Yě, yě, yě: On the syntax and semantics of Mandarin yě
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Chapter 3 The syntactic position of *yě*

In Chapter 1 (section 1.2, to be precise), we saw examples that demonstrate the distributional restriction of Mandarin *yě* and its position relative to some modals. In Chapter 2, we examined examples (in 2.5.6) of unstressed *yě* with a preceding stressed AC that display different characteristics from the normal additive use and suggest the existence of a different *yě* both semantically and syntactically. In this chapter, I will present evidence to argue that we may need to postulate two different positions for *yě*, namely one for additive *yě* and one for the *yě* in *no matter* and *even* contexts. I will first argue that Mandarin additive *yě* is within the IP zone in the structure. In addition, I will present a more accurate position of additive *yě* with a survey on relative ordering between additive *yě* and adverbs and modals. This survey is based on both the syntactic hierarchy of modals proposed by Butler (2003) and the hierarchy of adverbs proposed by Cinque (1999). Finally, the position of *yě* in *no-matter* and *even* contexts will also be explored. I will show that there are indeed two different positions for *yě* in different contexts.

3.1 *Yě* as an IP adverb

It is generally assumed that there is some kind of hierarchy among adverbs. The relative ordering among a few types of adverbs is claimed to be universal in all languages. For instance, Jackendoff (1972) proposes that speaker-oriented adverbs are syntactically higher than subject-oriented adverbs and subject-oriented adverbs are higher than manner adverbs. This hierarchy has been proved to exist in many languages (cf. Cinque 1999; Ernst 2004). Though there are various ways to classify adverbs, it is generally agreed that different types of adverbs are located in different layers within the syntactic structure. Ernst (2004a: 10) provides us with a rough comparison table between different adverb classification schemes, as in (1):

(1)

a.	[SPEECH-ACT	[PROPOSITION	[EVENT	[EVENT-INTERNAL V]]]]
	CP	IP	VP?	VP
b. Jackendoff 1972	---speaker-oriented----		subject-oriented	manner
c. Quirk et al. 1972	Conjunct--------------------- disjunct------------process adjunct			
d. McConnell-Ginet 1982	----------------Ad-S------------------ Ad-VP-----------Ad-V			
e. Frey and Pittner 1999	frame	proposition	event	process
f. Various works	framing	clausal negative time	--------aspectual-------	

As the above table indicates, the same kind of adverbs may be labelled differently in different classifications, but it is widely recognized that different adverbs can be grouped into different zones or layers in the clausal structure,

such as the CP, IP and VP layers.[28] More specifically, we can see that manner and measure adverbs occur in the lowest position of the hierarchy and their position roughly corresponds to the VP. Subject-oriented adverbs occur in the middle zone, roughly "around Infl and the auxiliaries" (Ernst 2004:10), i.e., in the IP zone. Speaker-oriented adverbs are very high in the structure and should be seen as CP adverbs. In light of the positions in the syntactic structure, the relative linear ordering of the three types of adverbs in the sentence is predictable, as in (2) with a "<" meaning "linearly precedes".[29]

(2)   speaker-oriented adverbs (CP) < subject-oriented adverbs (IP) < manner adverbs (VP)
      (cf. Jackendoff 1972: 89; Cinque 1999: 11)

This can be illustrated using the following English sentences:

(3)   a. Luckily, Gretchen had cleverly been reading up on local customs.
      b. *Cleverly, Gretchen had luckily been reading up on local customs.
      (Ernst 2007: 1009)

(4)   a. Sharon cleverly was (only) loosely holding on to the ropes.
      b. *Sharon was (only) loosely cleverly holding on to the ropes.
      (Ernst 2004: 325)

As is illustrated in (3) and (4), the speaker-oriented adverb *luckily* precedes the subject-oriented adverb *cleverly;* and *cleverly* must occur before the manner adverb *loosely*. The order in (2) can be illustrated using Mandarin data too, as in (5):

(5)   *Xiǎnrán   tā míngzhì-de   xùnsù   líkāi-le.*
      obviously   he wisely   quickly leave-PERF
      'Obviously, he wisely has left quickly.'

As shown in (5), the evidential adverb x*iǎnrán* 'obviously', a speaker-oriented adverb (according to Ernst 2004a: 96), occurs before the subject-oriented adverbs *míngzhì-de* 'wisely' and *míngzhì-de* precedes the manner adverb *xùnsù* 'fast'. The above sentence shows that the hierarchy in (2) holds up in Mandarin.

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[28] The label "VP" stands for VP or *v*P/VP. *v*P and VP are only distinguished when necessary.

[29] As is, or will be, clear, in this chapter, precedence relations will be assumed to be directly translatable into hierarchical relations: what precedes is higher. Linear and hierarchical terms will be used interchangeably.

As noted above, adverbs are assumed to be located in different zones in the syntactic structure and some orders between different types of adverbs seem to be universal. Cinque (1999: 106) further elaborates on the "universal hierarchy", claiming that "the hierarchies of adverbial specifiers and clausal functional heads match in a systematic one-to-one fashion" and that there is a universal hierarchy of the functional morphemes and the adverb classes, as demonstrated in (6):

(6) [*frankly* Mood_{speech act} [*fortunately* Mood_{evaluative} [*allegedly* Mood_{evidential} [*probably* Mod_{epistemic} [*once* T(Past) [*then* T(Future) [*perhaps* Mood_{irrealis} [*necessarily* Mod_{necessity} [*possibly* Mod_{possibility} [*usually* Asp_{habitual} [*again* Asp_{repetitive(I)} [*often* Asp_{frequentative(I)} [*intentionally* Mod_{volitional} [*quickly* Asp_{celerative(I)} [*already* T(Anterior) [*no longer* Asp_{terminative} [*still* Asp_{continuative} [*always* Asp_{perfect(?)}] [*just* Asp_{retrospective} [*soon* Asp_{proximative} [*briefly* Asp_{durative} [*characteristically(?)* Asp_{generic/progressive} [*almost* Asp_{prospective} [*completely* Asp_{sg.completive(I)} [*tutto* Asp_{pl.completive} [*well* Voice [*fast/early* Asp_{celerative(II)} [*again* Asp_{repetitive (II)} [*often* Asp_{frequentative(II)} [*completely*Asp_{sg.completive(I)}
(Cinque 1999: 106)

Now let's turn to Mandarin *yě*. In Chapter 2, it is shown that the syntactic distribution of Mandarin *yě* seems to be less flexible than its counterparts in some European languages. For instance, Mandarin *yě*, unlike its counterparts in German and Dutch, cannot appear sentence-initially, or, phrased differently, *yě* can never precede the constituent serving as the subject (or topic) of the sentence even if the constituent is the AC. The relevant example is repeated here as (7).

(7) **Yě   Bǐdé   dú-le   zhè-běn   shū.*
     YE Peter   read-PREF   this-CL   book
     INTENDED: 'Peter, too, has read the book.'

In addition, *yě* must always appear in a position before the verb, all post-verbal positions are excluded (again, this is different from German and Dutch), as is shown in (8).

(8) *Xiǎo Zhāng   qù-le   Běijīng,*
     Xiao Zhang   go-PERF   Beijing
     {yě} qù   {*yě}   le   {*yě}   Nánjīng   {*yě}.
     YE go   YE   PERF   YE   Nanjing   YE
     'Xiao Zhang went to Beijing and he also went to Nanjing.'

As remarked by N. Huang (2018: 353), from the linear position of Mandarin *yě* in a sentence, we may deduce that Mandarin *yě* may be syntactically "in the inflectional domain" which contains "a ModalP or TP". From our data so far, we cannot see the relation between *yě* and modals, but it is safe to say that it is in any case in a position higher than the VP and lower than the subject. However, this description does not unequivocally validate the assumption that additive *yě* is an IP adverb. For instance, one may wonder where the subject is located in the structure. Below, I will present one piece of evidence to support the "in the IP" assumption of additive *yě*.

3.1.1 Relative position of additive *yě* to subjects

Let's first answer the question where the subject is in the clausal structure. In line with Diesing (1992), Tsai (2001, 2015) argues that there are two subject positions for indefinite NPs: the higher one, the "outer subject" in his terms, occupies [Spec, IP] and the lower one, or the "inner subject", occupies [Spec, vP]. In view of Diesing's (1992) Mapping Hypothesis and Tsai's (2001) Extended Mapping Hypothesis (for details, see the original papers), the lower indefinite subject, which is within the nuclear scope (that is, within *v*P), can be licensed by the existential closure and thus get a nonspecific, existential reading. In contrast, the higher indefinite subject, that is in the specifier of IP, is beyond the nuclear scope and not subject to licensing by the existential closure associated with it. Therefore, the higher subject requires licensing from another operator, e.g., a determiner or a sentential operator such as a quantificational adverb, and is generally interpreted with a specific reading.

I will not go into the details of Tsai's (2015) analysis, but the two subjects are presented in the following two sentences. As is shown in (9) and (10), the indefinite NP *yǒu liǎng-ge rén* 'two persons' is introduced by the existential marker *yǒu* 'exist/have' and may result in two different readings concerning the specificity.[30] When it occurs after the deontic modal *yídìng* 'must/have to', as in (9b), and *yīnggāi* 'ought to', as in (10b), the NP has a non-specific reading and is analyzed as the inner subject. In contrast, when

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[30] It has been observed that indefinites without *yǒu* 'exist/have' cannot serve as the subject of a sentence, as is illustrated by the following sentence (Tsai 2001: 145):

(Yǒu)	*liǎng-ge*	*rén*	*yǐqián*	*jiàn-guo*	*Akiu.*
Exist	two-CL	person	before	meet-EXP	Akiu

'Two people met Akiu before.

With the aid of *yǒu* 'exist/have', the numeral NP serving as the outer subject often derives a specific reading.

yǒu liǎng-ge rén 'two persons' precedes these elements, as is the case in (9a) and (10a), they have a specific reading.

(9) a. *Zhècì   yǒu   liǎng-ge   rén   yídìng^deontic yào   lái.*[31]
    this.time exist two-CL   person must   need   come
    'The two (specific) people must come this time.'

  b. *Zhè   cìyídìng^deontic yào   yǒu   liǎng-ge   rén   lái.*
    this.time must   need   exist two-CL   person come
    'Two (nonspecific) people must come this time.'

(10) a. *Zhècì   yǒu   liǎng-ge   rén   yīnggāi^deontic   lái*
    this.time exist two-CL person ought.to   come
    'The two (specific) people ought to come this time.'

  b. *Zhècì   yīnggāi^deontic   yǒu   liǎng-ge   rén   lái.*
    this.time ought.to   exist two-CL   person come
    'Two (nonspecific) people ought to come this time.'

