Subject Raising in Chinese Modal Auxiliary Verb Constructions: A-movement or A′-movement?

Bo Hu, Hong Chen
City University of Macau

Abstract

Subject raising in Chinese modal auxiliary verb constructions can be either A-movement or A′-movement. Modal auxiliary verbs such as hui and yao can take a nonfinite TP complement which cannot value the abstract case of the embedded subject. Hence the embedded subject must get its case valued by the matrix T and is raised to the Spec-TP of the matrix clause. This kind of raising is A-movement and is obligatory. Modal auxiliary verbs such as keneng and yinggai take a finite CP complement that can be assigned tense value by the broader context. The embedded subject can get its case valued and stay in situ. It can also be raised to the sentence-initial position by topicalization. This kind of raising is A′-movement. The A-movement and A′-movement contrast accounts for the minimal link condition in object raising, weak and strong quantificational NPs, topic stacking, and resumptive pronouns in Chinese modal auxiliary verb constructions.

Keywords

subject raising, Chinese modal auxiliary verb, A-movement, A′-movement, abstract case, topicalization
1 Introduction

Subject raising in Chinese modal auxiliary verb constructions is first proposed by Huang (1988), for example:

(1) a. \[[e] \text{Hui} \ [\text{zhe} \ \text{ben} \ \text{shu} \ \text{zhangjia}].\]
   \text{be-likely this CL book rise.price}

b. \[[\text{Zhe} \ \text{ben} \ \text{shu}], \text{hui} \ [t_i \ \text{zhangjia}].\]
   \text{this CL book be-likely rise.price}

‘The price of this book will rise.’

Huang points out that modal auxiliary verbs (MAVs) such as \textit{hui} ‘be-likely’ and \textit{keyi} ‘be-allowed’ are one-argument predicates that take a proposition or event complement, and their subject position has an empty subject \textit{e}, as in (1a). In the syntactic derivation, the subject of the complement clause is raised to the subject position of the matrix clause and leaves a trace behind, as in (1b). The syntactic structures of these two sentences are shown as follows:

(2) a. 
   \begin{center}
   \begin{tikzpicture}
   \node (IP) {IP};
   \node (NP) [below left of=IP] {NP};
   \node (I) [below of=IP] {I'};
   \node (e) [below of=I] {e};
   \node (Hui) [right of=e] {Hui};
   \node (zhe ben shu zhangjia) [right of=Hui] {zhe ben shu zhangjia};
   \end{tikzpicture}
   \end{center}

b. 
   \begin{center}
   \begin{tikzpicture}
   \node (IP) {IP};
   \node (NP) [below left of=IP] {NP};
   \node (I) [below of=IP] {I'};
   \node (Zhe ben shu) [right of=I] {Zhe ben shu};
   \node (hui) [right of=Zhe ben shu] {hui};
   \node (t_i zhangjia) [right of=hui] {t_i zhangjia};
   \end{tikzpicture}
   \end{center}

Huang proposes that (2a) is the deep structure of (2b). Unlike the other MAVs such as \textit{keneng} ‘be-possible’ and \textit{yinggai} ‘should’, the embedded subject of the MAV \textit{hui} is obligatorily raised to the matrix subject position, or else the sentence will not be acceptable, as seen in (3).

(3) a. *\text{Hui} \ [\text{zhe} \ \text{ben} \ \text{shu} \ \text{zhangjia}].
   \text{will this CL book rise.price}

b. \text{Yinggai} \ [\text{ta} \ \text{zhida} \ \text{zhe} \ \text{jian} \ \text{shi}].
   \text{should he know this CL thing}

‘It should be the case that he knows this thing.’
Notice that in (3a), the sentence is ungrammatical if the embedded subject stays in situ, while in (3b), the subject in situ is acceptable. However, the embedded subject can be raised to the sentence-initial position, as in (4).

(4) a. Zhe ben shu, hui ti zhangjia.
   ‘The price of this book will rise.’
  
   b. Ta ti yinggai ti zhidao zhe jian shi.
   ‘He should know this thing.’

Subject raising in Chinese MAV sentences has been a hot issue during the past ten years, with different hypotheses formulated under generative grammar (Tsai 2010; Lin 2011; Chou 2013; Hsu 2015; Hu 2015; Wang and Pan 2019; Yu and He 2019). Lin (2011) claims that the NP movement in (4) is A-movement (argument movement) driven by the Extended Projection Principle (EPP, Chomsky 1982) of the matrix TP. In contrast, Lin and Tang (1995) argue that it is A-movement driven by case checking in Chinese. Many other researchers, including Tsao (1996), Tsai (2010) and Hu (2015), propose that it is A′-movement (movement of a constituent to a non-argument position) triggered by topicalization. Some researchers believe that there are two kinds of movement in these sentences. For example, Chou (2013) claims that the NP movement in (4b) is A-movement driven by topicalization, while Yu and He (2019) argue that the sentence-initial NP in the Chinese MAV keneng/yinggai construction is a base-generated subject or a topic. Subject raising in Chinese MAV constructions is genuinely controversial.

Is subject raising in Chinese MAV constructions A-movement or A′-movement? To answer this question, we investigate subject raising in Chinese MAV constructions based upon previous investigations. This paper is three-fold. Firstly, we propose that the subject raising in (4a) is distinct from that in (4b). The obligatory raising of the embedded subject is A-movement triggered by abstract case valuation, and the optional raising of the embedded subject is A′-movement triggered by topicalization. The difference between subject and topic is manifested by strong and weak quantificational NPs, topic stacking, etc. As for topicalization, the constituent is moved into the specifier position with CP, leaving a trace behind. Secondly, we argue that the embedded object movement to the sentence-initial position is also A′-movement triggered by topicalization. Thirdly, we propose that there is no empty expletive in Chinese, and the setting of the empty expletive is not tenable empirically or theoretically.

The paper is organized as follows. Following a brief introduction in Section 1, Section 2 reviews different hypotheses on subject raising in Chinese MAV constructions. In Section 3, assuming the Theory of Abstract Vase and the finite/nonfinite contrast apply to Chinese, we carefully examine subject raising and other relevant phenomena in Chinese MAV constructions. Section 4 summarizes our conclusions.
2 Literature review

Subject raising in Chinese MAV constructions is first thoroughly investigated by Tsao (2005: 287–292). Tsao proposes that the epistemic MAVs such as keneng, henkeneng, hui, gai, yinggai and yingdang belong to the modality of propositions and are one-place predicates that take a proposition as their complement. In the syntactic derivation, the subject of the complement clause can be raised to the subject position of the matrix clause to become a topic, so these MAVs are raising verbs, as in (5).

(5) a. Keneng ta mingtian hui ying na chang qiu.
   possible he tomorrow be-likely win that cl ball.game
   ‘It is possible that he will win that ball game tomorrow.’

   b. Ta keneng mingtian hui ying na chang qiu.
   he possible tomorrow be-likely win that cl ball.game
   ‘He may win that ball game tomorrow.’

However, the embedded subject of the MAV hui is obligatorily raised to the matrix subject position, as in (6). Tsao assumes that the epistemic MAV hui is evolved from the dynamic MAV hui and retains the requirement of an animated subject.

(6) a. *Hui ta ying na chang qiu.
   be-likely he win that cl ball.game
   ‘He will win that ball game.’

   b. Ta hui ying na chang qiu.
   he be-likely win that cl ball.game
   ‘He will win that ball game.’

Tsao claims that the MAV hui is not a well-evolved auxiliary. The grammaticalization of verbs to modal auxiliaries is common in Chinese (Li 2017). We agree with Tsao that the epistemic MAV hui is evolved from the dynamic MAV hui. But the obligatory raising to the matrix subject position in the MAV hui construction applies not only to animated subjects but to unanimated ones, as shown in (4a). Tsao also points out that when two or more types of MAV adjacently occur in a sentence, the epistemic hui is always located before the deontic or the dynamic MAV but after the epistemic keneng/yinggai. However, Lin and Tang (1995) point out that the MAV hui is an optional raising verb in the A-not-A structure.

