argues that the aspectual system can be divided into “viewpoint aspect” and “situation aspect”. Aspectual morphemes, the viewpoint aspect, are perfective, imperfective and neutral. “Perfective” refers to *-le* and *-guo*, whereas “imperfective” refers to *zai-* and *-zhe*. “Neutral” stands for the sense of Aspect delivered without markers. J. Lin (2002b) gives a similar perspective that the Tense of sentences in Chinese may be represented by aspect markers or be expressed covertly in a bare sentence.²¹ From a morphological perspective, there are preverbal Aspect markers (i.e. the *meiyou* and *-zai* in (28)) and Aspect suffixes (i.e. the *-le*, *-zhi* and *-guo* in (29)).

²¹ Thanks for Prof. Sung's reminding that the system of aspect in Chinese has been a current issue. To the best of our knowledge, there are several different analyses drawn from linguistics. For example, Cheng (1991) proposes AspP as a projection in Chinese that corresponds to IP in English. Contrary to such analysis, Chiu (1993) argues for an independent projection, AspP, which is realized as *-guo* in Chinese. T. Lin (2001) argues that aspect markers, such as *-le*, *-zhe* and *-guo*, are light verbs that licenses no arguments. For different analyses on aspect, see Chao (1968), Teng (1973), Li and Thompson (1981), Smith (1994), J. Lin (2002a, 2002b) among others and references therein.

- (28) a. 寶釵 在 唱歌
Bǎochāi zài chànggē
BC ZAI sing
'Baochai is singing.'
- b. 襲人 沒有 回家
Xírén méiyǒu huíjiā
XR -PERF go home
'Xiren didn't go home.'
- (29) a. 寶釵 唱 著 歌
Bǎochāi chàng zhe gē
BC sing ZHE song
'Baochai is singing.'
- b. 襲人 回 了 家
Xírén huí le jiā
XR return LE home
'Xiren went home.'
- c. 黛玉 生 過 病
Dàiyù shēng guò bìng
DY have GUO sick
'Daiyu has been sick.'

Based on (28) and (29), we discuss the interaction between modals and the two sets of Aspect markers separately. To begin with, we discuss the interaction between modals and preverbal Aspect markers in section 3.2.1.1, and in section 3.2.1.2, we examine the interaction between modals and Aspect suffixes.

In section 3.2.1.1, we argue that dynamic modals in Chinese and Aspect markers compete for the same position. Furthermore, that the misconception as only epistemic modals can occur with Aspect markers (i.e. (26)) is not syntactic but rather semantic.

3.2.1.1 *meiyou*²² and *zai*

According to the clausal structure in (24), dynamic modals and Aspect are licensed in the same position. It follows that dynamic modals and Aspect markers cannot co-occur because of the competition effect, while epistemic and deontic modals are immune to such restriction.

(30) Epistemic modals

a. 黛玉 (*在) 應該 (在) 葬 花

Dàiyù (*zài) yīnggāi (zài) zàng huā

DY ZAI should ZAI bury flower

‘Daiyu might be burying the flowers.’

b. 黛玉 (*沒有) 應該 (沒有) 葬 花

Dàiyù (*méiyǒu) yīnggāi (méiyǒu) zàng huā

DY -PERF should -PERF bury flower

‘Daiyu should not have buried the flowers.’

(31) Deontic modals

a. 這時候 你(*在) 應該 (在) 睡覺 了,怎麼 還沒 睡?

Zhèshíhòu nǐ (*zài) yīnggāi (zài) shuìjiào le, zěnmé hái méi shuì?

at this moment ZAI- PERF ZAI sleep LE how come yet not sleep

‘You should be in the bed now, how come you still awake?’

b. 寶玉 (*沒有) 可以 (沒有) 請安 就 回 房，

Bǎoyù (*méiyǒu) kěyǐ (méiyǒu) qǐng'ān jiù huí fáng,

BY - PERF can - PERF greet just return room

老太太 准 的

lǎotàitai zhǔn de

madame permit DE

‘Baoyu is allowed to go back his room without inquire after.’

(32) Dynamic modals

a. 寶釵 (*在) 能夠 (*在) 吟詩

²² *Meiyou* can also be represented as “*mei*”. In this section, we use “*meiyou*” instead of “*mei*” for being consistent.

Bǎochāi (*zài) nénggòu (*zài) yínshī

BC ZAI can ZAI hum verse

‘Baochai is being able to hum verse.’

b. 寶釵 (*沒有) 能夠 (*沒有) 吟詩

Bǎochāi (*méiyǒu) nénggòu (*méiyǒu) yínshī

BC -PERF can -PERF hum verses

‘Baochai has not been able to hum verse.’

Our prediction is borne out through (30) to (32). Dynamic modals cannot co-occur with preverbal Aspect markers, whereas epistemic and deontic modals allow these Aspect markers to follow them but not precede them. Thus, the co-occurrence of epistemic/deontic modals and Aspect markers is directly predicted, and the incompatibility of dynamic modals and Aspect markers is explained as well.²³

On the other hand, comparing sentences through (30) to (32) with those in (33), we find that giving an analogy between modals and raising/control verbs is fallacious. While preverbal Aspects are disallowed to precede modals, raising and control verbs do not show such restriction.

(33) a. 張三 (在) 嘗試 編寫 新 曲子

²³ Note that the English sentence as in (i) is ungrammatical.

- (i) *He can be singing while riding a motorcycle
‘He has the ability to do singing and riding a motorcycle at the same time.’

In other words, dynamic modals in English as well as in Chinese are disallowed to co-occur with the progressive aspect. However, one might argue that it is semantically possible for progressive aspect to co-occur with dynamics

- (ii) While I am performing, could you not be getting ready for our act?
a. ‘When I am performing, is it possible that you do not get ready for our act?’ (epistemic)
b. ‘When I am performing, is it O.K. for you not to get ready for our act?’ (deontic)
c. *‘When I am performing, do you have the ability to not get ready for our act?’ (dynamic)

In (ii), the possible interpretations are listed through (iia) to (iic). As shown in the text, Chinese dynamic modals and Aspect compete for the same position, and it follows that dynamic modals and aspect markers cannot co-occur. Assuming Huang et al. (2004) that progressive-*be* in English is at the aspect projection. Example (i) and (ii) show that aspect cannot co-occur with dynamic modals in English as well. Although further study is required, English and Chinese seem to show certain resemblance in this respect. Details of this argumentation for Chinese are demonstrated in the following discussions.

Zhāngsān (zài) chángshì biānxiě xīn qǔzi

ZS ZAI try write new songs

‘Zhangsan attempts writing new songs.’

b. 李四(在) 開始 籌備 大型 活動

Lǐsì (zài) kāishǐ chóubèi dàxíng huódòng

LS ZAI start prepare huge activity

‘Lisi starts preparing a huge activity.’

c. 張三 (沒有) 打算 參加 這次 的活動

Zhāngsān (méiyǒu) dǎsuan cānjiā zhè-cì de huódòng

ZS -PERF plan attend this-CL DE activity

‘Zhangsan hasn’t planned to attend the activity this time.’

d. 李四(沒有) 開始 編寫 新 曲子

Lǐsì (méiyǒu) kāishǐ biānxiě xīn qǔzi

LS -PERF start write new song

‘Lisi hasn’t started writing new songs.’