As is illustrated in (9) and (10), the position of the deontic modals in the clause affects the interpretation of the subject qua specificity. According to Tsai (2015), different interpretations of the numeral NP subject headed by *yǒu* 'exist/have' in the above sentences should be attributed to the syntactic position of the deontic modals, i.e., deontic modals are in a position higher than the inner subject but lower than the outer subject, as illustrated by the following tree:

(11)

(Tsai 2015: 257)

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[31] Note that, according to Tsai (2015:236), *yídìng* and *yīnggāi* have two different readings, i.e., the first one is an epistemic reading to express the inevitability or certainty; the second one denotes a deontic or obligation reading. Although (9b) and (10b) could also have an epistemic reading, I only adopt the deontic reading here for discussion purpose.

Therefore, when an indefinite numeral NP occurs in a position lower than the deontic modal as in (9a) and (10a), it is the inner subject and has an unspecific reading. In contrast, when the same numeral NP occurs in a position higher than the deontic modal as in (9b) and (10b), it serves as the outer subject and has a specific reading. As we saw above, which reading the indefinite nominal phrase gets, depends on where it is licensed (by which operator its variable is bound); what is important for us is its position associated with the interpretation (rather than the interpretation itself), with the position relative to the modal as our diagnostic.

Note, by the way, that without context, if the modal *yīnggāi* 'ought to' precedes the inner subject with an unspecific reading, it can have two readings, i.e., one is the deontic/root reading, i.e., a non-clausal reading, as illustrated in (10b), the other is the epistemic reading 'it should be the case that…', i.e., a clausal reading, which is in the CP according to Tsai. However, when *yīnggāi* 'ought to' occurs lower than the outer subject as in (10a), it can only have a root/deontic reading.[32] This shows that deontic modals are lower than the outer subject. However, the epistemic modals might be higher than the outer subject and the root modals.[33] We will have more discussion about the hierarchy of modals in the following sections.

Returning now to *yě*, consider (12):

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[32] For some reason, different from *yīnggāi* 'ought to' which may have two readings, *yīnggāi* in the phrase *yīnggāi-huì* can only have an epistemic reading, and it can occur after the indefinite numeral phrase with a specific reading, as shown by the sentence below (Tsai 2015: 239):

Zhècì	*yǒu*	*liǎng-ge*	*rén*	*yīnggāi-huì*	*lái.*
this.time	exist	two-CL	person	ought.to	come

'Two (specific) people ought to come this time.'

[33] Meanwhile, as noted by Tsai (2015: 239), not all root modals can occur before the numeral subject headed by *yǒu* 'exist/have'. The dynamic modals *gǎn/kěn* can only occur after the numeral NP:

Zhècì	*(*gǎn/kěn)*	*yǒu*	*liǎng-ge*	*rén*
this.time	dare.to/be.willing.to	exist	two-CL	person
gǎn/kěn	*lái.*			
dare.to/be.willing.to	come			

'Two (nonspecific) people dare to/are willing to come this time.'

Tsai argues that *gǎn/kěn* 'dare to/ be willing to', different from other root modals whose position is higher than *v*P, are lower than the *v*P and adjacent to the VP. Whether this is correct or not, does not affect our discussion of the positioning of *yě*.

(12) **specific outer subject < *yě*:**

    a. *Zhècì*   *yǒu liǎng-ge*   *rén*   *yě*   *lái.*
       this.time   exist two-CL   person   YE   come
       'Two (specific) people will also come this time.'

    yě < nonspecific inner subject:

    b. *Zhècì*   *yě yǒu*   *liǎng-ge*   *rén*   *lái.*
       this.time YE exist   two-CL   person   come
       'Two (nonspecific) people will also come this time.'

As shown in (12), *yě* has exactly the same effect, so to speak, as the deontic modals in (9) and (10) as to what interpretation the subject has. Note that no other interpretations are possible. Thus, a logical conclusion would be that additive *yě*, like the modals in (9) and (10), is higher than the inner subject and lower than the outer subject. Considering the position of inner and outer subject in the structure, tentatively, we get the following generalization about the position of additive *yě*.

(13) Mandarin additive *yě* is an IP adverb. It occurs in a position lower than the outer subject, i.e., [Spec, IP], but higher than the inner subject, i.e., [Spec, vP].

3.1.2 Two more pieces of evidence

If we are on the right track, then, considering the order of adverbs in (2), we make the following prediction regarding the relative order between additive *yě* and CP adverbs and VP adverbs:

(14) speaker-oriented adverbs (CP) < *yě* (IP) < manner adverbs (VP)

To test this prediction, let's first examine the sentences in which *yě* co-occurs with a speaker-oriented adverb. Consider (15) and (16):

(15) {*Lǎosi-shuō*},   *tā*   {*lǎoshi-shuō}   *yě*   {*lǎoshi-shuō}
      frankly,   he   frankly   YE   frankly
      gàosù-le   *wǒ*   *zhēnxiàng.*
      tell-PEFR I   truth
      'Frankly, he also told me the truth'

(16) *Zhāng Sān   zǒu-le,   {hǎoxiàng} Lǐ Sì*
    Zhang San   leave-PERF seemingly   Li Si
    *{hǎoxiàng}   yě   {*hǎoxiàng}   zǒu-le.*
    seemingly   YE   seemingly   leave-PERF
    'Zhang San left, and it seems that Li Si left too.'

A speech-act adverb *lǎoshi-shuō* 'frankly' in (15) and an epistemic adverb *hǎoxiàng* 'apparently/seemingly' in (16), both of which are speaker-oriented adverbs, precede additive *yě*.[34] Although the two speaker-oriented adverbs can both occur sentence-initially, the epistemic adverb *hǎoxiàng* can also appear in the position after the subject. In contrast, the speech-act adverb *lǎoshi-shuō* always precedes the rest of the sentence.

    As predicted, the VP adverbs, for instance manner adverbs, can only occur after the additive *yě*, as is illustrated in (17).

(17) *Tā   {*dàshēng}   yě   {dàshēng}   hǎn-zhe.*
    he   loudly   also   loudly   shout-PROG
    'He also shouted loudly'

Similarly, another focus adverb, *zhǐ* 'only', which presumably adjoins to *v*P or VP (Lin 2012), is also found in the scope of additive *yě*. See (18):

(18) *Zhāng Sān {*zhǐ}   yě   {zhǐ}   jiè   shū.*
    Zhang San only   YE   only   borrow   book
    'Zhang San only borrow books too.'

The linear order between *yě* and other CP and VP adverbs in (15)-(18) verifies our prediction in (14) and supports the generalization formulated in (13).

    Another piece of supporting evidence comes from the fact that *yě* can be used to disambiguate the possible clausal and manner reading of certain adverbs. It has been observed that one adverb can have more than one reading,

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[34] Note that most speech-act adverbs/adverbials in Mandarin contain a verbal element meaning 'say', i.e., *shuō* or *jiǎng*, after the adverbial part denoting the specific attitude of the speaker towards the following assertion. The verbal element *shuō* or *jiǎng* seems to indicate directly that these are speech-act adverbs. In the form including the verbal element, they can only get a clausal reading and they can only occur sentence-initially. This differs from English, in which speech-act adverbs, for instance, *frankly*, can also get a manner reading and occur inside the clause (Ernst 2004).

for instance, either a clausal or a manner reading. Ernst (2004, 42) gives an example to illustrate this phenomenon, see (19):

(19) a. Alice has cleverly answered the questions.
      b. Alice cleverly has answered the questions.
      c. Alice has answered the questions cleverly.
      Ernst (2004: 42)

As is demonstrated, the interpretation of *cleverly* in (19a) is ambiguous because it may have two readings which are explicitly spelled out in (19b) and (19c). One is a clausal reading, as is used in (19b), where Alice is regarded to be clever because she has answered the questions; the other is a VP/manner reading, as illustrated in (19c), which should be interpreted as that she has answered the questions in a clever manner. Accordingly, *cleverly* should be treated as a clausal adverb in (19b) and a manner adverb in (19c). Therefore, *cleverly* in (19b) is interpreted higher, say, in the CP, than it is in (19c), which is in or directly adjoined to the VP.

The higher/lower interpretation ambiguity of certain adverbs can also be found in Mandarin. For instance, if we translate (19a) into Mandarin, we get (20):

(20) *Aìlìsī   cōngming-de   huídá -le   zhè-ge   wènti.*
     Ailisi   cleverly   answer-PERF   this-CL   question
     'Alice has cleverly answered the questions.'

Just like its English counterpart, the Mandarin equivalent sentence in (20) is ambiguous, with the adverb having either the clausal reading or the manner reading.

Now, additive *yě* can occur either before the adverb *cōngming-de* 'cleverly' or after it. But different positions of *yě* in the sentence have semantic consequences: the interpretations of *cōngming-de* 'cleverly' in the two sentences are different. This can be seen in (21) and (22).

(21) *Aìlìsī yě   cōngming-de huídá-le   zhè-ge   wènti.*
     Ailisi YE   cleverly   answer-PERF   this-CL   question
     'Alice has also cleverly answered the questions.'

(22) *Aìlìsī cōngming-de yě   huídá-le   zhè-ge   wènti.*
     Ailisi cleverly   YE   answer-PERF   this-CL   question
     'Cleverly, Alice also answer the question'

With *yě* placed before the adverb *cōngming-de* 'cleverly', the adverb in (21) yields a manner reading, which should be interpreted in the vP/VP. However, if *yě* is inserted after *cōngming-de* 'cleverly', *cōngming-de* 'cleverly' can only be interpreted as a clausal adverb in (20), that is to say, it will be interpreted in the CP zone. This observation is consistent with our generalization in (13), because, with *yě* in the IP, if an adverb is either in the CP (clausal) or the VP (manner) and it follows *yě*, then it must be in the VP (and in (21), *cōngming-de* 'cleverly' has the manner reading), and if it precedes *yě*, it must be in the CP (and, sure enough, in (22) *cōngming-de* can only be interpreted as a clausal adverb).

Based on the above observations, our generalization that additive *yě* is an IP adverb is tenable. However, the exact positioning of *yě* is still not clear considering that there might be more going on in the domain of IP, e.g., aspects and modals. For instance, it may also be plausible to be more precise and argue that additive *yě* is higher than (outer) AspP, since it occurs before the aspectual particles that we know are in the outer Aspect, such as *zài*, expressing the progressive (Tsai 2008). Outer AspP is, of course, part of the IP domain. See (23).[35]

(23) a. *Tā   yě   zài   chàng   gē.*
      he   YE   PROG   sing   song
     'He is also singing.'

   b. **Tā   zài   yě   chàng   gē.*
      He   PROG   YE   sing   song

Meanwhile, we find that *yě* must occur before dynamic modals too, as shown in (24).