(7) a. Hui-bu-hui Lisi ye genzhe yiqi qu-le?
   be-likely-not-be-likely Lisi also follow together go-par
   ‘Could it be the case that Lisi went along with them?’

   b. Lisi hui-bu-hui ye genzhe yiqi qu-le?
   Lisi be-likely-not-be-likely also follow together go-par
   ‘Could it be the case that Lisi went along with them?’

Lin and Tang (1995) argue that the deontic MAV yinggai/keyi and the epistemic yinggai/keneng/hui are raising verbs. Unlike the other raising MAVs, the embedded subject of hui must be raised, while the whole embedded complement cannot.
(8) a. Ni bu yinggai zheyang zuo.
   you not should this-way do
   ‘You should not do it this way.’
   b. Ni zheyang zuo bu yinggai.
   you this-way do not should
   ‘You should not do it this way.’

(9) a. Ta hui ying na chang bisai.
   he be-likely win that cl game
   ‘He will win that game.’
   b. *Ta yin na chang bisai hui.
   he win that cl game be-likely

The embedded subject or the embedded complement can occur sentence-initially in (8). But, in (9), only the embedded subject can occur sentence-initially. Lin and Tang (1995) believe that it is the idiosyncratic properties that make this contrast as in English.¹

They propose that the epistemic MAVs take a CP complement, so embedded subject raising will violate the Empty Category Principle (ECP, Chomsky 1981). For example:

(10) a. Ni bu yinggai \([CP\) yinwei Lisi shi ge mingren\)
    you not should because Lisi is \(CL\) famous.man
    so then let him free-of-charge enter
    ‘You should not let Lisi enter free of charge because he is a famous man.’
    b. Tai bu keneng \([CP\) shuiguo t\(i\) zhi chi pingguo\].
    he not be-possible fruit only eat apple
    ‘It is not possible that as for fruits, he only eats apples.’

Since the complement CP node deletion is not possible in Chinese MAV constructions, it must be CP-transparency in (10), and the traces can be properly governed. Following Li (1985, 1990), Lin and Tang (1995) argue that raising MAVs are obligatorily subcategorized for tensed complements. The case assignment by INFL (the inflection head) is optional. That is, the embedded subject is raised to the matrix subject position to acquire case, or stays in situ if it can get case from the embedded INFL.

Lin (2011) explores subject raising in the Chinese MAV construction based on his finite/nonfinite assumption and claims that there is A-movement in MAV

¹ We propose another option in this paper: it is the finiteness of the embedded clause that makes the contrast between (8) and (9). The finite embedded clause can be topicalized, whereas the nonfinite embedded clause cannot. The finiteness of the complement clause will be further explored in Section 3.
constructions driven by the EPP. Differing from Lin and Tang’s (1995) case-driven hypothesis, Lin (2011) argues that Chinese epistemic MAVs such as *keneng* take a finite TP complement that takes the sentence-final perfect particle *le* in its scope. The embedded subject is raised to the matrix subject position driven by the EPP. The MAV *hui*, by contrast, takes a nonfinite TP complement and is not compatible with the sentence-final perfect particle *le*, as in (11b).

(11) a. Zhangsan *keneng* [qu Taibei *le]*.
  Zhangsan be-possible go Taipei PERF
  ‘Zhangsan may have gone to Taipei.’

(11) b. Zhangsan *hui* [qu Taibei (*le)].
  Zhangsan be-likely go Taipei PERF
  ‘Zhangsan will go to Taipei.’

Lin (2011) claims that since there are no grammatical features in Mandarin Chinese, the subject of the finite clause does not need to check its grammatical features, which renders subject raising optional. If the embedded subject is raised to the specifier of matrix TP, the EPP feature of matrix T is satisfied. Then there is no need for the empty expletive insertion, as in (12a). If the embedded subject stays in situ, however, the empty expletive ∅ can be inserted to satisfy the EPP feature of matrix T, as in (12b).

(12) a. Zhangsan *keneng* qu Taibei *le*.
  Zhangsan be-possible go Taipei PERF
  ‘Zhangsan may have gone to Taipei.’

(12) b. ∅ *keneng* Zhangsan qu Taibei *le*.
  be-possible Zhangsan go Taipei PERF
  ‘Zhangsan may have gone to Taipei.’

The speaker-oriented adverb cannot occur between the subject and the predicate. As such, in (13), when the embedded subject raises to the matrix subject position, the placement of *tanbaishuo* ‘frankly-speaking’ is wrong.

(13) *Zhangsan tanbaishuo *keneng* zhunbei wancan.
  Zhangsan frankly-speaking be-possible prepare dinner
  Intended meaning: ‘Zhangsan frankly speaking may prepare dinner.’

However, subject raising in epistemic MAV constructions is topicalization (Tsai 2010) because the strong quantificational NP *meigeren* ‘everyone’ could move to the initial position of the MAV construction while the weak quantificational NPs *henshaoren* ‘few people’ cannot, as in (14).

(14) a. *Meigeren *keneng* dou hui likai.
  everyone be-possible dou will leave
  ‘It is possible that everyone will leave.’

(14) b. *Henshaoren *keneng* hui likai.
  few.people be-possible will leave
  Intended meaning: ‘It is possible that a few people will leave.’
Tsai (2010) assumes that the epistemic MAVs are located in a much higher position over the outer subject, so the NP before them is a topic rather than a subject. Whether the embedded subject is raised to the subject position of the matrix clause or the topic position is controversial.

Lin (2011) also proposes that when there are no grammatical features to be checked, the embedded subject Zhangsan in (12) is optional to raise. The embedded subject can move out of a finite TP to the matrix subject position, satisfying the EPP of the matrix T, so the finite TP in Chinese is not an island to A-movement. Since the complement clause of keneng is finite, the raising of the embedded object to the left periphery of the embedded clause or the matrix clause is also acceptable, as in (15).

(15) a. ∅ keneng Taibei Zhangsan qu le.
    be-possible Taipei Zhangsan go PERF
    ‘Zhangsan may have gone to Taipei.’

b. Taibei ∅ keneng Zhangsan qu le.
    Taipei be-possible Zhangsan go PERF
    ‘Taipei, Zhangsan may have gone to.’

In (15a), the embedded object can be raised to the initial position of the embedded clause, and in (15b), it can also move to the initial position of the matrix clause. Both could be cases violating the minimal link condition (MLC). So Lin (2011) believes that the NP movement of the embedded object must be an instance of A’-movement due to topicalization, and the empty expletive ∅ will be inserted to satisfy the EPP of the matrix T. But the EPP-driven hypothesis is also problematic in Chinese because the EPP can be applied at PF to form an instance of P-selection for an overt element. Landau (2007) points out that the EPP is a selection feature governing PF configurations, and it must be locally satisfied by some elements with phonological content. Syntactic elements headed by a null head cannot move to satisfy the EPP and are excluded from the subject/topic position. For example, bare nouns headed by a null D, QP headed by a null Q, sentential subjects headed by a null C, adjuncts headed by a null P, indirect objects headed by a null P, etc. In null-subject languages with rich inflectional morphology, the inflections on the functional head T can take over the subject DPs or overt pronouns. The finite verb must move to T to check off all the subject features. Supposing the inflectional morphology on the finite verb is interpretable, the pro in a null-subject language with inflections can be redundant. But the pro in a null-subject language without inflections such as Chinese is triggered by S-selection (semantic selection) and very necessary. The empty expletive in Chinese cannot satisfy the EPP requirement because it is needed for neither S-selection nor P-selection. The postulation of the empty expletive in Chinese, therefore, is not theoretically tenable.