Under the lexical verb analysis of modals, it is expected that modals can occur after the preverbal Aspect markers, however, it is contrary to the facts (i.e. (30) to (32)).

In addition to preverbal Aspect markers, Aspect suffixes are extensively employed in the Chinese Aspect system. In section 3.2.1.2, we examine the interaction between Aspect suffixes and modals.

3.2.1.2 *-le*, *-zhe* and *-guo*

According to Huang, Li and Li’s (2004) analysis, manner adverbs have to follow preverbal Aspects, because manner adverbs are licensed in *vP* while Aspect sits in a functional domain higher than the *vP*. Under this analysis, we would predict all Aspect markers to precede manner adverbs. However, it seems to face a challenge in terms of Aspect suffixes.

- (34) 賈蘭 (大聲) 吟著 (*大聲) 詩
 Jiǎlán (dàshēng) yīnzhe (*dàshēng) shī
 JL loudly chant loudly poem
 ‘Jialan read poems loudly.’
- (35) 寶玉 (偷偷地) 回 過 (*偷偷地) 房間
 Bǎoyù (tōutōu dì) huí guò (*tōutōu dì) fángjiān
 BY secretlyly return GUO secretlyly room
 ‘Baoyu has gone to his room secretly.’
- (36) 黛玉 (一聲不響地) 開 了 (*一聲不響地) 門
 Dàiyù (yī shēng bù xiǎng dì) kāi le (*yī shēng bù xiǎng dì) mén
 DY silently open LE silently door
 ‘Daiyu opened the door silently.’

As shown in (34) to (36), the verb-suffix cluster must occur after the manner adverbs. This is not expected if the Aspect suffix *-le*, for instance, occupies the position that is higher than VP as proposed in (24). Following Huang et al. (2004), we argue that Aspect suffixes combine with verbs; overtly, they show up in the surface position such as (34). Aspect suffixes then further move to the position of Aspect covertly in LF.²⁴

Recalling the tree structure given in (24), epistemic and deontic modals are structurally higher than AspectP, whereas dynamic modals are in the same position.

²⁴ As noted by Huang et al. (2004), the preverbal aspect marker *meiyou* and the aspect suffixal *-le* cannot co-occur. (Examples are cited from Huang et al. (2004))

- (i) a.*林沖 沒有 回 了 家
 *Lin Chong mei-you hui le jia.
 LC not-have return LE home
 ‘Lin Chong didn’t go home.’
 b.林沖 沒有 回 過 家
 Lin Chong mei-you hui guo jia.
 LC -PERF return GUO home
 ‘Lin Chong hadn’t been home.’

The contrast shown between (ia) and (ib) predicts that if both aspect suffixes reflect the same aspectual information under Aspect, it is natural that the same information under the same syntactic node does not get reflected twice. For the same reason, the co-existence of *meiyou* and the experiential suffix *-guo* is possible, since the two morphemes do not carry the same information. It is possible that there might be two positions of Aspect. However, further research on these points is required. We leave this issue open here.

Given this proposal, it is predicted that epistemic modals and deontic modals can co-occur with Aspect suffixes, while dynamic modals cannot.

(37) Epistemic modals

- a. 賈夫人 應該 唸 著 佛

Jiǎ-fūrén yīnggāi niàn zhe fó

Mrs. J should read ZHE Buddha

‘Mrs. Jia should be reading the Buddhist discipline now.’

- b. 湘雲 應該 練 過 劍

Xiāngyún yīnggāi liàn guò jiàn

XY should practice GUO sword

‘Xiangyu should have learnt the use of sword.’

- c. 黛玉 應該 服 了 藥

Dàiyù yīnggāi fú le yào

DY should take LE medicine

‘Daiyu should have taken the medicine.’

(38) Deontic modals

- a. 寶玉 可以 坐 著 讀書, 一直 站 著 太 累 了

Bǎoyù kěyǐ zuò zhe dúshū, yīzhí zhàn zhe tài lěi le

BY can sit ZHE study always stand ZHE too tired LE

‘Baoyu is allowed to sit while study; it is tiresome for him to stand.’

- b. 應徵者 可以 生 過 孩子

yìngzhēngzhě kěyǐ shēng guò hái zi

recruiter can have GUO baby

‘The recruiter for this position can have had baby before.’

- c. *劉姥姥 可以 逛 了 大觀園

Liú-lǎolao kěyǐ guàng le Dàguānyuán

LLL can visit LE Daguanyuan

‘Liu-laolao is allow to visit Daguanyuan.’

- d. 身為 母親，李紈 應該 帶 著 孩子
shēnwéi mǔqīn, Lǐwán yīnggāi dài zhe hái zi
Be mother LW should bring ZHE children
'Being a mother, Liwan should take her children with her.'
- e. 寶玉 得 讀過 四書五經， 才 能 考 舉人
Bǎoyù děi dú guò Sishū Wǔjīng, cái néng kǎo jǔrén
BY must read GUO classic then can join the exam (for) juren
'Baoyu have to study the classic, then he could join the exam.'

(39) Dynamic modals

- a. *襲人 能夠 收拾 著 房間
Xírén nénggòu shōushi zhe fángjiān
XR can tidy up ZHE room
'Xiren can be tidying things up.'
- b. *寶玉 會 作 過 詩
Bǎoyù huì zuò guò shī
BY can write GUO poem
'Baoyu can have written poems.'
- c. *迎春 能 畫 了 畫
Yíngchūn néng huà le huà
YC can draw LE picture
'Yingchun can draw pictures.'

Our prediction is borne out as illustrated in (37) to (39), except the one in (38c). This seems to be a potential challenge to our analysis. It is argued in section 3.2.1.1 that dynamic modals and Aspect markers are licensed in the same position; thus these two elements cannot cooccur. On the other hand, epistemic and deontic modals are structurally higher than Aspect; thus, these modals can co-occur with Aspect markers and precede them. This exception (i.e. (38c)) makes us wonder what the differences between *-le* and other Aspect markers are. Smith (1991) argues that the suffix *-le* does not indicate past Tense but rather indicates two Aspects, “closed non-stative

situation” and “completion”. In other words, the Aspect suffix *-le* can denote a change of state and a sense of completion. (40b) and (40c) indicate the dichotomy interpretation of the suffix *-le* in (40a)

(40) a. 大夫 指示, 黛玉 應該 吃了 這帖 藥
dàifu zhǐshì, Dàiyù yīnggāi chī le zhè-tiē yào
doctor prescribe DY should eat LE this-CL medicine

b. The doctor gave instruction that Daiyu has to finish this medicine.

c.*The doctor gave instruction that Daiyu has to do the activity that she has taken the medicine.

When speakers judge the grammaticality of (40a), those that assume the interpretation of (40b) would deem it as acceptable, while those that assume the interpretation of (40c) would judge this sentence as ungrammatical. Likewise, this argument can also account for the ungrammaticality of (38c) (Repeated in (41)). According to Li and Thompson (1981), the sentence final *-le* indicates the change of event. Thereby, while (41) is ambiguous between (41a) and (41b), the sentence in (41b) is unambiguous. The suffix *-le* may indicate the completion of the event *guang* ‘visit’ (i.e. (41a)), but does not have to indicate the event happens (i.e. the contrast between (41a) and (41b)).