(24) a. *Tā   yě   gǎn   lái.*
      he   YE   dare.to   come
     'He dares to come too.'

   b. **Tā   gǎn   yě   lái.*
      he   dare   YE   come

(23) and (24) show us that additive *yě* may occur in a position higher than AspP and also higher than certain modals. Therefore, in order to figure out

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[35] The position of perfective *le* is harder to pin down. There are good reasons to assume that it occupies a position within the *v*P, in an Inner Aspect position, even though it is interpreted in Outer Aspect (see Sybesma 2017 and Cheng 2019). I will not dwell on this here, as the positioning relative to *zài* is unambiguous.

what the more accurate position of additive *yě* in the IP domain is, it is necessary to investigate its relative position to other elements in this domain, such as other IP adverbs and modals. This is one of the main tasks in 3.2. But so far, we can wrap up this section with the following conclusions:

1) *Yě* is an IP adverb. It is located higher than the inner subject and lower than the outer subject.
2) As an IP adverb, *yě* occurs in a position lower than CP adverbs and higher than VP adverbs.
3) The disambiguation role of *yě* in the clausal and verbal readings of some adverbs follows from being an IP adverb.

3.2 The relative position of additive *yě* to modals

As we concluded in 3.1, Mandarin additive *yě* is an IP adverb. However, to determine the more accurate position of additive *yě* in the IP domain, it is useful to survey the relative order between the additive *yě* and other elements in the IP domain, such as the adverbs and modals. In this section, I will look into the hierarchy of modals and their order in relation to *yě*.

According to Tsai, exactly like the hierarchy found with adverbs, there is a hierarchy among modals, i.e., CP modals < IP modals < vP modals. If so, the relative order between additive *yě* and certain modals is predictable, in that the CP modals will occur higher than *yě* and vP modals will occur lower; we already saw an example of the latter in (24). However, the general classification of CP/IP/vP modals is not sufficient for us to look into the details in the IP domain. In other words, we need a more elaborate way to classify modals. Moreover, it has been pointed out that there are two pairs of factors that are often considered in the distinction of Modals, i.e., epistemic vs. root and necessity vs. possibility. Based on these four factors, Butler (2013) proposes a four-way split of modals, i.e., epistemic necessity, epistemic possibility, root necessity and root possibility modals. Among them, the first two are claimed to be in the domain of CP and the latter two are in the domain of IP. The four types of adverbs follow the following hierarchy:

(25) Epistemic necessity < Epistemic possibility < Root necessity < Root possibility

In the following section, I will first introduce the classification of modals along the dimensions just mentioned. On this basis, I will revisit Lin's (2012) classification and hierarchy of Mandarin modal verbs and show that Butler's hierarchical structure can be applied to Mandarin in an elegant way. Finally,

I will determine more accurately the position of additive *yě* in the structure by surveying the interaction between *yě* and Mandarin modals.

3.2.1 Classification of modals: two dimensions

It is a well-known (possibly universal) fact that one modal verb can be interpreted in different ways. For instance, the English modal verb *must* has different interpretations in (26) and (27) (Butler 2003: 967):

(26) Arthur must be in bed.
    = 'it is a necessary assumption that Arthur is in bed.'

(27) Susan must tidy away the toys.
    = 'Susan is required to tidy away the toys.'

The difference between (26) and (27) is obvious: *must* in (26) denotes an attitude or judgment of the speaker towards the whole proposition 'Arthur is in bed', and in (27), it denotes an obligation that the subject 'Susan' should fulfill. Conventionally, modals which denote a clausal reading like *must* in (26) are called epistemic modals. Modals which relate the subject to the predicate (like *must* in (27)) are called root modals. The epistemic/root differences have been discussed at length by many scholars. For instance, Ross (1969) argues that epistemic modals are similar to raising verbs because they do not impose selectional restrictions on the subject, while root modals correspond to control verbs in the sense that they impose selectional restrictions on the subject.[36] Cook (1978: 6) proposes that epistemic modals are used to express the truth value of the whole sentence and root modals relate the subject to an activity and often denote permission, obligation and ability. Brennan (1997) claims that the two types of modals have a different scope, the epistemic ones are taken as propositional/sentential operators which take scope over the subject (the higher/outside subject as we discussed earlier, i.e., in [Spec, TP/IP]); the root ones are regarded as a predicate operator which scope under the subject and are "concatenated in the semantics with the VP, not with the sentence" (Brennan 1997: 192). Therefore, it is generally agreed that root modals are lower than epistemic modals in the syntactic structure. In particular, based on the distinction of two possible positions for the subject proposed by Diesing (1992) and as we discussed in the previous section, Butler (2003) specifically points out that epistemic modals should scope higher than the 'weakly quantified subject' or the outside subject ([Spec, IP]), and root modals are

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[36] In line with Ross, some (Huang 1988, Lin and Tang 1995, Li 1990, etc.) also relate Mandarin epistemic modals and root modals to raising and control verbs.

interpreted lower than the higher subject, but higher than the lower subject ([Spec, vP])). The interpretational and scopal differences between epistemic modals and root modals laid out here are useful for us later to judge whether a Mandarin modal should be viewed as an epistemic or a root modal.

Now considering Mandarin data, Mandarin modals also have this epistemic/root distinction. Lin and Tang (1995:54) argue that Mandarin modals can also fit into this dichotomy, i.e., the epistemic modality and the deontic/root modality. According to them, *kěnéng* 'possible' can only express epistemic modality, *xiǎng* 'want' */gǎn* 'dare'*/kěn* 'be willing to' */néng* 'be able to' */yuànyì* 'be willing to' can only denote deontic modality. I shall return to these modals to examine whether they only have "one reading" or not. However, according to them, there are also a few modals which can express both the epistemic reading and the deontic reading, for instance, *yīnggāi* 'should' */kěyǐ* 'may' */huì* 'will'. Consider (28) and (29) from Lin and Tang (1995):

(28) *Tā   kěnéng   chī-guo   fàn   le.*
     he   possible   eat-EXP   meal   SFP
     'It is possible that he has eaten'

(29) *Tā   néng   lái.*
     he   be.able.to   come
     'He is able to come'
     (Lin and Tang 1995: 71)

From the English translation of the two sentences, it is clear that *kěnéng* 'possible' in (28) has a clausal epistemic reading, and *néng* 'can/able' in (29) has a root reading.

Indeed, as pointed out by many (e.g., Lin (2012) and Tsai (2015)), the fact that one modal can have multiple interpretations is even more obvious in Mandarin than in English. For instance, Tsai (2015) uses *néng* 'can/able' as an example to illustrate the fact that one modal can have different interpretations from a 'willing' or 'ability' reading to deontic/habitual and or an irrealis reading (this differs from Lin and Tang who claim that *néng* 'can/able' only has a deontic reading). Tsai refers to this phenomenon as the "modality spectrum". Consider (30)-(33) from Tsai (2015: 236):

(30) *Xiǎo   D   néng   chī   là.*
     small   D   able   eat   spicy
     'Small D is able to (willingly) eat spicy food.'

(31) *Xiǎo   D   xià-ge   yuè   jiù*
     Small   D   next   month   then
     néng   chū-yù   le.
     able   be.released.from.prison PERF
     'Small D is able to (allowed by law) be released from prison next month.'

(32) *Xiǎo   D   jiǎo   gāng   hǎo,*
     small D   foot   just   well
     míngtiān   néng   shàng-shān.
     tomorrow   able   climb.mountain
     'Small D's foot has just recovered, so he is able to (physically allowed) go mountain. climbing.'

(33) *Táifēng   gāng   zǒu,*
     Typhoon   just   leave
     míngtiān   néng   shàng-shān   le.
     tomorrow   able   climb.mountain   SFP
     'The typhoon just left, so it is possible (for us) to go mountain climbing.'

As shown in (30) to (33), *néng* has different interpretations in accordance with the given contexts. *Néng* in the (30)-(32) can be seen as a root modal due to its non-clausal readings while in (33) it should be seen as an epistemic modal which denotes the possibility of the proposition of 'we go climbing'. [37]

Considering the phenomenon mentioned above we can say that, from another perspective, the epistemic modal and the root modal are often realized by the same modal word, or by "the same PF [phonetic form]" (Butler 2013: 968). It can be seen from English *must* in (26) and (27) and Mandarin *néng* in (30)-(33). It is also consistent with Lin and Tang (1995), who claim that *yīnggāi/kěyǐ/huì* have both epistemic and root readings. In fact, our following Mandarin data will show that nearly all Mandarin modals can have both epistemic and deontic readings. Butler assumes that the two types of modals which share the same PF have unitary lexical semantics while also occupying

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[37] The modal in (33) could also be interpreted as a circumstantial, rather than epistemic. There is, however, no doubt that *néng* can be interpreted as high as an epistemic, as the following example, suggested to me by Huba Bartos (p.c.) shows:

(i) [Looking at the clear, cloudless sky]

Yì-liǎng-ge   xiǎoshí   nèi   bù   néng xià-yǔ.
one-two-CL   hour   inside   not   can descend-rain
'It can't possibly rain in the next two hours or so.'

two different syntactic positions. Therefore, although the epistemic and root modals are associated with different syntactic positions, the modals sharing the same PF are semantically relevant. Recall the English examples in (26) and (27), the epistemic *must* and the root *must* both express the 'necessity' meaning. Similarly, the Mandarin modal *néng* in (30)-(33)*,* neglecting contextual information, denotes some kind of 'possibility' in all these sentences, which stays invariable regardless of the context.

The above-mentioned semantic core of the modals introduces the other two factors about modality, i.e., necessity and possibility, which are also frequently used to distinguish different types of modals (Kratzer 1977, 1991; Butler 2003). The following quote is from Kratzer (1991: 646):

(34) In using an epistemic modal, we are interested in what else may or must be the case in our world given all the evidence available. Using a circumstantial (i.e. root) modal, we are interested in the necessities implied by or the possibilities opened up by certain sorts of facts.

Mandarin data also supports this claim: both epistemic modals and root modals in Mandarin include the two sorts of modals expressing either some sort of necessity or some sort of possibility, as is shown in (35)-(38):

(35) *(Yīng)gāi zánmen zhè-xie rén dé jiǎng.*
　　 ought.to　we　　these　　people　receive　award
　　 'It is a necessary assumption that our people get an award.'