For the MAV hui, Lin (2011) assumes that hui is incompatible with the empty expletive, so the EPP of the matrix T should be satisfied by driving the embedded
subject to raise to the specifier of the matrix TP. The raising of the embedded object, by contrast, is unacceptable because of its violation of the MLC, as in (16).

(16) *Na chang bisai hui ta ying.
that cl game be-likely he win

However, the embedded subject of *hui can stay in situ if *hui takes the A-not-A form, as in (17a), and raising of the embedded object is also possible in this construction, as in (17b).

(17) a. Hui-bu-hui Zhangsan zhunbei wancan?
be-likely-not-be-likely Zhangsan prepare dinner
‘Will Zhangsan prepare dinner?’
b. Wancan hui-bu-hui Zhangsan zhunbei?
dinner be-likely-not-be-likely Zhangsan prepare
‘Will Zhangsan prepare dinner?’

Lin (2011) also claims that the embedded subject moves to the specifier of the matrix TP as A-movement, so the speaker-oriented adverb after it is unacceptable, as in (18a). In contrast, the embedded object raises to the sentence-initial position to become the topic, hence the speaker-oriented adverb can come after it, as in (18b).

(18) a. *Zhangsan tanbaishuo keneng zhunbei wancan.
Zhangsan frankly.speaking be-possible prepare dinner
‘Zhangsan, frankly speaking, may prepare dinner.’
b. ? Wancan tanbaishuo keneng Zhangsan zhunbei.
dinner frankly.speaking be-possible Zhangsan prepare
‘The dinner, frankly speaking, Zhangsan may prepare it.’

But the speaker-oriented adverb occurring after the raised subject or object is quite acceptable in (19), when the sentence-final aspect le following the finiteness assumption on the complement of keneng.

(19) a. Zhangsan tanbaishuo keneng zhunbei wancan le.
Zhangsan frankly.speaking be-possible prepare dinner PERF
‘Zhangsan, frankly speaking, may have prepared dinner.’
b. Wancan tanbaishuo keneng Zhangsan zhunbei le.
dinner frankly.speaking be-possible Zhangsan prepare PERF
‘The dinner, frankly speaking, Zhangsan may have prepared it.’

In Chinese, all the matrix subjects, be it a raised one or a base-generated one, could be topicalized by inserting tanbaishuo, as in (20).

(20) a. Zhangsan tanbaishuo hui qu Beijing.
Zhangsan frankly.speaking be-likely go Beijing
‘Zhangsan, frankly speaking, will go to Beijing.’
b. Zhangsan tanbaishuo neng qu Beijing.
Zhangsan frankly.speaking be-able-to go Beijing
‘Zhangsan, frankly speaking, can go to Beijing.’
Lin (2011) argues that the raising of the object to the sentence-initial position is also driven by topicalization. So, the speaker-oriented adverb *tanbaishuo* could follow the object, and the empty expletive is inserted in the specifier position of the matrix TP to satisfy the EPP of the matrix T, as in (21). Chou (2013), however, proposes that the embedded object may first raise to the specifier of the matrix TP, then is topicalized and moves to the sentence-initial position, as in (22).

(21) Wancan_i tanbaishuo [TP ∅ yinggai [TP Zhangsan zhunbei t_i]].
    dinner frankly.speaking should Zhangsan prepare
    ‘As for dinner, frankly speaking, Zhangsan may prepare it.’

(22) Wancan_i tanbaishuo [TP t_i yinggai [TP Zhangsan zhunbei t_i]].
    dinner frankly.speaking should Zhangsan prepare
    ‘As for dinner, frankly speaking, Zhangsan may prepare it.’

Chou (2013) argues against A′-movement of embedded object raising and proposes that embedded object raising is A-movement targeting the specifier position of the matrix TP, from the following aspects:

Firstly, embedded object raising should display reconstruction if it is A′-movement, while this reconstruction in the Chinese MAV construction is unacceptable. For example:

(23) a. *[Taziji-de pengyou] yinggai [Zhangsan, buhui beipan t_i].
    himself-DE friend should Zhangsan not.be-likely betray
    Intended meaning: ‘It should be the case that Zhangsan will not betray his friend.’

b. Yinggai [Zhangsan, buhui beipan [taziji-de pengyou]].
    should Zhangsan not.be-likely betray himself-DE friend
    ‘It should be the case that Zhangsan will not betray his friend.’

c. Zhangsan yinggai [t_i buhui beipan [taziji-de pengyou]].
    Zhangsan should not.be-likely betray himself-DE friend
    ‘It should be the case that Zhangsan will not betray his friend.’

Chou (2013) claims that the reconstruction in (23a) is not possible because *Zhangsan* cannot bind the reflexive *taziji* ‘himself’, whereas this binding relation is possible in (23b) and (23c). Contrary to Chou’s instinct, we believe that the reconstruction in (23a) is quite acceptable, and *Zhangsan* can be the antecedent of the reflexive.

Chou (2013) believes that the embedded object can be raised to the matrix clause and feeds the binding condition A, as in (24).

(24) [Zhangsan-de wancan] yinggai [taziji-de mama] zaojiu
    Zhangsan-DE dinner should himself-DE mother early
    zhunbeihao le.
    prepare.done PERF
    ‘Zhangsan’s dinner should have been prepared by his mother early on.’
It is similar to subject raising in English, as in (25).

(25) John, seems to himself, it, to be a diligent student.

But this is challenged by a reviewer of Chou (2013) who believes that the binding condition A is satisfied by the topic A’-movement in Chinese MAV constructions, as in (26).

(26) Xiaoming, a, zhiyou [taziji-de mama],
Xiaoming top only himself-de mother
cai keneng t_i guan-de-zhu t_i,
then likely control-de-hold
‘As for Xiaoming, it is likely that only his own mother can control him.’

Secondly, the topic stacking via syntactic movement in Chinese is unacceptable due to minimality effects as in (27), so embedded subject raising and embedded object raising in Chinese MAV constructions must be different types of movement. That is, the sentence-initial NP must be a topic, and the NP after it is the subject, as in (28).

(27) *Wancan, a, Zhangsan, a, t_i yijing zhunbeihao t_i le.
   dinner top Zhangsan top already prepare.done ‘PERF
   Intended meaning: ‘As for dinner, as for Zhangsan, he has already prepared it.’

(28) [Zhangsan], a, zhe ben shu [TP t_i mei kan-guo t_i].
   Zhangsan top this CL book should not read-exp
   ‘As for Zhangsan, it should be the case that he has not read this book.’

Thirdly, the embedded subject of the epistemic MAV hui is raised to the specifier of the matrix TP obligatorily, as in (29a–b), and the raising of the embedded object to the sentence-initial position is unacceptable, as in (29c).

(29) a. Zhangsan hui zhunbei wancan.
   Zhangsan be-likely prepare dinner
   ‘Zhangsan will prepare dinner.’
b. *Hui Zhangsan zhunbei wancan.
   be-likely Zhangsan prepare dinner
   dinner be-likely Zhangsan prepare

Supposing the embedded clause of hui is finite, embedded subject raising is not obligatory. The embedded subject can get its case valued in the embedded clause, as in (30a), and the raising of the embedded subject in the hui-bu-hui construction is also possible, as in (30b).

(30) a. Hui [shi zhe ben shu jiangjia].
   be-likely FOC this CL book decrease.price
   ‘It is this book whose price is going to decrease.’
b. Zhe ben shu hui-bu-hui \[t_i \text{ shi mingtian cai jiangjia}\]?
   this book be-likely-not-be-likely foc tomorrow until decrease.price

‘Is it the case that this book’s price is going to decrease?’

But why could the embedded subject in (30a) not raise to the specifier of the
matrix TP, as in (31a)? In some cases, the embedded subject can stay in situ without
the focus marker shi ‘be’, as in (31b).