(41) 劉姥姥可以逛了大觀園

a. 劉姥姥 可以逛 了大觀園, 再 回家
Liú-lǎolao kěyǐ guàng le Dàguānyuán, zài huíjiā
Liu-laolao can visit LE Dahuanyuan then gohome
‘Liu-laolao can visit Daguanyuan first, then go home.’

b.*劉姥姥 可以 逛 了大觀園 了
Liú-lǎolao kěyǐ guàng le dàguān yuán le
Liu-laolao can visit LE Dahuanyuan LE
‘Liu-laolao can have visited Daguanyuan.’

Based on this observation, we argue that the ungrammaticality of (38c) (i.e. (41)) is due to semantic factors rather than syntactic ones. Following Zhang (1997) that deontic modals describe a sense of irrealis, they are incompatible with the *-le* indicating the event change. Except this point, epistemic and deontic modals are compatible with Aspect suffixes to occur in the complements, while dynamic modals are incompatible with Aspect markers.

On the basis of the result given in section 3.2.1.1 and 3.2.1.2, we clarify that the observation as only epistemic modals can occur with Aspect markers is based on the misconception of treating deontic modals and dynamic modals as a same group. The fact is that both epistemic and deontic modals are able to co-occur with Aspect markers, whereas dynamic modals cannot. Thereby, we propose that dynamic modals and Aspect compete for the same position in the INFL domain above VP.

In the next section, we discuss the complement of finite and non-finite clauses. To be specific, we focus on the interaction between modals and non-finite clauses.

3.2.2 Non-finite clauses

The point at issue is that modals are separated from Tense and thus can occur in finite clauses as well as in non-finite clauses. This viewpoint is contrary to a long lasting assumption that modals as INFL element cannot occur in the non-finite clauses. We argue that modals can occur in non-finite clauses because they do not have to be responsible for Tense.

There has been a long-standing dispute over the existence of finite/non-finite clauses in Chinese. Huang (1982[1998]) argues that modals together with Aspect markers cannot occur in non-finite clauses.

- (42) a. *我 準備 明天 會來
wǒ zhǔnbèi míngtiān huì lái
I prepare tomorrow will come
'I prepare that I will come tomorrow.'

b. *我 勸 張三 沒有 買 這本 書

wǒ quàn Zhāngsān méiyǒu mǎi zhè-běn shū
I persuaded ZS -PERF buy this-CL book
'I persuaded Zhangsan hasn't buy this book.'

On the other hand, Li (1990), following Tsang (1981), claims that when modals have become Tense markers, they cannot occur in non-finite clauses.

(43) a. *我 勸/逼 張三 會 來
wǒ quàn / bī Zhāngsān huì lái
I persuaded/force ZS will come
'I persuaded/forced Zhangsan that he will come.'

b. 我 告訴張三 火車 會 來
wǒ gàosu Zhāngsān huǒchē huì lái
I tell ZS train will come
'I told Zhangsan the train will come.'

In the spirit of Li (1990), it is predicted that not all modals are prohibited in non-finite clauses. A similar fact is observed by M. Hsieh (2002). As the contrast shown between (44) and (45), modals are not always relevant to Tense.

(44) a. 我 去
wǒ qù
I go
'I go.'

b. 火車 五點 開
huǒchē wǔ diǎn kāi
train five o'clock leave
'The train will leave at five.'

(45) a. 明天 *(會) 下雨
míngtiān *(huì) xiàyǔ

tomorrow will rain

‘It will rain tomorrow.’

b. 張三 明天 *(會) 知道 那件事

Zhāngsān míngtiān *(huì) zhīdao nà-jìan shì

ZS tomorrow will know that-CL matter

‘Zhangsan will know that tomorrow.’

In (44), no modal is required for indicating future Tense, but modals might be required even when there are adverbs indicating a future time reference, as shown in (45). M. Hsieh (2002) argues that if “will” and “shall” can be considered as future Tense markers in English, *hui* ‘will’ can be considered as a relative future Tense marker, while *yao* ‘will’ cannot. This argument indicates that modals do not have to be responsible for Tense and that modals are able to occur in the non-finite clauses. It follows that in English as well as in Chinese, modals are functional categories in INFL but do not always have to be a representative of Tense. We have reason to argue that modals are separated from Tense and should be able to occur in non-finite clauses. This claim gets support from Hu, Pan and Xu’s (2001) observation.

(46) a. 我 準備 明天 要 參加 一個 會

wǒ zhǔnbèi míngtiān yào cānjiā yī-gè huì

I prepare tomorrow will attend one-CL meeting

‘I prepare to attend a meeting tomorrow.’

b. 我 勸 張三 吃了 這碗 飯

wǒ quàn Zhāngsān chī le zhè-wǎn fàn

I persuaded ZS eat LE this-CL rice

‘I persuaded Zhangsan ate the bowl of rice.’

d. 我 勸 張三 要 來

wǒ quàn Zhāngsān yào lái

I persuaded ZS must come

‘I persuaded Zhangsan to come.’

- e. 張三 逼 我 一定 要 在 兩天 之內 完成
Zhāngsān bī wǒ yīdìng yào zài liǎng tiān zhīnèi wánchéng
ZS force me definitely must in two day within finish
'Zhangsan forced me to finish (it) within two days.'

The modal *yao* 'will, must' and the Aspect suffix *-le* are able to occur in non-finite clauses. Furthermore, we find that *yinggai* 'should' and *keyi* 'may' are indeed acceptable under infinitive clauses as shown in (47).

- (47) a. 張三 勸 李四應該 來
Zhāngsān quàn Lìsì yīnggāi lái
ZS persuade LS should come
'Zhangsan persuaded Lisi that he should come.'
- b. 張三 勸 李四可以 來
Zhāngsān quàn Lìsì kěyǐ lái
ZS persuade LS can come
'Zhangsan persuaded Lisi that he is allowed to come.'

Similarly, Wurmbrand (2001) notes that in a highly inflected language that has INFL-type modals like German, modals are allowed to be embedded in an infinitive clause.

- (48) Ich_i habe ihm_j versprochen [SUBJ_{i/?j} ins Kino
I_i have him-DAT_j promised [SUBJ_{i/?j} in-the cinema
gehen zu dürfen]
to to may]
'I promised him I would be allowed to go to the cinema.'

Given the discussion above, we propose that modals project their own projections in the functional domain, which are not responsible for indicating the time frame and do not

have to carry the Tense feature; there should be a higher functional category that determines Tense.

Likewise, Li (1990:18) argues that the Aspect *-guo* can occur with infinitives.