(36) *Kěnéng　　zánmen zhè-xie rén dé jiǎng.*
　　 be.possible　we　　these　　people　receive　award
　　 'It is a possible assumption that our people get an award.'

(37) *Nǐ (yīng)gāi chàng yì-shou xiǎo-qǔr.*
　　 you ought.to sing　　one-CL　ditty
　　 'You are required to sing a ditty.'

(38) *Nǐ　　néng　chàng yì-shou xiǎo-qǔr.*
　　 you　be.able.to sing　　one-CL　ditty
　　 'You are allowed to sing a ditty.'
　　 (Adapted from Huang, Li and Li 2009: 108-110)

The epistemic *yīnggāi* in (35) denotes a necessity meaning and the epistemic *kěnéng* in (36) expresses a possibility meaning. Similarly, the root modal *yīnggāi* in (37) denotes some kind of necessity in view of duty reading and the root modal *néng* in (38) expresses a sort of possibility given the permissible

reading. So, besides the epistemic and root dichotomy, possibility and necessity should be seen as another dimension that we need to consider in order to have an appropriate classification of modals.

So far, I have introduced the two dimensions of classifying modals. Butler's modal hierarchy will be introduced next.

3.2.2 Butler's modal hierarchy

In line with Kratzer, Butler (2003) argues that modals should be split four-ways: epistemic necessity, root necessity, epistemic possibility and root possibility. He further proposes that there is a rigid hierarchy between the four types of modals. This is not a completely new proposal. Earlier on I showed that there are two syntactic positions for modals and that epistemic modals are in a higher position than root modals. It has been claimed by Cormack and Smith (2002) that the two syntactic positions (Modal$_1$ and Modal$_2$ in their terms) for modals are occupied by necessity and possibility modals instead of epistemic and root modals, i.e., the necessity modals are hierarchically higher than the possibility modals. Meanwhile, in line with Klima (1964), they also argue for two positions of negation, i.e., the sentential negation represented by Pol(arity) [NEG] and the VP or adverbial negation represented by Adv [NEG]. The hierarchy of all the modals and negations proposed by them is given in (39):

(39) Modal$_1$ (necessity) < Pol [NEG] < Modal$_2$ (possibility) < Adv [NEG]
      (Cormack and Smith 2002: 138)

Based on the interaction of the four types of modals and two types of negations as shown in (39), Butler (2003) includes all the elements in his sequence, as shown in (40):

(40) Epistemic necessity < (negation) < epistemic possibility < (strong) subject < root necessity < negation < root possibility < vP[38]
      (Butler 2003: 986)

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[38] The strong subject here is the higher subject or the outer subject that we mentioned earlier. As to the higher negation, Butler assumes that it corresponds the Foc(us) position of Rizzi (1997). His survey result shows that native speakers completely accept a clausal negation scoping over modals expressing epistemic possibility. As a contrast, very few people accept a clausal negation scoping over epistemic necessity (Butler 2003: 985). He also assumes that the negation scoping over root necessity is a clausal negation that scopes in Foc.

As shown in (40), Butler does not only include (39) proposed by Cormack and Smith, he also assumes two structural positions for the "necessity < negation < possibility" array, one in CP, i.e., above the outside subject, and the other above vP.

In so doing, Butler effectively maps the positions of modals onto Rizzi's (1997) CP structure, proposing that this sequence occurs twice, not just in the CP but also right above vP. Here is Rizzi's CP structure:

(41) Force < (Top(ic)) < Foc(us) < (Top(ic)) < Fin(iteness)
     (Rizzi 1997: 297)

On the basis of all this, Butler proposes the following structure, representing the hierarchical relations between all four types of modals and both types of negation (Butler 2003: 988):

(42)
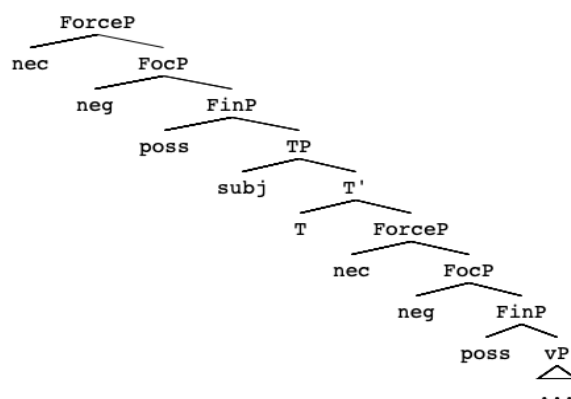
In the following paragraphs, I will examine whether Mandarin data can be analyzed insightfully using the structure presented in (42).

3.2.3 Classification of Mandarin Modals

Lin (2012) offers a comprehensive survey of the order of Mandarin modals. His classification of modals is slightly different from Butler's. Following Palmer (1990), Lin (2012) proposes three types of modals for Mandarin. Besides the epistemic modals, he has two types of root modals, namely the deontic modals, which denote the obligation meaning, and what he calls the "dynamic modals", which denote ability, permission and volition. Meanwhile, on the basis of their distributional properties, he separates the two modals *huì*

'will' and *yào* 'be going to' from the other modals and argues that they should be treated as two separate types. His classification is presented in (43) (Lin 2012: 154):

(43)

Epistemic		*kěnéng*	'be likely to'
		yīnggāi	'should'
Deontic	Obligation	*bìxū*	'must'
		yīnggāi	'should'
		děi/dé	'has to'
Dynamic	Ability	*néng/nénggòu*	'be able to'
		huì	'be capable of'
	Permission	*kěyǐ*	'be permitted to'
	Volition	*kěn*	'be willing to'
		yuànyì	'be willing to'
Future		*huì*	'will'
Aspect		*yào*	'be going to'
		zài	Progressive marker

If we consider the other two factors, i.e., necessity and possibility, roughly all the deontic modals in (43) which express the meaning of obligation fall under the cover of the root necessity modals in Butler's classification, and the dynamic modals in (43), which denote ability, permission and volition correspond to Butler's root possibility modals. Indeed, *huì* 'will' in Mandarin is often claimed to express (high) probability, i.e., it also expresses a possibility reading. Take Lin's example to illustrate this meaning:

(44) *Zhāng Sān   míngtiān   huì   lái.*
Zhang San   tomorrow   will   come
'Zhang San will come tomorrow.'
 = 'Zhang San is very likely to come tomorrow.'
(Lin 2012: 155)

So, it is reasonable to argue that *huì* in (44) is a root possibility modal. And when *yào* expresses the meaning of obligation, it is then a root necessity modal in Butler's terms.[39] Consider (45):

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[39] In line with Hsieh (2004) and Hsieh and Lin (2003), Lin (2012: 155-156) summarizes three different uses of *huì* and five uses of *yào*. I would like to argue that all the uses of *yào* except the conditional marker in *Yào ma nǐ lái, yào ma wǒ qù.* 'Either you come, or I go.' denote a 'need' reading. And as to *huì*, the 'possibility' reading exists invariably in all cases.

(45) *Zhāng Sān   yào lái,   fǒuzé   tā   huì yǒu máfan.*
Zhang San   need come   otherwise he   will have trouble
'Zhang San must come, otherwise he will be in trouble.'
(Lin 2012: 155)

Combining Lin and Butler, I have revised the classification of Mandarin modals, as demonstrated in (46):

(46)

Epistemic necessity	*děi*	'It has to be the case that…'
	yào	'It is required to be the case that…'
	bìxū	'It has to be the case that…'
	yīnggāi	'It should be the case that…'
Epistemic possibility	*kěnéng*	'It is likely to be the case that…'
	kěyǐ/néng (bù néng)	'It is permitted to be the case that…'
	huì (bú huì)	'It will be the case (or not) that…'
	kěndìng	'It surely will be the case that…'
Root necessity	*děi*	'must'
	yào	'be obliged to'
	bìxū	'have to'
	yīnggāi	'need'
Root possibility	*huì/néng/nénggòu*	'be able to'
	kěyǐ/néng	'be permitted to'
	kěn/yuànyì	'be willing to'

In (46), I have a larger group of epistemic modals than presented in previous classifications. It is not something new to claim (see, for instance, Lin and Tang (1995)) that *kěnéng, huì, kěndìng, yīnggāi* can denote an epistemic/clausal reading.[40] However, in the literature it is generally ignored that Mandarin *bìxū, yào, děi* can also have an epistemic/clausal interpretation. For instance, when Lin (2002) discusses the order between possibility modals and deontic/root modals, he discovers something that he finds confusing: the distribution of two particular types of modals is not so rigidly ordered as the

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[40] *Huì* often (if not always) occurs sentence-initially in the interrogative form of *huì bú huì* 'Will it be or not…' (Huang, Li and Li 2009: 108). It is indeed not so exceptional, *néng* has the same restriction when it is used as an epistemic modal, as we saw in fn: 36. Butler (2003: 985, fn: 9) observes the same phenomenon in English: the epistemic can never occurs in an unmarked context, i.e., it always occurs in negative and interrogative environments.

others. According to his examples in (47) and (48), possibility modals can occur either higher or lower than deontic modals.

(47) *Zhāng Sān   kěnéng   bìxū   lái.*
     Zhang San   be.likely.to   must   come
     'It is likely that Zhang San must come.'

(48) *Zhāng Sān   bìxū   kěnéng   lái,*
     Zhang San   must   be.likely.to   come
     (fǒuzé   jìhuà   huì   shībài).
     otherwise   plan   will   fail
     'It has to be the case that Zhang San is likely to come (otherwise the plan will fail).'
     (Lin 2012: 157)

Lin treats *bìxū* 'must' in the two sentences as the same type of modal, i.e., deontic. However, we have reasons to argue that *bìxū* 'must' in (48) is an epistemic necessity modal. As indicated in the English translation, *bìxū* 'must' in (48) has a very strong clausal reading, i.e., 'It has to be the case that…'. According to the definition of epistemic modals by Cook (1978: 6), epistemic modals are used to modify the whole sentence and express the epistemic status of the truth value of the whole sentence. Clearly, this use of *bìxū* must be distinguished from its deontic/root usage in (47). There are two uses of *bìxū*, and this explains the flexible order between *bìxū* and *kěnéng*; looked at it from this perspective, Lin's observation that possibility modals can occur either higher or lower than deontic modals is explained. It is in fact not surprising that *bìxū* 'must' and other deontic modals also have an epistemic reading, considering that epistemic and root modals are often realized by the same PF, as we have seen. It has been pointed out that besides the deontic reading, the counterpart of *bìxū* 'must' in English, *must* can also derive an epistemic reading under certain conditions. Barbiers (2002) points out that two types of complements will trigger the epistemic interpretation of a modal. The first type is stative complements which contain an individual-level predicate, as is illustrated in (49):

(49) John must be a native speaker of Finnish.
     (Barbiers 2002: 13)

The second type is the complements in the perfect in which the completion stage of the event has taken place in the past, as in (50):

(50) They must have cleaned this room yesterday.
      (Barbiers 2002: 13)

Interestingly, Mandarin has a phenomenon similar to what we see in (50). In Mandarin, the perfective aspect particle *le* cannot co-occur with the modals with a deontic reading, while it is compatible with modals or adverbs with an epistemic reading. Consider (51) and (52) from Tsai (2015).