(31) a. *Zhe ben shu hui shi \[t_i \text{ jiangjia}\].
   this book be-likely foc decrease.price

‘It is this book whose price is going to decrease.’

b. Hui-bu-hui zhe ben shu mingtian cai jiangjia?
   be-likely-not-be-likely this book tomorrow until decrease.price

‘Is it the case that this book’s price is going to decrease tomorrow?’

Chou (2013) claims that the case valuation-based theory of A-movement
is significantly preferable to Lin’s (2011) EPP-driven A-movement with fewer
stipulations. He proposes that the case valuation is responsible for the obligatory
subject raising in sentences with the MAV hui. That is, the embedded subject
cannot value its case in the nonfinite embedded clause, and it must raise to the
specifier of the matrix TP to value its case. He further argues that the raising of
the embedded subject of yinggai/keneng to the Spec-TP of the matrix clause is
driven by the unvalued topic feature on it since there is no CP layer in the clausal
complement of yinggai/keneng.

Yu and He (2019) argue that reconstruction in (23a) is acceptable, and the
embedded object raising is A’-movement. We decidedly agree with them. When
the embedded object of the complement clause is raised to the sentence-initial
position, the subject Zhangsan still binds the reflexive taziji. This kind of raising
is A’-movement.

They also point out that topic stacking is acceptable in Chinese and adding
topic markers to the initial NPs is licit as in (32).

(32) [Zhangsan, a, zhe ben shu, a, yinggai [\[t_p t_i \text{ mei kan-guo} t_j\].
   Zhangsan top this book top should not read-EXP

‘Zhangsan, it should be the case that he has not read this book.’

Following Miyagawa (2010), Yu and He (2019) claim that there is agreement
checking in Chinese. The embedded subject raising in the epistemic MAVs keneng
and yinggai is A’-movement, but the embedded subject raising in the alethic
MAVs is A-movement. They argue that most of the evidence given by Tsai (2010)
and Chou (2013) for the topic hypothesis of the raising subject is not tenable.
They claim that meiyouren ‘nobody’ can be the topic in Chinese epistemic MAV
constructions, while *henshaoren* ‘few people’ cannot. We disagree with them on the topic hypothesis of the raising subject. In Section 3.4, the topicalization of quantificational NPs *henshaoren* ‘few people’ and *meiyouren* ‘nobody’ will be fully explored.

In all, however, the syntactic position of the raised embedded subject in Chinese MAV constructions is indeed controversial. Lin (2011) and Chou (2013) agree that the complement of the MAV *hui* is a syntactic TP projection, and the embedded subject must raise to the specifier of the matrix TP, so the raising is A-movement. But the reason why the embedded subject must raise varies among researchers. What Lin and Tang (1995) and Chou (2013) propose is case driven; what Lin (2011) suggests is stipulating for the non-coexistence of *hui* and the empty expletive in Chinese; what Tsao (1990) proposes is grammaticalization. What mechanism could lie behind the obligatory subject raising in the MAV *hui* construction? As for the MAVs *yinggai* and *keneng*, Tsao (2005, 1996) claims that the embedded subject raising could be topicalization, whereas Lin and Tang (1995) argue for an INFL optional assignment; Lin (2011) proposes that it is EPP-driven A-movement, Chou (2013) claims that it is topic A-movement, and Yu and He (2019) believe that it could be both. What is the true driving force of the raising in Chinese MAV constructions? In the following section, we try to answer these two questions. We propose that the embedded subject raising in the MAV *hui* construction is A-movement driven by the abstract case valuation, while in the MAVs *keneng* and *yinggai* it is A′-movement driven by topicalization. The syntactic difference of Chinese MAVs is well-analyzed under this hypothesis.

3 Proposal based on abstract case valuation and topicalization

3.1 The Theory of Abstract Case

The Theory of Abstract Case, first proposed by Li (1985), facilitates the understanding of many Chinese grammatical structures. The abstract nominative case denotes the subject of a clause and its close relation to tense, which represents grammatical relations and the structural positions occupied by the subject. The Theory of Abstract Case indicates the distribution of NPs with their case assigners, such as verbs or tense (agreement), which helps determine order and constituency in Chinese (Li 2008). Li also argues that although a verb-movement approach seems to capture the word order variations in Chinese, the case is still the motivation for the movement in the passive construction. According to Li (2005, 2007), a generalization on empty categories can be observed in Chinese: when a verb allows a nominal object, it also accepts a null object; when a verb only allows a clausal object, it cannot take a null object, as in (33) and (34), respectively.

(33) a. Zhangsan tingdao-le na jian shi.
   Zhangsan hear-PERF that cl thing
   ‘Zhangsan heard about that thing.’
b. Zhangsan hui na jian shi.  
Zhangsan be-likely that cl thing

b. Zhangsan hui dejiang, Lisi ye hui *(dejiang).  
Zhangsan be-likely get.prize Lisi also be-likely get.prize

‘Zhangsan will get a prize, Lisi also will get a prize.’

This correlation can be summarized as follows: a null object is possible if the case is assigned to the object position. But Chinese deontic MAVs and dynamic MAVs that are also subcategorized for a clausal object can accept a null object, as in (35) and (36), respectively.

(35) a. *Zhangsan yinggai na jian shi.  
Zhangsan should that cl thing

b. Zhangsan yinggai bangzhu ta, Lisi ye yinggai (bangzhu ta).  
Zhangsan should help him Lisi also should help him

‘Zhangsan should help him, Lisi also should.’

(36) a. *Zhangsan neng na jian shi.  
Zhangsan be-able-to that cl thing

b. Zhangsan neng qu Beijing, Lisi ye neng (qu Beijing).  
Zhangsan be-able-to go Beijing Lisi also be-able-to go Beijing

‘Zhangsan can go to Beijing, Lisi also can go to Beijing.’

Li (2008) proposes that different types of clauses must be recognized, and a clause may have some or all of these projections at the left periphery: Force Phrase, Topic Phrase, Focus Phrase, Operator Phrase, etc. The case is required with certain projections but not the others. The Theory of Abstract Case does indeed help us better understand grammatical features and choose the appropriate analyses or structures among available options. This paper adopts the abstract case to investigate the syntactic features of subject raising in Chinese MAV constructions.

3.2 The finite and nonfinite distinction in Chinese

The finite and nonfinite distinction we adopted in this paper is proposed by Lin (2011). According to Lin (2011), the sentence-final perfect aspect le in Chinese plays a critical role in identifying the finite/nonfinite clauses. Assuming the perfect aspect le is the head of AspP, T in Chinese has a value and helps fix a reference time for the Asp. Hence, this TP is finite, and le is legitimate under the Asp, as in (37). T may have no value marked as [n] if it has no reference time for the Asp. The TP is therefore nonfinite, and le under the Asp will be unacceptable, and the static aspect ∅ is proposed to be under the Asp, as in (38).

---

2 Lin points out that not all aspect elements can distinguish finite from nonfinite.
Based on Lin 2011, we further assume that T in complement clause has a tense if and only if it is selected by the broader context, and the tense value in T is derivative. That is, the tense value in T is inherited from C (Chomsky 2005). MAVs such as *keneng* and *yinggai* subcategorize a CP complement, and the tense value in C is assigned by the broader context. Because T has a tense which is inherited from the complement C, the CP complement is a finite clause, as in (39). MAVs such as *hui* subcategorize a TP or CP complement. If the complement is a TP clause, the embedded T cannot inherit the tense value from C and has no tense. The TP complement is a nonfinite clause, as in (40a). If the complement is a CP clause, the embedded T can inherit the tense value from C. Then, the CP complement is a finite clause, as in (40b). (TF = finite T, TNF = nonfinite T, PERF = perfect aspect)

(39) a. \[ \text{[CP} \text{[TP} \text{T}_f \text{[AspP Asp} \text{[vP keneng \text{[CP} \text{[TP} \text{Zhangsan T}_r \text{[AspP Asp be-possible Zhangsan}}} \text{[vP qu Beijing le]}}} \text{]]]]]]]]]]]]

‘It is possible that Zhangsan has gone to Beijing.’