- (49) a. 我 勸 過 張三 戒煙(, 可是張三 不肯 戒)
wǒ quàn guò Zhāngsān jièyān(, kěshì Zhāngsān bù kěn jiè)
I persuade GUO ZS quit-smoke (but ZS not will quit)
'I persuaded Zhangsan to quit smoking' (but he was not willing to)
- b. 我 逼 張三 吃 過 藥(, 可是張三 不肯 吃)
wǒ bī Zhāngsān chī guò yào(, kěshì Zhāngsān bù kěn chī)
I force ZS take GUO medicine but ZS not willing take
'I asked Zhangsan to take medicine' (but he was not willing to)
- c.*我 告訴 張三 他們 戒 過 煙
wǒ gàosu Zhāngsān tāmen jiè guò yān
I tell ZS them quit GUO smoke
(, 可是 他們 不 肯 戒)
(, kěshì tāmen bù kěn jiè)
but they not willing quit
'I told Zhangsan that they quitted smoking' (but they didn't)
- d. 我 告訴 張三 他們 戒 過 煙.
wǒ gàosu Zhāngsān tāmen jiè guò yān.
I tell ZS they quit GUO smoke
(他們 都 不 再 抽 煙 了)
(tāmen dōu bù zài chōuyān le)
they all not again smoke LE
'I told Zhangsan that they quitted smoking'
(and they don't smoke any more)

As shown in (49), the use of *-guo* in (49a) and (49b) show the contrast with (49c). Li (1990) argues that the *-guo* in (49a) and (49b) does not have to mean the event denoted

by the embedded clause where *-guo* appears as “actually happened”. Rather, it indicates that “the act of persuasion or forcing has happened” and leaves open whether the act is “successful or not”. On the other hand, (49c) and (49d) show that the use of *-guo* of *tell*-type verbs have to denote the “existence of the event” expressed by the clauses. The examples in (49) give supports that Aspect markers do not have to indicate the realization of events but can solely indicate the status of verbs.

Recalling the clausal structure in (24) that Aspect marker and dynamic modals are in the same position while deontic and epistemic modals are in the positions higher than it, the preceding facts show that modals and Aspect in Chinese are both separated from Tense. Following question to be asked is whether modals occur freely in non-finite clauses. It is mentioned earlier that while the epistemic modal *hui* ‘will’ can refer to the futurity, *yao* ‘will’ cannot. Thus, the contrast between (50a) and (50b) is as predicted. However, (50d) falls short.

(50) Epistemic modal

a. #李四計畫會來

Lǐsì jìhuà huì lái

LS plan will come

‘Lisi plans that he will come.’

b. 李四計畫要來

Lǐsì jìhuà yào lái

LS plan will come

‘Lisi plans to be going to come.’

c. *李四逼張三會來

Lǐsì bī Zhāngsān huì lái

LS force ZS will come

‘Lisi forced Zhangsan will come.’

d. #李四逼張三要來

Lǐsì bī Zhāngsān yào lái

LS force ZS will come

‘Lisi forced Zhangsan to be going to come.’

Regarding this point, we argue that such acceptability is not because modals represent Tense but because of the types of non-finite clauses. In other words, subject control constructions and objection control constructions would show different acceptability. In (50a) and (50c), the modal *hui* ‘will’ is ruled out because of the relative time frame implied with it, and the contrast between (50b) and (50d) indicates one can do some efforts to make the proposition happen, although one cannot force or persuade the knowledge of proposition. In terms of deontic and dynamic modals, we find an interesting phenomenon that the types of control construction show different acceptability of embedded deontic and dynamic modals.

(51) Deontic modal

a. 李四逼 張三 應該 去 美國 唸書
Lǐsì bī Zhāngsān yīnggāi qù Měiguó niànshū
LS force ZS should go US study

‘Lisi forced Zhangsan that he should study in the US.’

b. 李四勸 張三 可以去 美國 唸書
Lǐsì quàn Zhāngsān kěyǐ qù Měiguó niànshū
LS persuade ZS can go US study

‘Lisi persuaded Zhangsan that the condition permits him to study in the US.’

c. 李四逼 張三 要 去 美國 唸書
Lǐsì bī Zhāngsān yào qù Měiguó niànshū
LS force ZS must go US study

‘Lisi forced Zhangsan that he has to study in the US.’

d. #李四計畫 應該 去 美國 唸書²⁵
Lǐsì jìhuà yīnggāi qù Měiguó niànshū
LS plan should go US study

²⁵ Note that this sentence would be grammatical under the epitemic interpretation as ‘It is supposed...’ rather than deontic meaning. Likewise, (51e) and (51f) would be grammatical under the dynamic interpretations. Thus, we marked sentences’ judgements with “#” rather than “*”.

‘Lisi plans that he should study in the US.’

e.#李四計畫可以去 美國 唸書
Lǐsì jìhuà kěyǐ qù Měiguó niànshū
LS plan can go US study

‘Lisi plans that he is permitted to study in the US.’

f.#李四計畫要去 美國 唸書
Lǐsì jìhuà yào qù Měiguó niànshū
LS plan must go US study

‘Lisi plans that he has to study in the US.’

While (51a) to (51c) are grammatical, (51d) to (51f) are not. Since deontic modality refers to a judgement or permission, as discussed in Chapter Two, such a “speaker-oriented” interpretation cannot have the speaker to be fulfilled in the sentence as the subject of events, and (51d) to (51f) are ruled out by the same reason. On the other hand, the matrix subject as in (51a) is different from the embedded subject and thus complies with the requirement of “deontic interpretation”.

Also worth noting is that, “dynamic modality” refers to the existence of ability, capacity, volition, etc; such “existence” cannot be forced or be influenced by the external power. In other words, the external force (i.g. (52a) to (52c) cannot affect such existence of capacity, but the possessor of the capacity in (52d) to (52f) can change the capacity.

(52) Dynamic modal

a.#五年後,李四逼 張三 要 買 房子
wǔ nián hòu, Lǐsì bī Zhāngsān yào mǎi fángzi
five year after LS force ZS want buy house
‘After five years, Lisi forces Zhangsan must buy a house.’

b.*李四逼 張三 能夠 參加 馬拉松
Lǐsì bī Zhāngsān nénggòu cānjiā mǎlāsōng
LS force ZS can join marathon

‘Lisi forces Zhangsan to be able to run marathon.’

c. #李四逼 張三 可以 游泳

Lǐsì bī Zhāngsān kěyǐ yóuyǒng

LS force ZS can swim

‘Lisi forces Zhangsan to be able to swim.’

d. 李四 計畫要 參加 馬拉松

Lǐsì jìhuà yào cānjiā mǎlāsōng

LS plan want join marathon

‘Lisi plans to going to run marathon.’

e. 五 年 後, 李四計畫可以 買 一棟 別墅

wǔ nián hòu, Lǐsì jìhuà kěyǐ mǎi yī-dòng biéshù

five year after, LS plan can buy one-CL villa

‘After five year, Lisi plans to afford buying a villa.’

f. 為了 結婚, 李四計畫 能夠 賺 很 多 錢

wèile jiéhūn, Lǐsì jìhuà nénggòu zhuàn hěn duō qián

for marry LS plan can earn very much money

‘In order to get married, Lisi plans to be able to earn lots of money.’

Given the distinction between finite and non-finite clauses in Chinese, we have proposed that modals (and Aspect) are independent of Tense and can occur in non-finite clauses. In this section, we show that deontic modals have to occur in the condition where they can be interpreted as “speaker-oriented” and dynamic modals must conform to “subject-oriented” interpretations. It follows that the unacceptable sentences in (51) and (52) can be explained through this reasoning rather than an assumption that modals together with Tense, which cannot occur in non-finite clauses.