(51) *Akiu*   *yīnggāi^epistemic/yīdìng^epistemic/kěnéng^epistemic*
     Akiu   should/surely/be.likely.to
     qù-le   xiànchéng.
     go-PERF   county
     'It should be/surely is/is likely to be the case that A Q has gone to the county.'

(52)*Akiu   *yīnggāi^deontic/yīdìng^deontic / kěyǐ^deontic*
     Akiu   should/surely/be.permitted.to
     qù-le   xiànchéng.
     go-PERF   county
     Tsai (2015: 248)

Tsai's (2008, 2015) explanation is the following: perfective aspect *le* in Mandarin needs to move to Tense (T) to satisfy "tense-anchoring". However, deontic modals are lower than T, so they will block the move of *le* due to the Head Movement Constraint. Epistemic modals/adverbs, on the other hand, are higher than T and will as such not block the movement of *le* to T. This explains why (51), with epistemic modals, is correct while (52), with deontic modals, is infelicitous. In line with Tsai, *bìxū* in the following sentence should also be seen as an epistemic modal.

(53) *Akiu*   *bìxū*   *yǐjīng*   *qù-le*   *xiànchéng*
     Akiu   must   already   go-PERF   county
     (cái   kěnéng   jiàn-de-dào   tā).
      so.that.   be.likely   see-able-reach   he
     'It has to be the case that A Q has gone to the county (so that he is able see him).'

Now we can safely conclude that *bìxū* 'must' in Mandarin has both a root and an epistemic reading. For the same reasons, *děi* 'have to' and *yào* 'need/will', which are usually regarded as root modals, have corresponding epistemic uses, as is illustrated in (54):

(54) *Děi/yào   jǐ-ge   rén   qù   ne?*
   have.to/need   how.many-CL people   go   SFP
   'How many people are required to be there?'

Děi 'have to' and *yào* 'need/will' in (54) have a strong clausal reading and occur in front of the interrogative phrase. They are epistemic modals here.

   To sum up, I conclude that all necessity modals in Mandarin have both an epistemic reading and a root reading, as summarized in (46), which incorporated Butler's (2003) insights. Moreover, although the epistemic and root modals expressing the possibility reading are not always realized by the exact same form, they are clearly related, as can be seen in *néng* and *kěnéng*; *kěn* and *kěndìng*, etc.

3.2.4 Hierarchy of Mandarin Modals

Now that we have a new classification of Mandarin modals, the one in (46), we can consider the order between the different types of modals. According to the survey of Lin, there is a hierarchy between different types of Mandarin modals, as shown in (55) (Lin 2012: 158):

(55)

$$
\text{Necessity} < \left\{ \begin{array}{l} \text{Possibility} < \text{Deontic} \\ \text{Deontic} < \text{Possibility} \end{array} \right\} < \text{Future} \quad < \text{Deontic} < \left\{ \begin{array}{l} \text{Ability} \\ \text{Permission} \\ \text{Volition} \end{array} \right\}
$$

The free order between possibility and deontic has been clarified earlier. Using the new classification in (46), we now can derive a new and more restricted hierarchy of Mandarin modals, as shown in (56).

(56) Epistemic necessity < Epistemic possibility < Root necessity < Root possibility

Interestingly, although Mandarin allows multiple occurrences of different types of modals in one sentence, modals of the same type cannot co-occur in one sentence. Consider (57) with two epistemic possibility modals and (58) with two root possibility modals (Lin 2012: 158):

(57) * *Tā kěnéng   kěndìng   lái.*
      He be.likely.to   surely   come

(58)* *Zhāng Sān   nénggòu   kěyǐ   lái.*
      Zhang San   be.able.to   can   come

Note that changing the sequence of the two modals in (57) and (58) will not rescue the two sentences.

Lin assumes that the incompatibility may be due to a semantic conflict: these two modals belong to the same type and that is problematic. In fact, we find that when two necessity or two possibility modals occur in one sentence, they cannot be simultaneously interpreted as either epistemic or root. Instead, the first one will be interpreted as an epistemic and the second one as a root. Consider (59):

(59) *Zhāng Sān   yīnggāi*^epistemic   *bìxū*^root   *lái.*
     Zhang San   should   must   come
     'It should be the case that Zhang San must come.'

The sentence in (59) is only interpretable if *yīnggāi* is interpreted as an epistemic and *bìxū* as a deontic modal.

The following examples from Lin (2012: 157) are reproduced here to illustrate the hierarchy in (56):

1) Epistemic necessity < Epistemic possibility

(60) *Zhāng Sān*   {**kěnéng*^epistemic}   *yīnggāi*^epistemic   { *kěnéng*^epistemic} *lái.*
     Zhang San   be.likely.to   should   be.likely.to   come
     'It should be the case that Zhang San is likely to come.'

2) Epistemic necessity < Root necessity

(61) *Zhāng Sān*   {**bìxū*^root }   *kěnéng*^epistemic   {*bìxū*^root} *lái.*[41]
     Zhang San   must   be.likely.to   must   come
     'It is likely that Zhang San must come.'

3) Root necessity < Root possibility

(62) *Zhāng Sān* {**nénggòu*^root}   *bìxū*^root   {*nénggòu*^root} *lái.*
     Zhang San   be.able.to   must   be.able.to   come
     'Zhang San must be able to come.'

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[41] Recall the discussion of the two readings of *bìxū* in (47) and (48).

Now let's consider negation in Mandarin. In line with Cormack and Smith (2002) and Butler (2003), I assume that there are two positions for negation in Mandarin, one within the CP and the other above the vP. Consider the distribution between epistemic modals and negation adverb *bù* 'not' first. See (63) and (64):

(63)*Zhāng Sān   *bù*   *yīnggāi*^epistemic   *lái-le.* [42]
     Zhang San   not   should   come-PERF

(64) *Zhāng Sān*   *bù*   *kěnéng*^epistemic   *lái-le.*
     Zhang San   not   be.likely.to   come-PERF
     'It is not likely that Zhang San has come.'

Interestingly, corresponding to what Butler found in English, the clausal negation *bù* 'not' can scope over the epistemic possibility modals without any problem as is shown in (64), but is not so acceptable when it occurs before the epistemic necessity modals, as illustrated in (63). Based on (63) and (64), we get the following order in (65), which is the same as Butler's:

(65) Epistemic necessity < Negation < Epistemic possibility.

Now turning to the relation between root modals and negation, in the following sentences, in order to guarantee a root reading of the modal, two necessity reading modals or two possibility reading modals will occur in one sentence. In this way, the latter modal must assume a root reading, as discussed earlier. Consider (66) and (67), cf. (59):

(66)*Zhāng Sān   *yīnggāi*   *bú*   *bìxū*   *lái.*
     Zhang San   should   not   must   come

(67) *Zhāng Sān*   *yīnggāi*   *bù*   *néng*   *lái.*
     Zhang San   should   not   be.able.to   come
     'It should be the case that Zhang San is not able to come.'

Based on (66) and (67), the hierarchy we get is as follows:

(68) Root necessity < Negation < Root possibility

---

[42] As discussed earlier, the perfective aspect *le* is used in a sentence to ensure the epistemic reading of *yīnggāi*.

In conclusion, our survey of Mandarin modals results in exactly the same hierarchy as the one proposed by Butler (2003), which is repeated here as (69). See also the structure in (42).

(69) Epistemic necessity < Negation < Epistemic possibility < (Strong) subject < Root necessity < Negation < Root possibility < vP

In what follows, I will investigate the relative order between additive *yě* and modals to determine where additive *yě* fits in the hierarchy.

3.2.5 The interaction between additive *yě* and modals

In section 3.1 above, it was shown that Mandarin additive *yě* is in the IP domain, lower than the outer subject ([Spec, TP]). According to (69), all epistemic modals are higher than the outer subject, therefore, the prediction is that epistemic modals are also higher than the additive *yě*. Let's see whether this prediction is borne out.

Suppose that Zhāng Sān and Lǐ Sì live together and they usually have a similar daily routine. Then consider (70), with an epistemic necessity *yīnggāi* 'should' and the stressed YE.[43]

(70) *(Zhāng Sān   zài   jiā,)*
     Zhang San   at   home
     *Lǐ Sì   {yīnggāi^{epistemic}} YE   {*yīnggāi^{epistemic}}   zài   jiā.*
     Li Si   should   YE   should   at   home
     '(Since Zhang San is at home,) it should be the case that Li Si is also at home.'

Now consider (71) with an epistemic possibility modal and an unstressed *yě*.

---

[43] I have tested the relative ordering between the different types of modals and *yě* with and without stress systematically. The outcome suggests that both variants of *yě* (with and without stress) occupy the same syntactic position. The examples in (70) – (74) are just some of the sentences I used in my survey.

(71) *Zhāng Sān   xǐhuan   dǎ   lánqiú,*
Zhang San   like   play   basketball
{kěnéng^{epistemic}} yě   {*kěnéng^{epistemic}}   xǐhuan   tī   zúqiú.
be.likely.to   YE   be.likely.to   like   play   football
'Zhang San likes playing basketball, and it is likely that he also likes playing football.'

Same result is repeated when I test the relative position between other epistemic modals and the ±stressed with *yě*. Although stress on *yě* influences the interpretation of the AC/ID pattern of the sentence, as discussed in Chapter 2, the additive *yě* with or without stress invariably occurs lower than the epistemic modals, as shown in (70) and (71).

Now let's have a look at the relative order between root modals and the additive *yě*. Suppose that both Zhang San and Li Si are obliged to be present at a meeting, we get (72):

(72) *Zhāng Sān   lái,   Lǐ Sì   YE   yīnggāi^{root} (??YE)   lái.*
Zhang San   come   Li Si   YE   ought.to   YE   come
'Zhang San ought to come, and Li Si ought to come too.'