---

3 Thanks to an anonymous reviewer’s comments on the context-driven tense value hypothesis.
(40) a. \([CP [TP Zhangsan T \_F [AspP Asp \_vP hui [TP T \_NF [AspP Asp \_vP qu Beijing]]]]]].\]
   ‘Zhangsan will go to Beijing.’

b. \([CP C [TP Zhangsan T \_F [AspP Asp \_vP hui-bu-hui Zhangsan be-likely-not-be-likely go Beijing]]]]\]
   ‘Will it be the case that Zhangsan has already gone to Beijing?’

We disagree with Lin (2011) on the syntactic features of the matrix T in the constructions with MAVs such as keneng and yinggai. Lin claims that the matrix Asp takes the static aspect, and the perfect aspect le cannot occur. He claims that this is an independent fact for the incompatibility of the epistemic modals with the perfect particle le. But he still assumes that the matrix T is finite, which is inconsistent with his assumption. We propose that the matrix T always has a tense that is inherited from the matrix C. And the tense value in matrix C is assigned by the broader context. Hence, the perfect aspect le is possible to occur in the matrix clause. For example:

(41) Ta yijing fei Meiguo le, bu keneng [qu ni] le.
   he already fly USA PERF not be-likely marry you PERF
   ‘He has already flown to the USA, and it is impossible for him to marry you.’

However, the co-occurrence of a matrix aspect le and an embedded aspect le in one sentence is ungrammatical due to phonological constraints or some independent semantic factors.

In the CP complement, T inherits the tense value from C and can help fix the topic time (TT) of the complement clause, then the TT and the situation time (TS) together set the perfect or imperfect aspect of the complement (Lin 2017). (37) and (38) are revised as follows:

(42) TP
    SPEC T’
      T AspP
        t SPEC Asp’
          Asp vP
    TT=\(<t, TS>\)
If the TS is included in the TT, Asp manifests the perfect aspect, and the sentence-final *le* can occur in the complement clause, as in (39) and (40b). If the TT is overlapped with the TS, Asp manifests the imperfect aspect *zai*, as in (44).

(44) a. \[ \text{CP} \text{C} \left[ \text{TP} T F \left[ \text{AspP} Asp[\_vP \text{keneng C} \left[ \text{TP} \text{Zhangsan be-possible} \right] \text{Zhangsan \_T]}) \right] \right] \text{IMperf give.lesson perf} \right] \right] \text{IMperf give.lesson perf} \text{'It is possible that Zhangsan is giving a lesson.'} \]

b. \[ \text{CP} \text{C} \left[ \text{TP} \text{Zhangsan} \left[ T F \left[ \text{AspP} Asp[\_vP \text{bu hui T] T F \left[ \text{AspP} Asp[\_vP \text{zai shangke \_T]}) \right] \right] \right] \right] \text{IMperf give.lesson excl} \text{excl} \text{'It is unlikely Zhangsan is giving a lesson!' } \]

If the complement is a TP nonfinite clause, then T cannot inherit the tense value from C and thus cannot help fix the TT. The TS alone cannot set the perfect or imperfect aspect, although it can manifest the static aspect, so the complement clause with perfect or imperfect aspects is grammatical, as in (45).

(45) a. \[ \text{CP} \text{C} \left[ \text{TP} \text{Zhangsan T F \left[ \text{AspP} Asp[\_vP \text{hui T] T NF \left[ \text{AspP} Asp[\_vP qu Beijing be-likely T] Beijing perf} \right] \right] \right] \right] \text{IMperf give.lesson perf} \text{'Zhangsan will go to Beijing.'} \]

b. \[ *\text{CP} \text{C} \left[ \text{TP} \text{Zhangsan T F \left[ \text{AspP} Asp[\_vP \text{hui T] T NF \left[ \text{AspP} Asp[\_vP \text{zai shangke} \_T]}) \right] \right] \right] \text{IMperf give.lesson perf} \text{'Zhangsan will go to Beijing.'} \]

In (45), the complement is a nonfinite TP clause. The embedded T has no tense since there is no C in the complement. It cannot help fix the TT of the complement.
Then both the perfect aspect le and the imperfect aspect zai are impossible to occur in the complement clause.

The finite complement of MAVs can also license the aspect auxiliary you ‘have’ and its negative form meiyou ‘not-have’ in the complement clause, but the nonfinite complement of MAVs cannot, as in (46).

   Zhangsan be-possible have go Beijing
   ‘It is possible that Zhangsan has gone to Beijing.’

   b. *Zhangsan hui you qu Beijing.
   Zhangsan be-likely have go Beijing

The focus shi in the complement of the MAV hui also indicates that the complement clause is a finite CP clause. Hence, both perfect and imperfect aspects in the complement clause are acceptable, as shown in (47).

(47) a. Hui [shi zhe ben shu jiangjia le].
   be-likely be this CL book decrease.price PERF
   ‘The price of this book may have decreased.’

   b. Hui [shi zhe ben shu zai jiangjia].
   be-likely be this CL book IMPERF decrease.price
   ‘The price of this book may be decreasing now.’

In (47), when the MAV hui occurs initially, the complement clause with the focus shi can license the embedded subject and the perfect and imperfect aspects. Like (31a), the embedded subject, being focused by shi, cannot undergo further topicalization:

(48) a. *Zhe ben shu, hui [shi ti jiangjia le].
   this CL book be-likely foc decrease.price PERF
   b. *Zhe ben shu, hui [shi ti zai jiangjia].
   this CL book be-likely be IMPERF decrease.price
   Intended meaning: ‘The price of this book may be decreasing now.’

Like the MAV hui, the MAV yao ‘be-going’ takes a nonfinite TP complement, and the embedded subject cannot stay in situ and must be raised to the Spec-TP of the matrix clause. For example:

(49) a. [CP [TP Zhangsan T_F [AspP Asp [vP yao [TP T_NF [AspP Asp [vP jiehun]]]] le]]].
   Zhangsan be-going get.married PERF
   ‘Zhangsan is going to get married.’

   b. *[CP [TP T_F [AspP Asp [vP yao [TP T_NF [AspP Asp [vP Zhangsan jiehun]]]] le]]].
   be-going Zhangsan get.married PERF

In (49), the embedded complement is a TP clause, and its embedded subject cannot get its case valued by the embedded nonfinite T. But the embedded subject gets its case valued by the matrix T and is raised to the Spec-TP of the matrix clause. Furthermore, the perfect aspect le is licensed by the matrix AspP. The occurrence of perfect and imperfect aspects in the complement clause is ungrammatical, as in (50).
Subject Raising in Chinese Modal Constructions

To sum up, MAVs such as *keneng and *yinggai subcategorize a finite CP complement, and MAVs such as *hui and *yao subcategorize a nonfinite TP complement or a finite CP complement. The complementary distributions of the sentence-final perfect aspect *le, the imperfect aspect *zai, and the aspect verb *you indicate the finite and nonfinite TP distinction in Chinese MAVs.

3.3 Proposal for subject raising in Chinese MAV constructions

Following Li (1985, 1990, 2008) and Chomsky (2000, 2001, 2005), we assume that the DP in Chinese can get its abstract structural case valued in finite CP clauses but not in nonfinite TP clauses. In finite CP clauses, the functional head T manifests the tense features, and the unvalued φ-features inherited from C. T can probe and target a DP with a full set of φ-features and an unvalued case feature. Then the unvalued φ-features of the finite T get valued, and the DP is moved to the Spec-TP to get its case valued by Agreement. As for the nonfinite TP clause, the functional head T cannot target a DP nor can it value the case of the DP because of the lack of tense and φ-features. The DP, however, can be probed by the upper finite T to get its case valued. For example, the epistemic MAV *hui takes a complement clause as its only argument. Supposing the complement clause is a nonfinite TP clause, the embedded subject cannot get its abstract case valued in the complement clause and is raised to the specifier of the matrix TP to get its case valued, as in (51a). If the complement clause is a finite CP clause, the embedded subject can value its case and stay in situ, as in (51b).