In the following section, the argumentation is proposed in an attempt to specify the location of modal projections. In section 3.2.3.1, we discuss one special construction in Chinese—the *ba* construction. In section 3.2.3.2, we consider the *bei* in passivization.

3.2.3 Beneath modals— the projection of the lexical domain, *vP*

3.2.3.1 The *ba* construction

It has been a controversial issue about the status of *ba*. Following Huang et al. (2004), we suggest that *ba* is part of the lexical domain and is located at *vP*. This claim is supported by the fact that manner adverbs can occur in the position before the *ba*-NP or after it.

- (53) a. 歐比王 (狠狠地) 把 黑武士 (狠狠地) 打 了 一頓
 Ōu bǐ wáng (hěnhěnde) bǎ hēi wǔshì (hěnhěnde) dǎ le yī-dùn
 Obi-Wan violently BA DV violently beat LE one-CL
 ‘Obi-Wan beat Darth Vader violently.’
- b. 莉亞(大聲地) 把 國歌 (大聲地) 唱 完
 Lìyà (dàshēng dì) bǎ guógē (dàshēng dì) chàng wán
 Leia loudly BA national song loudly sing finish
 ‘Leia sang the national song loudly.’

As shown in (53), manner adverbs can precede or ensue the *ba*-NP. This distributional evidence shows that *ba*-NP is part of VP. We have argued in the preceding sections that modals are above the VP domain as well as Aspect markers. It follows that the *ba*-NP should follow preverbal Aspect markers, but not vice versa. This prediction is borne out as shown in (54).

- (54) a. 安納金 (沒有) 把 星際議長 (*沒有) 殺 死
 Ānnàjīn (méiyǒu) bǎ xīngjì yìzhǎng (*méiyǒu) shā sǐ
 Anakin -PERF BA interstellar president -PERF kill die
 ‘Anakin didn’t kill the interstellar president.’
- b. 路克 (在) 把 光劍 (*在) 縮 成 一 支 小 棍
 Lùkè (zài) bǎ guāng jiàn (*zài) suō chéng yī-zhī xiǎo gùn
 Luke ZAI BA lightsaber ZAI contract become one-CL small stick
 ‘Luke is contracting the lightsaber into a small stick.’

Furthermore, under this analysis, it is predicted that modals as well as the preverbal Aspect markers should precede the *ba*-NP.

(55) Epistemic modal

- a. 路克(應該) 把 原力 (*應該) 練 好 了
Lùkè (yīnggāi) bǎ yuán lì (*yīnggāi) liàn hǎo le
Luke shoul BA Force should learn finish LE
'Luke should have learnt the Force.'

Deontic modal

- b. 皇帝 (可以)把 議員 (*可以) 免職
Huángdì (kěyǐ) bǎ yìyuán (*kěyǐ) miǎnzhí
Emperor can BA councilor can relieve
'The Emperor can relieve the councilor.'

Dynamic modal

- c. 安納金(能夠) 把 世界 (*能夠) 改變
Ānnàjīn (nénggòu) bǎ shìjiè (*nénggòu) gǎibiàn
Anakin can BA world can change
'Anakin can change the world.'

In (55), we find that the interaction between modals and the *ba*-NP is consistent with our prediction that modals can only precede the *ba*-NP but not follow it.

We have proposed the clausal structure in (24) that the *ba*-NP locates at the *vP* projection. Since *ba* is part of the VP, it is natural that *ba* imposes certain semantic restrictions on its argument. Furthermore, modals are above this projection of *ba*. The linear order, as illustrated in (54) and (55), supports the structural hierarchy given in (24). In other words, modals are in the functional domain, which directly dominate the *ba*-NP, (which in turn is a category that takes VP as its complement).

3.2.3.2 The passive *bei*

In this section, we propose that the short-passive *bei* also heads the projection of *vP*, and thus, it competes with *ba* for the same position in Chinese. Therefore, these two elements cannot co-occur and both of them head *vP* as the complement of dynamic modals.

Ting (1998) and Huang (1999) argue that sentential adverbials as well as VP adverbials can co-occur in “long-passives” (e.g. (56)), while only VP-adverbials may occur with “short-passives” (e.g. (57)).

(56) Long Passive

- a. 張三 被 李四莫名其妙地 騙走 了
 Zhāngsān bèi Lǐsì mòmíng qímào dì piàn zǒu le
 ZS BEI LS confused -ly abduct LE
 ‘Zhangsan was abducted in a state of confusion by Lisi.’
- b. 張三 被李四 在學校 騙走 了
 Zhāngsān bèi Lǐsì zài xuéxiào piàn zǒu le
 ZS BEI LS LC school abduct LE
 ‘Zhangsan was abducted at school by Lisi.’

(57) Short Passive

- a. 張三 被 莫名其妙地 騙走 了
 Zhāngsān bèi mòmíng qímào dì piàn zǒu le
 ZS BEI confused -ly abduct LE
 ‘Zhangsan was abducted in a state of confusion.’
- b.*張三 被 在 學校 騙走 了
 Zhāngsān bèi zài xuéxiào piàn zǒu le
 ZS BEI LC school abduct LE
 ‘Zhangsan was abducted at school.’

This suggests that while a long-passive contains an IP following *bei*, a short-passive contains a VP as its complement.

It is argued by Ting (1998) and Huang (1999) that the “long-passive” involves a null operator (NOP) movement as an A'-movement, while the “short-passive” should be analyzed as involving an A-movement of PRO, which is then controlled by the subject. The structures are shown in (58).

(58) a. long passive

張三_i 被_{[IP Op_i [IP 李四打了 t_i]]}

Zhāngsān bèi Lǐsì dǎ le

‘Zhangsan was hit by Lisi.’

b. short passive

張三_i 被_[VP PRO_i 打了 t_i]

Zhāngsān bèi dǎ le

‘Zhangsan was hit.’

Assuming that the *bei* in short-passives s-selects an Experiencer as its subject and a predicate (a property) as its complement and c-selects a VP as the structural realization of the predicate complement, we propose that *bei* in short-passives is located at the position of *v* as the head of the *vP*. The structure is shown in (59).

(59) 張三_i [_{vP}被 [_{VP} PRO_i [打了] t_i]]

Zhāngsān bèi dǎ le

‘Zhangsan was hit.’

Given the analyses above, it is predicted that the *bei* of short-passives cannot occur with *ba*, since *ba* as argued in section 3.2.3 occupies the position of *v* and takes VP as its complement.

(60) a. 張三 被 李四 把 車子 騙走 了

Zhāngsān bèi Lǐsì bǎ chēzi piàn zǒu le

ZS BEI LS BA car deceive LE

‘Zhangsan was deceived to lose his car by Lisi.’

b.*張三 被 把 車子 騙走 了

Zhāngsān bèi bǎ chēzi piàn zǒu le

ZS BEI BA car deceive LE

‘Zhangsan was deceived to lose his car.’

c.藝人 被 記者 把 婚事 傳 出去 了

yìrén bèi jìzhě bǎ hūnshì chuan chūqù le

actor BEI journalist BA marriage spread out LE

‘The actor was known to get married because the news was spread by the journalists.’

d.*藝人 被 把婚事 傳 出去 了

yìrén bèi bǎ hūnshì chuan chūqù le

actor BEI BA marriage spread out LE

‘The artist was known to get married.’