See also (73) with an unstressed *yě*:

(73) *Nǐ   yīnggāi   duō shuō,   yě   yīnggāi   (*yě) duō   tīng.*
you   ought.to   more speak   YE   ought.to   YE more listen
'You ought to speak more and also listen more.'

(72) and (73) indicate that additive *yě* is located higher than root necessity modals. Since root necessity is higher than lower negation and root possibility modals according to (69), it is predicted that additive *yě* should occur before the lower negation and root possibility modals too. As predicted, *yě* is always located higher than the lower negation adverb *bù* or *méi*, as in (74) and (75):

(74) *Wǒ   {yě} bú   {*yě}   rènshi   tā.*
I   YE not   YE   know   him
'I don't know him either.'

(75) *Tā   {yě} méi {*yě}   qù-guo   Ōuzhōu.*
he   YE not   YE   go-EXP   Europe
'He has not been to Europe either.'

The same applies to root modals. It is shown that they can only occur after *yě,* see (76):

(76) *Zhāng Sān*   néng   *qù*   *Běijīng,*
       Zhang San   be.able.to   go   Beijing
       Lǐ Sì   {*yě*}   néng   {**yě*}   *qù*   *Běijīng.*
       Li Si   YE   be.able.to   YE   go   Beijing
       'Zhang San is able to go to Beijing, and so does Li Si.'

Based on the above survey, the position of additive *yě* can be determined in the hierarchy proposed in (69), as is shown in (77).

(77)   Epistemic necessity < negation < epistemic possibility < (strong) subject < **additive *yě*** < root necessity < negation < root possibility < vP

Thus, we can locate *yě* in Butler's tree, as is shown in (78):

(78)
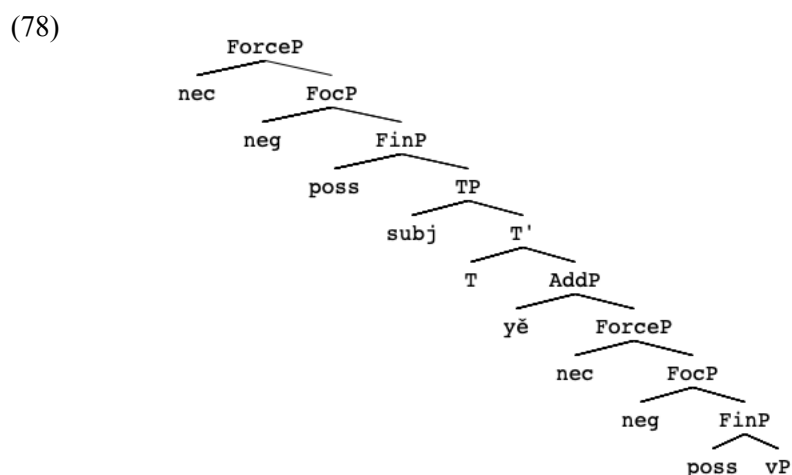
Now we have determined the syntactic position for the Mandarin additive particle *yě* based on Butler's hierarchy and Lin's survey. Recall that in the beginning of this chapter, we also mentioned another hierarchy, namely Cinque's adverb hierarchy, which is claimed to be universal (Cinque 1999). It will be very interesting to compare the position of additive *yě* in Butler's hierarchy and that in Cinque's. To this end, a survey of the relative order between additive *yě* and other adverbs/adverbials will be presented in the following section.

3.3 The position of additive *yě* relative to other adverbs

In this section, I investigate the interaction of *yě* with other adverbs in Mandarin. According to Cinque (1999), Adv(erb)Ps occupy the specifier position of distinct functional heads, even though the heads are generally not overt. The rigid ordering of these AdvPs is a consequence of the rigid ordering of the corresponding functional heads. Here is Cinque's hierarchy once more (Cinque 1999: 106):

(79)

[*frankly* Mood$_{speech\ act}$ [*fortunately* Mood$_{evaluative}$ [*allegedly* Mood$_{evidential}$ [*probably* Mod$_{epistemic}$ [*once* T(Past) [*then* T(Future) [*perhaps* Mood$_{irrealis}$ [*necessarily* Mod$_{necessity}$ [*possibly* Mod$_{possibility}$ [*usually* Asp$_{habitual}$ [*again* Asp$_{repetitive(I)}$ [*often* Asp$_{frequentative(I)}$ [*intentionally* Mod$_{volitional}$ [*quickly* Asp$_{celerative(I)}$ [*already* T(Anterior) [*no longer* Asp$_{terminative}$ [*still* Asp$_{continuative}$ [*always* Asp$_{perfect(?)}$] [*just* Asp$_{retrospective}$ [*soon* Asp$_{proximative}$ [*briefly* Asp$_{durative}$ [*characteristically(?)* Asp$_{generic/progressive}$ [*almost* Asp$_{prospective}$ [*completely* Asp$_{sg.completive(I)}$ [*tutto* Asp$_{pl.completive}$ [*well* Voice [*fast/early* Asp$_{celerative(II)}$ [*again* Asp$_{repetitive (II)}$ [*often* Asp$_{frequentative(II)}$ [*completely* Asp$_{sg.completive(I)}$

(Cinque 1999: 106)

Despite the fact that there are some differences between Cinque's hierarchy and Butler's (the latter embraces more semantic considerations), the resulting hierarchies are very similar (see also Butler 2003: 991). For instance, the epistemic modals/adverbs are higher than the root modals/adverbs and the necessity modals/adverbs are higher than the ones denoting possibility.

Cinque (1999: 39-41) also checked Mandarin data to verify his claim. He finds that Mandarin adverbs follow the following order:

(80) *lǎoshi-shuō* 'honestly' < *búxìng* 'unfortunately' < *xiǎnrán* 'evidently' < *xiànzài* 'now'/*yěxu* 'perhaps' < *míngzhìde* 'wisely' < *yìbān* 'usually' < *chángcháng* 'often' < *yǐjīng* 'already' < *bú-zài* 'no longer' < *zǒngshì* 'always' < *yìzhí* 'continuously' / *gānggāng* 'just' < *wánquán* 'completely' < *hǎo* 'well'

If we map the adverb order of Mandarin onto the universal hierarchy of adverbs and functional heads in (79) based on Cinque's survey of Mandarin adverbs and some data from my survey, we get the following hierarchy of functional projections of Mandarin adverbs, as demonstrated in (81):

(81)   [*lǎoshi-shuō* 'honestly' Mood_speech-act   [*búxìng* 'unfortunately'
Mood_evaluative [*xiǎnrán* 'evidently' Mood_evidential [*hǎoxiàng* 'seemingly'
Mod_epistemic [*xiànzài* 'now' T [*yěxu* 'perhaps' Mod_irrealis [*bìrán*
'necessarily' 'Mod_necessity [*yídìng* 'surely' Mod_possibility [*míngzhì-de*
'wisely'   Mod_root[*yìbān*'usually'   Asp_habitual   [*yòu*   'again'
Asp_repetitive[*chángcháng*'often' Asp_frequentative [*yǐjīng* 'already' T
(Anterior) [*bú-zài* 'no longer' Asp_terminative [*zǒngshì* 'always' Asp_perfect
[*yìzhí* 'continuously'*/gānggāng* 'just' Asp_retrospective [*wánquán*
'completely' Asp _completive [*hǎo* 'well' Voice (< V)

The Mandarin hierarchy in (81) almost completely matches with Cinque's
universal hierarchy. The only exception is the order between the habitual
adverb *yìbān* 'usually' and subject-oriented adverb *míngzhì-de* 'wisely':[44]
subject-oriented adverbs are higher than the habitual adverbs in Mandarin
according to Cinque (1999:40).[45] Note that the Mandarin hierarchy in (81)
looks neater: in Cinque's universal hierarchy, subject-oriented adverbs and
the corresponding functional heads, i.e., the root modals, are inserted in
between different Asp(ect)Ps. In (81), all Mandarin AspP adverbs are lower
than the Mod(al)P adverbs. Meanwhile, the Mandarin hierarchy in (81) is in a
way comparable to Butler's hierarchy of modals, for instance, the segment

[*bìrán* Mod_necessity [*yídìng* Mod_possibility [*míngzhì-de* Mod_root

in (81), which is lower than the Mod_epistemic, presumably corresponds to the
root modals in Butler's terms, i.e., the functional heads of Mod_necessity and the
Mod_possibility in (85) respectively are the 'root necessity' modal and the 'root
possibility' modal in Butler's hierarchy.

Now, returning to *yě*, recall that the syntactic position of additive *yě* is
higher than root necessity but lower than the outer subject. If we translate this
to Cinque's adverb hierarchy, it is predicted that additive *yě* will occur in a
position higher than the corresponding adverbs of Mod_necessity and all adverbs
below them. Our survey below supports this prediction. For the sake of
optimal comparison, note that I adopt Cinque's classification and his labels
for the adverbs in (79) for discussing Mandarin cases.

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[44] Cinque (1999: 89) argues that root modals (including modals expressing volition,
obligation or ability/permission) and subject-oriented adverbs have a special
connection: for instance, they both 'retain [their] orientation on the subject'. That is why
the subject-oriented adverbs are associated to Mod_root.

[45] Cinque notes that for some native speakers, *yìbān* can also occur before *míngzhì-de*.

3.3.1 Adverbs that occur before additive *yě*

Earlier on, we have demonstrated that speaker-oriented adverbs as CP adverbs occur higher than additive *yě*; the examples are repeated here as (82) with a speech-act adverb and (83) with an epistemic adverb.

(82) {*Lǎoshi-shuō*}, *tā*   {**lǎoshí-shuō*} *yě*   {**lǎoshi-shuō*}
    frankly   he   frankly   YE   frankly
    gàosù-le   *wǒ*   *zhēnxiàng.*
    tell-PEFR   I   truth
    'Frankly, he also told me the truth.'

(83) *Zhāng Sān*   *zǒu-le,*   {*hǎoxiàng*}   *Lǐ Sì*   {*hǎoxiàng*}
    Zhang San   leave-PERF   seemingly   Li SI   seemingly
    yě   {**hǎoxiàng*}   *zǒu-le.*
    YE   seemingly   leave-PERF
    'Zhang San left, and it seems that Li Si left too.'

The same applies to two other types of speaker-oriented adverbs, e.g., evaluative adverbs, as illustrated in (84), and evidential adverbs, as in (85):

(84) {*Xìnghǎo*}   *Lǐ Sì*   *yě*   {**xìnghǎo*}   *zǒu-le.*
    luckily,   Li Si   YE   luckily   leave-PERF
    'Luckily, Li Si also left.'