(51) a. *Zhangsan hui [t₁ qu Beijing (*le)].
   Zhangsan be-likely go Beijing PERF
   ‘Zhangsan will go to Beijing.’

b. Hui-bu-hui [Zhangsan (yijing) qu Beijing le]?
   be-likely-not-be-likely Zhangsan already go Beijing PERF
   ‘Is it likely that Zhangsan has gone to Beijing?’

In the nonfinite complement clause of *hui, the embedded object cannot be raised to the left periphery if the embedded subject cannot get its abstract case valued and stay in situ, as in (52a). But the raising of the embedded object is possible in the finite complement clause of *hui, as in (52b).

(52) a. *Beijing hui [Zhangsan qu].
    Beijing be-likely Zhangsan go

b. Beijing, hui-bu-hui [Zhangsan (yijing) qu t₁ le]?
    Beijing be-likely-not-be-likely Zhangsan already go PERF
    ‘Will it be the case that Zhangsan has gone to Beijing?’
In the nonfinite complement clause of *hui*, the embedded object cannot be raised to the initial position of the complement clause, as in (53a). But if the complement clause of *hui* is finite, the embedded object can be raised to the initial position of the complement clause, as in (53b).

(53) a. *Zhangsan, hui [Beijing t, qu].
   Zhangsan be-likely Beijing go

   b. Zhangsan, hui-bu-hui [Beijing t, (yijing) qu le]?
   Zhangsan be-likely-not-be-likely Beijing already go perf
   ‘Will it be the case that Zhangsan has gone to Beijing?’

We also assume that the raising of the object to the initial position of a finite clause is A′-movement driven by topicalization. The head Top has a strong [TOP] feature and can probe a DP raised to the specifier of the TopP to check off the strong [TOP] feature. So the embedded object can be raised to the initial position of the embedded clause or to the left periphery of the matrix clause to check off the strong [TOP] feature, and the reconstruction in both constructions is also expected, as in (54).

(54) a. Hui-bu-hui [CP {Top [Top [TP Zhangsan, (yijing) beipan t, le]]?]
   Zhangsan already betray perf
   ‘As for his friend, will Zhangsan have already betrayed him?’

   b. [Top [Top [TP hui-bu-hui [CP [TP Zhangsan, (yijing) beipan t, le]]]]?
   Zhangsan already betray perf
   ‘As for his friend, will Zhangsan have already betrayed him?’

In (54a), the embedded object can be raised to the Spec-Top of the complement clause. The reflective in the embedded object is bound by the embedded subject. In (54b), the embedded object can be raised to the Spec-Top of the matrix clause, and the reflective in the embedded object is still bound by the embedded subject.

Contrary to Hsieh (2004) and Lin (2012), we believe that *hui* is not a future MAV but an epistemic MAV, so the epistemic *hui* can denote the speaker’s speculation about a past, present or future event, as in (55).

(55) a. Zhangsan, (mingtian) hui [t, qu Beijing]. (future)
   Zhangsan tomorrow be-likely go Beijing
   ‘Zhangsan will go to Beijing tomorrow.’

   b. Zhangsan, (xianzai) hui [t, zai Beijing]. (present)
   Zhangsan now be-likely at Beijing
   ‘Zhangsan is likely to be in Beijing right now.’

   c. Zuotian hui-bu-hui [Zhangsan qu Beijing le]? (past)
   yesterday be-likely-not-be-likely Zhangsan go Beijing perf
   ‘Is it possible that Zhangsan went to Beijing yesterday?’
In (55c), *hui* in the A-not-A form can speculate on a past event and allow the embedded subject to stay in situ, whereas, in (55a–b), the embedded subject must raise to the matrix clause. If there is a focus marker *shi* focalizing it, the embedded subject could stay in situ, as in (56).

(56) a. Hui *(shi) Zhangsan qu Beijing.*
   be-likely FOC Zhangsan go Beijing
   ‘It is Zhangsan who will go to Beijing.’

b. Hui *(shi) Zhangsan zai Beijing.*
   be-likely FOC Zhangsan at Beijing
   ‘It is Zhangsan who will be in Beijing.’

To sum up, the MAV *hui* takes a finite CP complement clause or a nonfinite TP complement clause. The subject of the nonfinite TP complement must raise to the specifier of the matrix TP to get its case valued, whereas the subject of the finite CP complement could stay in situ since it could get its case valued in the complement clause.

Besides A-not-A questions, *hui* in negation can also occur sentence-initially, and the embedded subject can further move to the left periphery of the matrix clause, as shown in (57).

(57) a. Buhui [Zhangsan (yijing) qu Beijing le] ba!
   not.be-likely Zhangsan already go Beijing PERF EXCL
   Intended meaning: ‘It is likely that Zhangsan has gone to Beijing.’

b. Zhangsan, buhui [ti (yijing) qu Beijing le] ba!
   Zhangsan not.be-likely already go Beijing PERF EXCL
   Intended meaning: ‘It is likely that Zhangsan has gone to Beijing.’

The epistemic MAVs such as *keneng* and *yinggai* take a complement clause as their only argument. The complement clause is finite, and the embedded subject could stay in situ, as in (58). The embedded subject can also be raised to the left periphery to be the topic of the sentence, as in (59).

(58) a. Keneng [Zhangsan (yijing) qu Beijing le].
   be-possible Zhangsan already go Beijing PERF
   ‘It is possible that Zhangsan has already gone to Beijing.’

b. Yinggai [Zhangsan (yijing) du-guo zhe ben shu le].
   should Zhangsan already read-EXP this CL book PERF
   ‘It should be the case that Zhangsan has already read this book.’

(59) a. Zhangsan, keneng [ti (yijing) qu Beijing le].
   Zhangsan be-possible already go Beijing PERF
   ‘Zhangsan may have already gone to Beijing.’

b. Zhangsan, yinggai [ti (yijing) du-guo zhe ben shu le].
   Zhangsan should already read-EXP this CL book PERF
   ‘Zhangsan should have already read this book.’
Because the complement clause of *keneng/yinggai* is a finite CP clause, the embedded object can be topicalized as the topic of the complement clause, as in (60). It can also be raised to the left periphery to be the topic of the matrix clause, as in (61).

(60) a. Keneng Beijing [Zhangsan (yijing) qu t_i le].
    be-possible Beijing Zhangsan already go PERF
    ‘It is possible that Zhangsan has already gone to Beijing.’
  
  b. Yinggai zhe ben shu_i [Zhangsan (yijing) du-guo t_i le].
    should this CL book Zhangsan already read-EXP PERF
    ‘It should be the case that Zhangsan has already read this book.’

(61) a. Beijing keneng [Zhangsan (yijing) qu t_i le].
    Beijing be-possible Zhangsan already go PERF
    ‘Beijing, it is possible that Zhangsan has already gone to.’
  
  b. Zhe ben shu_i yinggai [Zhangsan (yijing) du-guo t_i le].
    this CL book should Zhangsan already read-EXP PERF
    ‘This book, it should be the case that Zhangsan has already read.’

Furthermore, the finite CP complement can be raised to the sentence-initial position, whereas the nonfinite TP complement cannot:

(62) a. [Zhangsan (yijing) qu Beijing le] keneng t_i.
    Zhangsan already go Beijing PERF be-possible
    ‘That Zhangsan has already gone to Beijing is possible.’
  
  b. *[Ta ying na chang bisai] hui.
    he win that CL game be-likely

In (62a), the finite CP complement clause can be raised to be the topic. In (62b), the nonfinite TP complement clause cannot be raised to the sentence-initial position because the embedded subject cannot get its case valued in the nonfinite TP. The raising of the embedded clause with an unvalued subject must fail to spell out and be ungrammatical.