As shown in (60), the contrast between (60a) (60c) and (60b) (60d) is as we predict. Based on (58) that the long-passive *bei* takes an IP as its complement and the short-passive *bei* takes a VP as its complement, the *ba*-NP is expected to occur in long passives as shown in (60a) and (60c). Likewise, the *ba* NP cannot occur in short passives, since *ba* and the short-passive *bei* compete for the same position (e.g. (60b) and (60d)).

In sum, the observation shown in (60) supports our clausal structure given in (24) that the projection dominates VP, i.e. *vP*, is occupied by *ba* or the *bei* in short-passives. Such projection is suggested to be the complement of dynamic modals.

In the following section, we examine modals with embedded passivization and argue that dynamic modals show the property of being semi-functional categories that makes them differ from other modals.

3.2.4 Embedded passivization under modals

It has long been noticed that control verbs do not preserve truth functional

equivalences, while raising predicates do.

(61) Embedded passivization under raising verb

- a. The doctor seems to have examined John.
- b. John seems to have been examined by the doctor.

(62) Embedded passivization under control verb

- a. The doctor is anxious to examine John.
- b. John is anxious to be examined by the doctor.

After passivization, (61a) and (61b) have the same interpretation, while (62a) and (62b) have totally different meanings. This contrast shows that control verbs assign a theta-role to the subject and hence impose selectional restrictions on the subjects. On the other hand, raising verbs do not assign theta-roles to their subjects and thereby do not impose selectional restriction. Such raising/control distinction with respect to the passive voice has been widely accepted.

It has been argued in section 3.1.1 that modals do not have an external argument and block passivization. In terms of embedded passivization, it is predicted that modals allow the embedded verbs to be passivized, because functional categories do not impose strict selectional restriction on their subjects as lexical verbs do. (63) is a case in German given by Wurmbrand (2001) that functional categories allow the embedded passivization in contrast to lexical verbs.

- (63) a. *Der Wagen versuchte repariert zu werden
The car-NOM tried repaired to AUXpass
'*The car tried to be repaired.'
- b. Der Wagen muss repariert werden
The car-NOM must repaired AUXpass
'The car must be repaired.'

Similar to above discussion, examples can be found in Chinese as well. In (64a) and

(64b), because the control verb *jihua* ‘plan’ selects an animate agent for its subject position, this selection causes ungrammaticality of the sentences. In raising constructions, e.g. (64c) and (64d), the passivization does not impose any ill formedness on the sentence as predicted.

(64) Embedded passive

- a.*那棟 房子 計畫 被 張三 重蓋
nà-dòng fángzi jìhuà bèi Zhāngsān zhòng gài
that-CL house plan BEI ZS again built
‘That building plans to be re-built by Zhangsan.’
- b.*那棟 房子 計畫 被 重蓋
nà-dòng fángzi jìhuà bèi zhòng gài
that-CL house plan BEI again built
‘That building plans to be re-built.’
- c.這種 問題 到 今年 才 開始
zhèzhǒng wèntí dào jīnnián cái kāishǐ
this-kind problem to this-year then start
被 社會大眾 重視
bèi shèhuì dàzhòng zhòngshì
BEI society public concern
‘This problem starts to be concerned by the public this year.’
- d.這種 問題 到 今年 才 開始 被 重視
zhèzhǒng wèntí dào jīnnián cái kāishǐ bèi zhòngshì
this-kind problem to this-year then start BEI concern
‘This problem starts to be concerned this year.’

Contrary to (64), the sentences in (65) show that modals do not behave in analogy with control verbs. Both long-passives and short-passives are acceptable under the modal construction.

(65) Passive under modals

Long passive—

a. 李四 應該 被 張三 騙 了

Lǐsì yīnggāi bèi Zhāngsān piàn le

LS should BEI ZS cheat LE

‘Lisi should have been cheated by Zhangsan.’

b. 李四 應該 被 政府 遣送回國

Lǐsì yīnggāi bèi zhèngfǔ qiǎnsòng huíguó

LS should BEI government repatriate

‘Lisi should be repatriated by the government.’

c. 李四 可以被 政府 釋放

Lǐsì kěyǐ bèi zhèngfǔ shìfàng

LS can BEI government release

‘Lisi could have been released by the government.’

d. 蛋糕 可以被 張三 吃掉

dàngāo kěyǐ bèi Zhāngsān chī-diào

cake can BEI ZS eat-finish

‘The cake can be eaten by Zhangsan.’

Short passive—

f. 李四 應該 被 騙 了

Lǐsì yīnggāi bèi piàn le

LS should BEI cheat LE

‘Lisi should have been cheated.’

g. 李四 應該 被 遣送回國

Lǐsì yīnggāi bèi qiǎnsòng huíguó

LS should BEI repatriate

‘Lisi should be repatriated.’

h. 李四 可以被 釋放

Lǐsì kěyǐ bèi shìfàng

LS can BEI release

‘Lisi could be released.’

i. 蛋糕可以被吃掉

dàngāo kěyǐ bèi chī-diào

cake can BEI eat-finish

‘The cake can be eaten.’

The contrast between (64) and (65) resembles what the German examples show in (63). This observation supports our analysis: modals do not behave like control verbs but as functional categories.

A potential problem is that dynamic modals seem to have different behavior from other modals.

(66) a.?這輛車能被張三搬動

zhè-liàng chē néng bèi Zhāngsān bāndòng

this-CL car can BEI ZS move

‘This car can be moved by Zhangsan.’

b.?#這輛車能被搬動

zhè-liàng chē néng bèi bāndòng

this-CL car can BEI move

‘This car can be moved.’

c.*這個動作很會被張三模仿

zhè-ge dòngzuò hěn huì bèi Zhāngsān mófǎng

this-CL action very can BEI ZS imitate

‘This action can be imitated by Zhangsan.’

d.*這個動作很會被模仿

zhè-ge dòngzuò hěn huì bèi mófǎng

this-CL action very can BEI imitate

‘This action can be imitated.’

The sentences in (66) seem to challenge our prediction that modals allow embedded passivization. It is argued by the lexical verb analysis that dynamic modals are control

verbs, which prohibit the preservation of truth functional equivalences or cause ungrammaticality of sentences after undergoing the passivization. However, as reviewed in Chapter Two, Roberts (1985) and Pollock (1989) argue that the selectional restriction imposed by dynamic modals is different from the theta-role assigned by regular verbs (such as control verbs). It shows in (66) that dynamic modals do impose certain selectional restriction on their subjects, but such restriction is not fixed. In other words, while (66c) and (66d) are unacceptable, (66a) and (66b) show different degree of acceptability. Such diverse acceptability does not exist in typical selectional restrictions. Following Riemsdijk (1998), Wurmbrand (2001) and Cardinaletti and Shlonsky (2004), we have proposed in section 3.2 that dynamic modals are of a “semi-functional category,” because they behave in the same way as other modals do, but they would impose certain semantic relation on their subjects.