(85) {*Xiǎnrán*}   *tā* *yě* {**xiǎnrán*}   *bù* *zhīdào*   *wèishénme.*
    obviously   he   YE   obviously   not know   why
    'Obviously, he does not know the reason either.'

As predicted, time adverbs and irrealis adverbs usually occur before *yě*, see (86) and (87):

(86) *Wǒ*   {*xiànzài*} *yě*   {**xiànzài*}*xiǎng hē diǎnr   dōngxi.*
    I   now   YE   now   want drink bit   thing
    'Now, I want to drink something too.'

(87) *Tā* {*huòxu*} *yě* {*?huòxu*}   *zhīdao-le.*
    he   perhaps YE   perhaps   know-PEFR
    'Perhaps he also knows it now.'

3.3.2 Adverbs that occur after additive *yě*

We predict that the additive *yě* will be located higher than the necessity adverbs and all other lower adverbs in Cinque's hierarchy. It can be verified by the following survey.

1) Necessity adverbs/Possibility adverbs

(88) *Zhāng Sān   yào   lái   Běijīng,*
Zhang San   will come   Beijing
Lǐ Sì {??bìrán }   YE   {bìrán}   yào   lái   Běijīng.
Li Si   necessarily YE   necessarily will come   Beijing
'Zhang San will come to Beijing and Li Si will necessarily come to Beijing.'

(89) *Zhāng Sān   yào   qù   Běijīng,*
Zhang San   will   go   Beijing
{??bìrán}   yě   {bìrán}   yào qù   Tiānjīn.
necessarily   YE   necessarily   will go   Tianjin
'Zhang San will go to Beijing and he will necessarily go to Tianjin too.'

Note that we have a stressed *YE* in (88) and unstressed *yě* in (89); the judgement of the relative position between *yě* and the necessity adverbs remains unchanged. Most of the native speakers that were consulted for this study find that it is more natural to place *bìrán* 'necessarily' after *yě*, although some also point out that when we place an obvious stress on *bìrán* 'necessarily', it can precede *yě* too. I assume it is a pure prosodic matter and not relevant to our discussion. The same judgement applies to possibility adverbs, as is shown in (90) and (91).

(90) *Zhāng Sān   yào   lái   Běijīng,*
Zhang San   will   come   Beijing
Lǐ Sì {??yídìng }   YE   {yídìng} yào lái   Běijīng.
Li Si   necessarily YE   surely   will come   Beijing
'Zhang San will come to Beijing and Li Si will surely come too.'

(91) *Zhāng Sān   yào qù   Běijīng,*
Zhang San   will go   Beijing
{??yídìng}   yě   {yídìng} yào qù   Tiānjīn.
  surely   YE   surely   will go   Tianjin
'Zhang San will surely go to Beijing and he will surely go to Tianjin too.'

2) Root/subject-oriented adverbs

It is shown in 3.1 that *yě* ccurs before the subject-oriented (corresponding to Mod$_{root}$) adverbs. And when the same adverbs occur before *yě,* their interpretation changes: they can only have a clausal reading. In other words, the subject-oriented reading of these adverbs can only be derived when they occur after additive *yě*. When they occur before *yě,* they become evaluative adverbs, i.e., a speaker-oriented adverb with a clausal reading. The examples are repeated here as (92) and (93):

(92) a. *Aìlìsī   yě   cōngming-de^{root} huídá-le   zhè-ge   wènti.*
　　　Ailisi   YE   cleverly   answer-PERF   this-CL   question
　　　'Alice has also cleverly answered the questions.'

 (93) b. *Aìlìsī   cōngiíng-de^{evaluative} yě*
　　　　Ailisi   cleverly   YE
　　　　huídá-le   zhè-ge   wènti.
　　　　answer-PERF   this-CL   question
　　　　'Cleverly, Alice also answer the question.'

3) Habitual adverbs

 (94) *Tā   {??wǎngwǎng} yě   {wǎngwǎng}   qù   nàli chīfàn.*
　　　he   usually   YE   usually   go   there have.meal
　　　'He also used to go there to have meals.'

Similarly, the habitual adverb *wǎngwǎng* 'often, frequently' occurs after *yě*, and only if the adverb is stressed, does it occur before *yě*.
　　　Even though necessity adverb/possibility adverbs and habitual adverbs can still occur in front of additive *yě* under certain circumstances, all the adverbs below them in the hierarchy of (81) can never occur before additive *yě*, as is shown below.

4) Restitutive adverb: *yòu* 'again'

(95) *Wǒ   {*yòu}   yě   {yòu}   yǒu-le   xīn   péngyou.*
　　　I   again   YE   again   have-PERF   new friend
　　　'I also have new friends again.'

5) Frequency adverbs: *chángcháng* 'often'

(96) *Wǒ* {*chángcháng} *yě* {*chángcháng*} *tīng* *yīnyuè*.
     I   often   YE   often   listen   music
     'I also often listen to music.'

6) Aspectual adverbs: *hái* 'still'/ *yǐjīng* 'already'/ *búzài* 'no longer'/ *zǒngshì* 'always'/ *gang* 'just'

(97) *Tā* {*hái} *yě* {*hái*} *bù* *zhīdào*.
     he   still   YE   still   not   know
     'He also hasn't known yet.'

(98) *Wǒ-de* *péngyou* {*yǐjīng} *yě* {*yǐjīng*} *jiéhūn-le*.
     my   friend   already   YE   already   marry-PERF
     'My friend has already got married too.'

(99) *Tā* {*búzài} *yě* {*búzài*} *chōuyān* *le*.
     he   no.longer   YE   no.longer   smoke   SFP
     'He doesn't smoke any longer.'

(100) *Tā* {*zǒngshì} *yě* {*zǒngshì*} *yí-ge* *rén* *chīfàn*.
      he   always   YE   always   one-CL   people   have.meal
     'He always has meals by himself too.'

(101) *Wǒ* {*gāng} *yě* {*gāng*} *chī-wán* *fàn*.
     I   just   YE   just   eat-finish meal
     'I have just eaten my meal too.'

(102) *Wǒ* {*wánquán} *yě* {*wánquán*}
     I   completely   YE   completely
     lǐjiě *nǐ-de* *xiǎngfǎ*.
     understand   your   thought
     'I completely understand your thought too.'

In sum, all adverbs in the scope of the AspP projection occur after the additive *yě*, as predicted. The survey results in this section provide another piece of evidence to the claim that *yě* is located higher than AspP.

3.3.3 Additive *yě* in Mandarin adverb hierarchy

Now, we can insert the additive *yě* in the Mandarin adverb hierarchy based on Cinque, as is shown below:

(103) [*lǎoshi-shuō* Mood_speech-act [*búxìng* Mood_evaluative [*xiǎnrán* Mood_evidential [*hǎoxiàng.* Mod_epistemic [*xiànzài* T [*yěxǔ* Mod_irrealis [**yě Add** [*bìrán* Mod_necessity [*yídìng* Mod_possibility [*míngzhì-de* Mod_root [*yìbān* Asp_habitual [*yòu* Asp_repetitive [*chángcháng* Asp_frequentative [*yǐjīng* T (Anterior) [*bú-zài* Asp_terminative [*zǒngshì* Asp_perfect [*yìzhí/gānggāng* Asp_retrospective [*wánquán* Asp _completive [*hǎo* Voice (< V)

Earlier I have shown where *yě* is in the hierarchy relative to modals based on Butler (2003) (cf. (78)) and (103) shows the position of *yě* relative to other adverbs in the hierarchy based on Cinque (1999). When we look at the semantic labels of the modals in (78) and those of the adverbs in (103), we find the same result for the placement of the additive *yě*, i.e., it is in the IP zone higher than the adverbs or modals expressing necessity.

In Chapter 2, I mentioned that the other *yě*, i.e., the parametric *yě*, can be used in certain 'special' contexts in which it does not behave like an additive adverb (for instance, it is resistant to accommodation etc.). Specifically, in sentences with a *wh*-phrase or a disjunctive phrase in the left periphery expressing 'no matter', like in (104), or sentences involving 'even', like in (105).

(104) *(Wúlùn) shéi yě shuìfú-bu-liǎo   tā.*
    no.matter who YE not.be.able.to.persuade   he
    'Nobody can persuade him.'

(105) *Tā   lián yí-jù-Hélán-huà   yě bú huì.*
    (s)he   even one-CL-Dutch-language   YE not can
    'He doesn't even know one Dutch sentence.'

If we argue that it is a different *yě* in these contexts, it will be interesting to see whether it has a different syntactic position from the additive *yě*. In the following section, a survey of the distribution of *yě* in these contexts will be conducted.

3.4 The position of parametric *yě*

In this section, I explore the position of parametric *yě*, i.e., the *yě* we find in *no matter* and *even/even if* contexts, by examining the relative position of *yě* with four types of modals in Butler's classification.

First consider the relation between *yě* and root modals in sentences with *wúlùn* 'no matter':

(106) *Wúlùn   yù-dào   shénme   kùnnan,*
    no.matter encounter what   difficulty
    tā   {yě} yīnggāi^{root} /yuànyì   {*yě}   jiānchí-xiàqu.
    he   YE   should/be.willing.to   YE   carry.on
    'No matter what difficulties he may encounter, he should/is willing to carry on.'

As is shown in (106), *yě* in this context must occur before the root modals, the root necessity modal *yīnggāi* and the root possibility modal *yuànyì*, which is exactly like the normal additive *yě*. But how about a context in which it co-occurs with epistemic modals, which are argued to be higher than additive *yě* in 3.2? Consider (107):

(107) *Wúlùn   yù-dào   shénme   kùnnan,*
    no.matter encounter what   difficulty
    tā   {yě} yīnggāi /kěnéng   {?yě}   huì jiānchí-xiàqu.
    he   YE   should^{epistemic}/be.likely.to   YE   will carry.on
    'No matter what difficulties he may encounter, it should/be likely to be the case that he will carry   on.'