In short, the embedded subject raising in constructions with MAVs such as *keneng* and *yinggai* is A’-movement by topicalization, while in constructions with MAVs such as *hui* and *yao*, it is A-movement due to the abstract case valuation.

3.4 More evidence on the A-movement and A’-movement distinction

Firstly, topic stacking offers supportive evidence on the difference between A-movement and A’-movement. The embedded subject or the embedded object can occur in the embedded sentence-initial position as in (63), or in the matrix sentence-initial position as in (64).

(63) a. Keneng Beijing [Zhangsan (yijing) qu t_i le].
    be-possible Beijing Zhangsan already go PERF
    ‘It is possible that Zhangsan has already gone to Beijing.’
b. Keneng Zhangsan, Beijing, [t_j (yijing) qu t_i le].
   be-possible Zhangsan Beijing already go PERF
   ‘It is possible that Zhangsan has already gone to Beijing.’

(64) a. Beijing, Zhangsan keneng [t_j (yijing) qu t_i le].
   Beijing Zhangsan be-possible already go PERF
   ‘It is possible that Zhangsan has already gone to Beijing.’

b. Zhangsan, Beijing, keneng [t_j (yijing) qu t_i le].
   Zhangsan Beijing be-possible already go PERF
   ‘It is possible that Zhangsan has already gone to Beijing.’

Because the raising of the subject or the object to the sentence-initial position is A’-movement driven by topicalization, no MLC is violated, and all these sentences are acceptable. Even if it has been topicalized in the embedded clause, the embedded object can still be raised to the sentence-initial position to be the topic, as in (65).

(65) a. Keneng Beijing, [Zhangsan (yijing) qu t_i le].
   be-possible-to Beijing Zhangsan already go PERF
   ‘It is possible that Zhangsan has already gone to Beijing.’

b. Zhangsan, Beijing, keneng [t_j (yijing) qu t_i le].
   Zhangsan Beijing be-possible already go PERF
   ‘It is possible that Zhangsan has already gone to Beijing.’

The embedded subject raising in the MAV hui construction is A-movement. Hence, the embedded object raising violating MLC must be unacceptable, as in (66).

(66) *Beijing, hui [Zhangsan qu t_j].
   Beijing will Zhangsan go

In (66), the embedded object crosses over the embedded subject and raises to the specifier of the matrix TP, and the sentence is not grammatical. But if the embedded subject has been raised to the specifier of the matrix TP to get its case valued, the embedded object can be raised to the sentence-initial position to be the topic. MLC is obeyed, and the sentence is grammatical, as in (67).

(67) Beijing, Zhangsan, hui [t_j qu t_j].
   Beijing Zhangsan will go
   ‘It is Beijing that Zhangsan will go to.’

Secondly, strong and weak quantificational NPs reveal the difference between A-movement and A’-movement. Following Ko (2005) and Tsai (2010), the strong quantificational NP meigeren ‘everyone’ can undergo topicalization, but the weak quantificational NPs henshaoren ‘few people’ and meiyouren ‘nobody’ cannot. The contrast between the strong and weak quantificational NPs in MAV constructions indicates the different characteristics of the movements, as in (68) and (69).

(68) a. Keneng meigeren dou du zhe ben shu le.
   be-possible everyone DOU read this CL book PERF
   ‘It is possible that everyone has read this book.’
b. Meigeren keneng dou du zhe ben shu le.
   everyone be-possible DOU read this CL book PERF	
   ‘It is possible that everyone has read this book.’

c. Keneng henshaoren/meiyouren du zhe ben shu le.
   be-possible few.people/nobody read this CL book PERF	
   ‘It is possible that few people/nobody has read this book.’

d. *Henshaoren/meiyouren keneng du zhe ben shu le.
   few.people/nobody be-likely read this CL book PERF

(69) a. Meigeren dou hui du zhe ben shu.
   everyone DOU be-likely read this CL book
   ‘Everyone will read this book.’

   b. Henshaoren/meiyouren hui du zhe ben shu.
   few.people/nobody be-likely read this CL book
   ‘Few people/nobody will read this book.’

In (68a–b), meigeren can stay in situ or raise to the sentence-initial position to be the topic. In contrast, henshaoren and meiyouren must stay in situ, and the raising to the sentence-initial position is unacceptable, as shown in (68c–d). In (69), meigeren/henshaoren/meiyouren can occur in the sentence-initial position.

Thirdly, the A-movement and A’-movement distinction can be further tested by the multiple modal phenomena in Chinese.

(70) a. Zhangsan, yinggai [CP [TP \_i hui [TP \_i bu.ken PRO_i lai]]]
   Zhangsan should be-likely not.be-willing come
   ‘It should be in that case that Zhangsan will not be willing to come.’

   b. Yinggai [CP [TP Zhangsan, [TP hui \_i bu.ken PRO_i lai]]]
   should Zhangsan be-likely not.be-willing come
   ‘It should be in that case that Zhangsan will not be willing to come.’

   c. *Yinggai [CP [TP hui [TP Zhangsan, bu.ken PRO_i lai]]]
   should be-likely Zhangsan not.be-willing come
   ‘It should be in that case that Zhangsan will not be willing to come.’

In (70), the MAV yinggai takes a finite complement, the MAV hui takes a nonfinite complement, and the MAV ken is a control verb that takes a nonfinite complement. Hence, the embedded subject is base-generated in the control MAV ken clause, then raises to the specifier position of the MAV hui clause, and finally raises to the sentence-initial position. The successive subject raising in multiple MAV constructions is acceptable as in (70a). Since the raising of the embedded subject from the hui clause to the sentence-initial position is A’-movement, and it is not obligatory. The embedded subject can stay in the subject position of the hui clause, as in (70b). In contrast, the raising of the embedded subject from the ken clause to the specifier position of the hui clause is A-movement. This raising is obligatory, rejecting the possibility that the embedded subject stays in the subject position of the ken clause, as in (70c).
Keneng/yinggai can never occur after hui, as in (71). But when huibuhui takes a finite complement, the MAV keneng can occur after it, as in (72).

(71) a. *Zhangsan \(i\) hui \(\left[CP \left[TP \ v_1 \ yinggai \ v_1 \ v_2 \ v_2 \ \text{la} \ \text{le}\right]\right]\).
   Zhangsan be-likely should come PERF
   Intended meaning: ‘It is likely to be the case that Zhangsan should have come.’

b. *Zhangsan \(i\) hui \(\left[CP \left[TP \ v_1 \ keneng \ v_1 \ v_2 \ v_2 \ \text{la} \ \text{le}\right]\right]\).
   Zhangsan be-likely be-possible come PERF
   Intended meaning: ‘It is likely to be the case that Zhangsan may have come.’

(72) a. Zhangsan \(i\) hui-bu-hui \(\left[CP \ v_1 \ \text{keneng} \ \left[CP \left[TP \ v_2 \ yijing\right]\right]\right]\).
   Zhangsan be-likely-not-be-likely be-possible already
   nenggou \(\left[TP \ PRO, \ kaiche\ v_2\ \text{le}\right]\)??
   be-able drive.car PERF
   ‘Is it possible that Zhangsan may already have been able to drive?’

b. Hui-bu-hui \(\left[CP \ Zhangsan \ v_1 \ \text{keneng} \ \left[CP \left[TP \ v_2 \ yijing\right]\right]\right]\).
   Zhangsan be-likely-not-be-likely be-possible already
   nenggou \(\left[TP \ PRO, \ kaiche\ v_2\ \text{le}\right]\)??
   be-able drive.car PERF
   ‘Is it possible that Zhangsan may already have been able to drive?’

c. Hui-bu-hui \(\left[CP \left[TP \ \text{keneng} \ \left[CP \left[TP \ \text{Zhangsan} \ \text{yijing}\right]\right]\right]\right]\).
   Zhangsan be-likely-not-be-likely be-possible already
   nenggou \(\left[TP \ PRO, \ kaiche\ v_2\ \text{le}\right]\)??
   be-able drive.car PERF
   ‘Is it possible that Zhangsan may already have been able to drive?’