In sum, the very difference between deontic/epistemic modals and dynamic modals regarding the embedded passivization can also be explained under our analysis. Such analysis can also avoid the confusion and misconceptions drawn from the lexical verb analysis discussed in Chapter Two and the preceding sections.

Finally yet importantly, in the following sections, we will provide our analysis of modals in the sentence final position (in section 3.2.5) and the sentence initial positions (in section 3.2.6).

3.2.5 Sentence final position of modals

Though marginal, there are chances for modals to occur in the sentence final position in the colloquial speech. Examples are shown in (67).²⁶

(67) ‘Zhangsan should donate some money to the poor.’

a.	[_{IP} 張三	應該	[_{VP} 捐錢	給窮人]]
	Zhāngsān	yīnggāi	juānqián	gěi qióng rén	
	ZS	shoul	donate-money	to the poor	

²⁶ We find that not every modal can behave in this way. Only *keneng* ‘may’ and *yinggai* ‘shoul’ are allowed to occur sentence finally. Their negative form is preferred than the affirmative one. Furthermore, only *keneng* ‘may’, *yinggai* ‘should’ and *keyi* ‘can’ can occur sentence finally in contrast sentences, such as *ni qu keyi, ta qu bu keyi*. ‘You are permitted to go, but he is not.’

b.	[_{IP} 張三	[_{VP} 捐錢 給 窮人] _i	應該	t _i]]
	Zhāngsān	juānqián gěi qióng rén	yīnggāi	
	ZS	donate to the poor	shoul	

Given the subject internal hypothesis, we argue that the subject of sentences move from the embedded VP to the Spec/INFL position as in (67a). When the sentence undergoes VP fronting, the VP would adjoin to the INFL domain and then forms sentences as (67b).²⁷

Contrary to our analysis, Lin and Tang (1995) analyze modals in the sentence final position as taking sentential subjects. One of their arguments is based on the island effects given by Huang (1982[1998], 1988c). Their reasoning is that modals take sentential subjects, and thus, A-not-A and *weishemo* ‘why’ cannot occur in such sentential subject islands. Under their analysis, (68) is predicted to be ungrammatical, because the sentential subject *Zhāngsān zhèyàngzuò* involves *weishenme*. Such prediction is contrary to the facts.

- (68) 張三為什麼這樣做不應該? (他又沒犯法也沒妨礙到別人)
 Zhāngsān wèishénme zhèyàngzuò bù yīnggāi?
 ZS why this way-do not should
 ‘Why is it unacceptable for Zhangsan to do it this way?’
 (tā yòu méi fàn fǎ yě méi fāng’ài dào bié rén)
 He either not violate-the-law or not hinder from other-people
 ‘He didn’t do any thing wrong.’

Furthermore, Lin and Tang (1995) also argue that A-not-A is sensitive to the sentence as shown in (69), because of involving island.

²⁷ With thanks to Prof. Li-mei Sung for pointing out that it is possible for a fronting VP to occur sentence initially, e.g. *jieqian gei Lisi Zhangsan bu yinggai*. ‘(Lit.) Lending to Lisi, Zhangsan shouldn’t do that.’ We found that in terms of the modal construction, such sequence is quite colloquial. As discussed in the text, most modals allow VP fronting. The constraint of fronting VP is beyond the scope of the present study. We thereby do not discuss this point in detail, since it does not affect our analysis.

- (69) *小孩子 抽不抽煙 應該?
xiǎoháizi chōu bù chōuyān yīnggāi
children smoke-not-smoke should

However, this argument is paradoxical. It is known that when forming an interrogative sentence, it is the modal that has the A-not-A form but not the verb as long as there is a modal. It follows that (70a) should be ungrammatical, whereas (70b) should be correct.

- (70) ‘Can children smoke?’
a. *小孩子 不 應該 抽不抽煙?
xiǎoháizi bù yīnggāi chōu bù chōuyān
children not should smoke-not-smoke
b. 小孩子 應(該)不應該 抽煙?
xiǎoháizi yìng (gāi) bù yīnggāi chōuyān
children should-not-should smoke

Thereby, when both sentences in (70) undergo the VP-fronting, it directly yields the contrast between (71a) and (71b).

- (71) a. *小孩子 抽不抽煙 應該?
xiǎoháizi chōu bù chōuyān yīnggāi
children smoke-not-smoke should
b. 小孩子 抽煙 應(該)不應該?
xiǎoháizi chōuyān yìng (gāi) bù yīnggāi
children smoke should-not-should

Thus, this argument of sentential subject given by the lexical verb analysis does not hold. Next, we consider modals in the sentence initial position.

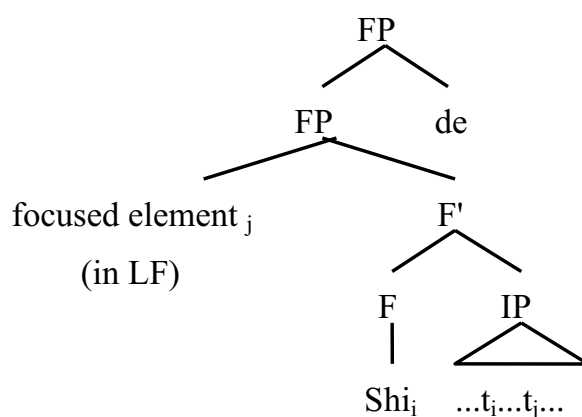
3.2.6 Sentence initial position of modals

In this section, we argue that modals in the sentence initial position involve a focus movement out of IP to the domain of CP.

Huang (1988b) first observes that modals can be in analogy with the cleft *shi*. He argues that both of them are heads of IP and are able to occur in the sentence initial position.

In terms of the cleft *shi* construction, Lee (2005), following Rizzi (1997), argues that *shi* and *de* correlate to each other and create a focus phrase (FP). In which, *shi* is the head of FP, and *de* as an optional element adjoins to FP. The head F takes IP as its complement.

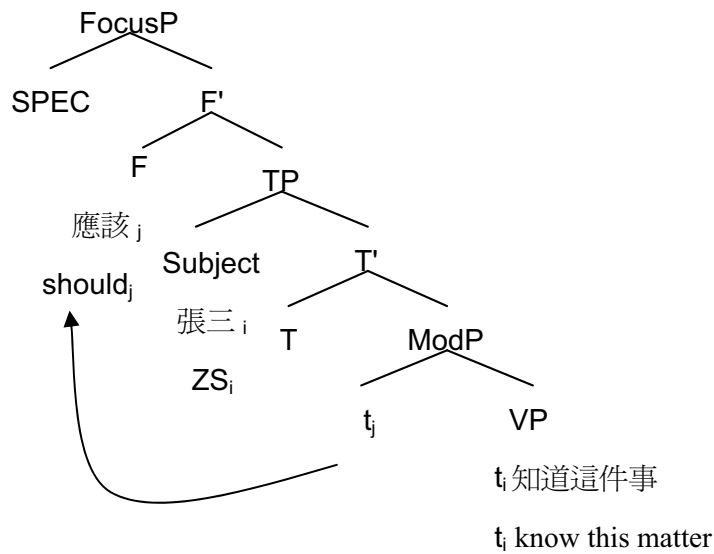
(72) Chinese cleft construction (Lee (2005))



As shown in (72), *shi* moves from IP to the position of Focus (F) and the focused element will then move to the Spec/FP in LF for checking the focus feature with the head F. This proposal follows the analysis given by Rizzi (1997). Taking a converse approach to the traditional adjunction analysis of the focus element, Rizzi (1997) argues that CP should split into different functional levels as IP does. In Italian, he argues for the ‘Topic-Focus-Topic-Finite’ sequence that splits into the CP domain. The position of Focus is fixed and Topic may optionally occur before or after the Focus phrase. Likewise, Haegeman and Guéron (1999) modify the split-levels in CP as ‘Topic-Focus-AgrP’ in English.