Recall that in (70) and (71) the additive *yě* must occur after the epistemic modals. However, *yě* in the *no matter* context seems to be different: it can occur in front of the epistemic modals, both in the necessity and the possibility reading, as we see in (107). [46]

By examining the relative distribution of *yě* and modals in *no matter* contexts, we conclude that *yě* in this context is higher in the structure than the additive one. This is also clear from the position of *yě* relative to the adverbs corresponding to these modals. Based on (103), the following adverbs can respectively be viewed as the corresponding adverbs (in the specifier position

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[46] Some but not all native speakers accept *yě* in post-modal position in this sentence, but they do point out that in a position preceding the modal, *yě* sounds better than its post-modal counterpart. It is possible that the inconsistent judgment here is due to the interference of the additive use of *yě*.

of corresponding functional heads according to Cinque) of modals expressing epistemic necessity, epistemic possibility, root necessity and root possibility: *zhùdìng* 'unavoidably'/*hǎoxiàng* 'seemingly' /*bìrán* 'necessarily' /*gùyì* 'deliberately'. Now let's see how they interact with *yě* in *no matter* contexts.

(108) *Wúlùn   dírén   duōme   qiángdà,*
    no.matter enemy   how   strong
    {*yě*}   *zhùdìng*   {*?yě*}   *huì*   *shībài.*
    YE   unavoidably   YE   will   fail
    'No matter how strong your enemies are, they will unavoidably be beaten.'

(109) *Wúlùn   dírén   duōme   qiángdà,*
    no.matter enemy   how   strong
    {*yě*}   *hǎoxiàng*   {*?yě*}   *xià-bu-dǎo   tā.*
    YE   seemingly   YE   scare-not-fall   he
    'No matter how strong the enemies are, they seemingly cannot intimidate him.'

(110) *Wúlùn   duō-nán-de   rènwu,*
    no.matter how-tough-ATTR   task
    tā   {*yě*}   *bìrán*   {**yě*}   *wánchéng.*
    he   YE   necessarily   YE   fulfill
    'No matter how tough the task is, he will always fulfill it.'

(111) *Wúlùn   duō-róngyì-de   tímù,*
    no.matter how-easy-ATTR   question
    tā {*yě*}   *gùyì*   {**yě*}   *zuò-cuò.*
    he YE   deliberately   YE   do-wrong
    'No matter how easy the question is, he deliberately makes errors.'

The above sentences show that *yě* in *no matter* contexts can (and in some cases, must) occur before all four types of adverbs, which, on the basis of the logic followed so far, means that it is higher in the structure too. A similar situation holds in the *lián* 'even'/*jíshǐ* 'even-if' contexts. Consider the following sentences:

(112) *Lián zhème   qiángdà-de   dírén*
    even so   strong-ATTR   enemy
    {*yě*}   *zhùdìng*   {**yě*}   *huì*   *shībài.*
    YE   unavoidably   YE   will   fail
    'Even such a strong enemy will unavoidably be beaten.'

(113)*Lián guówáng* {*yě*} *hǎoxiàng* {**yě*}   *huì*   *lái.*
    even king   YE   seemingly   YE   will   come
    'Even the kind will seemingly come.'

(114)*Lián*   *zuì*   *nán-de*   *rènwu*
    even   most   tough-ATTR   task
    tā   {*yě*}   *bìrá*   {**yě*}   *wánchéng.*
    he   YE   necessarily   YE   fulfill
    'He will even fulfill the toughest task.'

(115)*Lián zuì róngyì-de*   *tí*
    even most easy-ATTR   question
    tā   {*yě*} *gùyì*   {**yě*}   *zuò-cuò.*
    he   YE   deliberately YE   do-wrong
    'He deliberately makes errors even in the easiest question.'

The above sentences show that both epistemic adverbs and root/subject-oriented adverbs occur after *yě* in a *lián…yě* sentence. As before, the reason that *yě* cannot occur after these adverbs can presumably be attributed to its higher position in the structure.

    The fact that the position of *yě* in these special contexts is higher than many clausal adverbs provides another account to the following infelicitous sentence from Paris (1998: 143):

(116)* *Lián*   *Zhāng Sān*   *búxìng-de*   *yě qù-le.*
       even   Zhang San   unfortunately   YE   go-PERF
       (Paris 1998: 143)

Paris argues that the ungrammaticality of (116) is due to the fact that a *lián* constituent cannot function as a topic and thus cannot occupy the topic position, i.e. the sentence-initial position in (116), which is higher than the clausal adverb *búxìng-de* 'unfortunately'. However, I propose a different way to explain the infelicity of (116), based on the distributional properties of *yě*: it is syntactically higher than speaker-oriented adverbs, so it must precede them. If we place *yě* in its proper position, as we do in (117), the sentence is good, and the *lián* constituent is still in sentence initial position.

(117)*Lián Zhāng Sān*   *yě búxìng-de*   *qù-le.*
    even Zhang San   YE unfortunately   go-PERF
    'Unfortunately, even Zhang San left.'

Similarly, *yě* is also found in a higher position than the speaker-oriented adverbs in sentences with the conjunction *jíshǐ* 'even-if', given in (118)-(121):

(118) *Jíshǐ   dírén   zài   qiángdà,*
      even.if   enemy   more   strong
      *{yě}   zhùdìng   {*yě}   huì   shībài.*
      YE   unavoidably   YE   will   fail
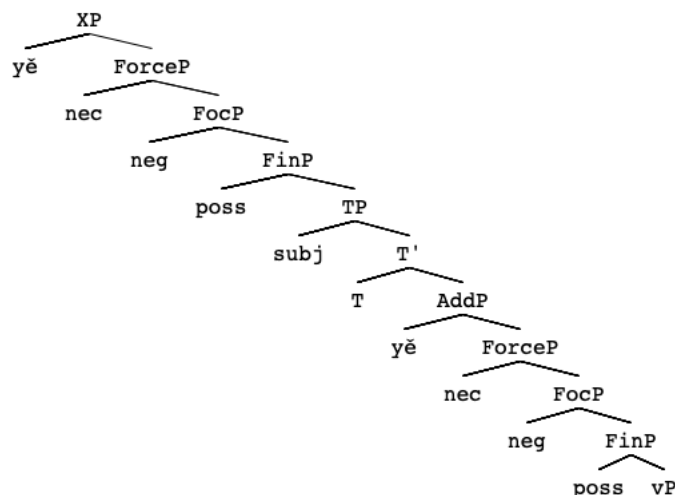   'Even if the enemies are stronger, they will unavoidably be beaten.'

(119) *Jíshǐ   zài-dà-de   tiǎozhàn,*
      even.if   more-big-ATTR   challenge
      tā   {yě}   hǎoxiàng   {?yě}   bú   pà.
      he   YE   seemingly YE   not   afraid
      'Even if the challenge is bigger, he seems not to be afraid.'

(120) *Jíshǐ   zài-dà-de   tiǎozhàn,*
      even.if   more-big-ATTR   challenge
      *tā   {yě}   bìrán   {*yě}   kèfú.*
      he   YE   necessarily YE   overcome
      'Even if the challenge is bigger, he will necessarily overcome.'

(121) *Jíshǐ   tí   zài   róngyì,*
      even.if   question   more   easy
      *tā   {yě}   gùyì   {*yě}   zuò-cuò.*
      he   YE   deliberately YE   do-wrong
      'Even if the question is easier, he will deliberately make errors.'

All sentences in this survey consistently lead to the following conclusion: the structural position of parametric *yě* in *no matter* sentences *even/even if* sentences is quite high and presumably higher than additive *yě*. In line with Butler's hypothesis that the CP layer and IP layer share, in the sense of repeat, the same sequence of functional projections, I would like to propose the following structure, including two different positions for *yě*:

(122)

```
              XP
           ╱     ╲
        yě      ForceP
              ╱      ╲
           nec       FocP
                   ╱      ╲
                neg      FinP
                       ╱     ╲
                   poss      TP
                           ╱    ╲
                        subj     T'
                              ╱     ╲
                            T       AddP
                                  ╱     ╲
                               yě      ForceP
                                     ╱      ╲
                                  nec       FocP
                                          ╱     ╲
                                       neg      FinP
                                              ╱    ╲
                                          poss     vP
```

As is clear from the above, we have good reasons to put parametric *yě*, in the CP layer of the sentence. However, as is equally clear (from the sentences we have reviewed) in actual sentences, parametric *yě* still follows the subject, which we had reasons to locate in a specifier position in the IP domain. How can we account for this mismatch? There are two possible accounts. One is to say that the parametric *yě* is physically low, but is interpreted high. This has been proposed for perfective marker *le* in certain sentences by Cheng (2019). The second possible account is that parametric *yě* is base-generated in CP and, one way or another, leads to the movement of the subject to a specifier position higher than parametric *yě*. The details of such accounts would have to be worked out, also in relation to the positions of adverbs. I will not decide between these two options now; I will leave this for future research, as both options also have interesting consequences for some of the analyses presented elsewhere in this thesis.

The structure in (122) is in full accord with Cinque's (1999) proposal that different positions of one same adverb must be licensed by different functional heads. If Cinque's approach holds, one important requirement will be, as was critically pointed out by Ernst (2007: 1011), that the two adverbs licensed by distinct heads must have two distinct interpretations. The interpretation of additive *yě* has been discussed in Chapter 2. In the following chapter, the interpretation of *yě* in these non-additive contexts will be explored. As already mentioned, we will establish that a different interpretation, i.e. scalarity, of *yě* exists in these non-additive contexts. This would confirm that there are two different instantiations of *yě*, both syntactically and semantically.

3.5 Concluding remarks

In this chapter, I have proposed that additive *yě* is an IP adverb and I provided several pieces of evidence to substantiate this proposition. A detailed survey of the position of additive *yě* relative to modals and adverbs was conducted to determine the syntactic position of *yě*. Crucially, on the basis of Butler's four-way split of modals and the corresponding modal hierarchy, I have proposed a new classification and hierarchy of Mandarin modals. We have seen that the Mandarin additive particle sits higher than the root necessity modals and lower than the outer subject in the structure. This is further evidenced by a survey on the position of additive *yě* relative to adverbs on the basis of Cinque's presumably universal adverb hierarchy.

A survey of the position of *yě* relative to modals and adverbs in *no-matter* and *even* contexts shows that *yě* in these contexts sits higher in the structure than epistemic necessity modals. Therefore, we conclude that there are in fact two syntactic positions for *yě*, one is in the IP domain, and the other is higher, most likely in the CP. This is in fact consistent with Butler's idea that the same sequence of projections is to be found in both the CP layer and the IP layer.

In light of the proposal that there are two positions for *yě*, it would be good to establish that there are also two different interpretations for the two positions. In the following chapter, I will argue that *yě* in *no matter* and *even/even if* contexts has in fact a different interpretation. I will eventually argue that *yě* in these contexts is a scalar *yě* (in line with Hole (2017)) instead of an additive/non-scalar *yě*.