In Chinese, most of the epistemic and deontic modals can occur in the sentence initial position. In addition, except modals and the cleft *shi*, no other items in Chinese behave in such way. In the spirit of Huang (1988b) and Lee (2005),²⁸ we propose that the Chinese modals in sentence initial positions actually undergo the focus movement to the position at CP.

(73) Structure of the sentence initial modal



Contrary to our analysis, Lin and Tang (1995) argue that modals take a CP complement allowing the subject raising to be optional. Under their analysis, (74a) is underlyingly like (74b). In other words, the subject of (74b) is “*you sange ren*” which may raise to the subject position as in (74a). (74c) is an alternative of (74b) regarding the ergative verb *lai* ‘come’.

- (74) a. 明天 的 會議, 有 三 個 人 應 該 / 可 以 來 → derived
 míngtiān de huìyì, yǒu sān-ge rén yīnggāi / kěyǐ lái
 tomorrow DE meeting are three-CL person should / can come
 ‘As for tomorrow’s meeting, three men are supposed/ permitted to come.’
 b. 明天 的 會議, 應 該 / 可 以 有 三 個 人 來 → underlying

²⁸ For various discussions, refer to Paul (2002), Rizzi (1997), Haegeman and Guéron (1999), Lee (2005) and others for the position of focus elements and the split CP analysis in depth.

míngtiān de huìyì, yīnggāi/ kěyǐ yǒu sān-ge rén lái
 tomorrow DE meeting should / can are three-CL person come

‘As for tomorrow’s meeting, three men are supposed/ allowed to come.’

c. 明天 的 會議, 應該/可以 來 三個 人

míngtiān de huìyì, yīnggāi/kěyǐ lái sān-ge rén
 tomorrow DE meeting should /d can come three-CL person

‘As for tomorrow’s meeting, three men are supposed /allowed to come.’

However, it is rather doubtful that *you* ‘have’ is treated as a definite marker co-occurring with the subject *sange ren* ‘three persons’ and that this nominal constituent moves all the way to the sentence initial position. Note that *you* ‘have’ can only occur with the grammatical subject but cannot occur with the object (cf. (74c) with **mingtian de huiyi, yinggai/keyi lai you sange ren*). Thus, this argument seems to be implausible.

Following the subject internal hypothesis, the sentence in (74a) is yielded directly. To account for (74b) and (74c), we adopt the approach of focus movement proposed in (73). When modals move to the focus position in CP, it forms the sentence as in (74b) or (74c), these two sentences depends on if the argument of the eargative verb raises or not. If it rises to the grammatical subject position, the *you* would directly insert in INFL, thus yield (74b).

This proposal is further supported by the distribution of the particle *suo*. We find that *suo* is disallowed to occur with pre-subject modals. Following Ting (2003), we suggest that *suo* is disallowed to sit in the position other than the IP domain (cf. section 3.1.2). The contrast between grammatical and ungrammatical distributions of *suo* in (75) reveals that epistemic and deontic modals in sentence initial positions are out of the INFL domain, because these pre-subject modals cannot license *suo*.

(75) a. (*所)應該 (*所) 張三 (所) 去 過 的 地方 都 在 台北

(*suǒ) yīnggāi (*suǒ) Zhāngsān (suǒ) qù guò de difang dōu zài Táiběi

SUO should SUO ZS SUO go GUO DE place all LC Taipei

‘The places that Zhangsan should have been to are all in Taipei.’

- b. (*所) 應該 (*所) 張三 (所) 可以 (*所) 唱 的 歌,
(*suǒ) yīnggāi (*suǒ) Zhāngsān (suǒ) kěyǐ (*suǒ) chàng de gē,
SUO should SUO ZS SUO can SUO sing DE song
這裡一首 都 沒有
zhèlǐ yī-shǒu dōu méiyǒu
here one-CL all not-have

‘There are no songs that Zhangsan should be able to sing.’

- c. (*所)應該(*所)可能(*所)張三(所)敢做的

(*suǒ) yīnggāi (*suǒ) kěnéng (*suǒ) Zhāngsān (suǒ) gǎn zuò de
SUO should SUO may SUO ZS SUO dare do DE
事 都 是 小事
shì dōu shì xiǎoshì
matter all is trifle

‘The things that Zhangsan dare to to are all trifles.’

On the other hand, dynamic modals are disallowed to undergo such focus movement. Dynamic modals resemble lexical verbs but differ from other modals and the cleft *shì* in this respect. At the present study, insofar, we do not know the exact factor to this phenomenon. We have argued that dynamic modals behave as “semi-functional categories” that impose thematic influences on their subjects. We thereby conjecture that because of certain thematic constraint, dynamic modals have to sit in the INFL domain. The last but not least, as shown in (75c), modals can also be stacked in the pre-subject position. Given the above discussions, we suggest that when modals move to F, the linear sequence of stacking modals in CP is the same as in INFL. In other words, the epistemic necessity would precede epistemic possibility whereas epistemic modals would precede deontic modals (e.g. (75c) and “*Yīnggāi kěyǐ Zhāngsān shōukàn de jiémù dōu shì yǒu jiàoyù yìyì de*” ‘The programs that Zhangsan possibly allowed to watch are educational.’). We thus speculate that there may be multiple F projections in the CP domain.

3.3 Summary

In this chapter, we have argued that modals in Mandarin Chinese should be analyzed as functional categories instead of as lexical verbs. With the help of facts from preverbal adverb, the cleft *shi*, the particle *suo*, the Aspect system in Chinese, the non-finite clauses and passivization, we have argued that Chinese modals are INFL elements which split into three distinct layers in the INFL domain. These three levels correspond to their interpretations: epistemic, deontic and dynamic.

The argumentation in this chapter supports that there is no raising vs. control distinction among modals. Furthermore, dynamic modals belong to the “semi-functional category” because of their similar thematic properties with lexical items and also because of their functional behaviors resemble other modals. According to this analysis, modals in the sentence initial position can be analyzed as undergoing the focus movement to the domain of CP. If our preceding discussions and analysis are on the right track, it follows that the functional category analysis should be superior to the lexical verb analysis of the Chinese modal construction.

In Chapter Four, given the trichotomy interpretation and the syntactic behaviors of modals, we demonstrate a Pedagogical Grammar of modals in Chinese. Specifically, our discussion will focus on modals in the basic level of Chinese teaching.