In (71), keneng/yinggai cannot come after hui, and the embedded subject raising in (72) is successive A’-movement. The subject can occur in different complement clauses. The co-occurrence of keneng and yinggai further proves the successive A’-movement, as in (73).

(73) a. Zhangsan \(v_1\) yinggai \(\left[CP \ v_1 \ \text{keneng} \ \left[CP \left[TP \ v_2 \ yijing\right]\right]\right]\).
   Zhangsan should be-possible already
   nenggou \(\left[TP \ PRO, \ kaiche\ v_2\ \text{le}\right]\)\).
   be-able drive.car PERF
   ‘It should be the case that Zhangsan may already have been able to drive.’

b. Yinggai \(\left[CP \ Zhangsan \ v_1 \ \text{keneng} \ \left[CP \left[TP \ v_2 \ yijing\right]\right]\right]\).
   Zhangsan be-possible already
   nenggou \(\left[TP \ PRO, \ kaiche\ v_2\ \text{le}\right]\)\).
   be-able drive.car PERF
   ‘It should be the case that Zhangsan may already have been able to drive.’

c. Yinggai \(\left[CP \left[TP \ \text{keneng} \ \left[CP \left[TP \ \text{Zhangsan} \ \text{yijing}\right]\right]\right]\right]\).
   Zhangsan be-possible already
   nenggou \(\left[TP \ PRO, \ kaiche\ v_2\ \text{le}\right]\)\).
   be-able drive.car PERF
   ‘It should be the case that Zhangsan may already have been able to drive.’
Finally, a resumptive pronoun can distinguish the topic from the subject in Chinese MAV constructions. The raising subject is related to a resumptive pronoun in its original place if it is triggered by topicalization, as in (74a).\(^4\) But the sentence is not acceptable if it is triggered by case evaluation, as in (74b).

(74) a. ?Zhangsan keneng (ta) qu Beijing le.
   Zhangsan be-possible he go Beijing PERF
   ‘It is possible that Zhangsan has gone to Beijing.’

   b. Zhangsan hui (*ta) qu Beijing.
      Zhangsan be-likely he go Beijing
      ‘Zhangsan will go to Beijing.’

In summary, the epistemic MAV *hui* takes a nonfinite TP complement. The embedded subject cannot get its case valued in the complement clause, so it must be raised to the specifier of the matrix TP. In contrast, the epistemic MAVs *yinggai* and *keneng* take a finite CP complement. The embedded subject can get its case valued in the complement clause, so it could stay in situ. The obligatory subject raising in the MAV *hui* construction is A-movement. If the embedded object raised to the specifier of the matrix TP crosses over the embedded subject, the violation of MLC occurs, leading to ungrammaticality. The embedded subject raising in the MAV *yinggai*/*keneng* construction is A′-movement. It is acceptable for the embedded object to raise to the sentence-initial position over the embedded subject. *Henshaoren* and *meiyouren* can be the subjects of *hui*, which further confirms the A-movement in the MAV *hui* construction, but they cannot occur before *keneng*/*yinggai*. The A-movement and A′-movement distinction is also manifested in Chinese constructions with multiple MAVs and MAV constructions with resumptive pronouns.

3.5 More issues on raising

3.5.1 Subject raising in deontic MAV constructions

In some previous studies, the deontic MAVs such as *yinggai* and *keyi* also occur sentence-initially. Whether subject raising in constructions with the deontic MAVs is A-movement or A′-movement will be investigated in detail based on our hypothesis. For example:

(75) a. Yinggai ta zhidao zhe jian shi.
    should he know this CL thing
    ‘He should be informed of this thing.’

   b. Keyi ni qu.
      be-permitted you go
      ‘You are permitted to go.’

\(^4\) One of the anonymous reviewers believes this sentence is not grammatical, contrary to our instinct. So a question mark is added to this sentence.
The MAV *yinggai* in (75) can be epistemic or deontic. Based on our thorough investigations in the previous sections, *yinggai* can only be interpreted as an epistemic verb when aspects occur in its complement clause. For example:

(76) a. Yinggai ta zhidao zhe jian shi le.  
    should he know this CL thing PERF  
    ‘It should be the case that he has known this thing.’

b. Yinggai ta zai shangke.  
    should he IMPERF give.lesson  
    ‘It should be the case that he is giving a lesson.’

The deontic MAVs are raising verbs considering semantic constraints in the matrix subject, negation, passive forms and topicalization (Hu 2015). In our proposal, the deontic MAVs select a TP complement that cannot be assigned tense value by the context, so the embedded T has no tense and cannot help fix the TT for the Asp. Hence, the deontic MAVs subcategorize a nonfinite TP complement and cannot license the perfect and imperfect aspects occurring in its complement clause. If the embedded subject cannot get its case valued in the complement clause, how could it stay in situ as in (75)? We believe that the deontic MAVs such as *yinggai* and *keyi* are Exceptional Case-Marking (ECM) verbs that can help value the case of the embedded subject, then the embedded subject could stay in situ and does not need to raise to the matrix clause for case. The syntactic structure of the deontic MAVs is shown as follows:

(77) a. [CP [TP T F [Asp [vP *yinggai* [TP ta T NF [Asp [vP zhidao zhe jian shi]]]]]].  
    ‘He should know this thing.’

b. [CP [TP T F [Asp [vP *keyi* [TP ni T NF [Asp [vP zuo zhe jian shi]]]]]].  
    ‘You are permitted to do this thing.’

The embedded subject could stay in situ because it has got its case valued by the matrix deontic verb. Furthermore, the embedded object can be raised to the left periphery over the embedded subject, violating the MLC:

(78) a. [CP [Top p zhe jian shi, Top [TP T F [Asp [vP *yinggai* this CL thing should [TP ta T NF [Asp [vP zhidao t]]]]]].  
    ‘As for this thing, he should know it.’

b. [CP [Top p zhe jian shi, Top [TP T F [Asp [vP *keyi* this CL thing be-permitted [TP ni T NF [Asp [vP zuo t]]]]]].  
    ‘As for this thing, you are permitted to do it.’

The raised embedded object is topicalized in (78), which proves that the movement is A′-movement. The A′-movement can be further tested by
quantificational NPs and complement replacement. Both strong and weak quantificational NPs can be the embedded subject of the deontic MAVs, as in (79a) and (79c). The topicalization of the strong quantificational NP *meigeren* is acceptable, as in (79b), whereas the topicalization of the weak quantificational NPs *meiyouren* and *henshaoren* is ungrammatical, as in (79d).

(79)  
a. Yinggai meigeren dou du zhe ben shu.  
‘Everyone should read this book.’

b. Meigeren dou yinggai du zhe ben shu.  
‘Everyone should read this book.’

c. Yinggai henshaoren/meiyouren du zhe ben shu.  
‘Few people/nobody should read this book.’


Finally, the complement clause of the deontic MAVs can be raised to the sentence-initial position, which is similar to the epistemic MAV constructions. For example:

(80)  
a. Ni zheyang zuo bu yinggai.  
‘You should not do it in this way.’

b. Ni qu keyi.  
‘That you go to somewhere is permitted.’

In a nutshell, the deontic MAVs are ECM verbs and take a TP complement, in which the embedded subject can get its case valued by the deontic MAVs. Since the embedded subject is case-valued, raising the embedded subject to the sentence initial position is A'-movement, which can be further confirmed by embedded object raising, quantificational NPs and complement replacement.

3.5.2 Subject raising and Binding Principle A

Another interesting issue in subject raising is the Binding Principle A. That is, a reflexive must be bound in its binding domain. The A-movement and A'-movement in Chinese MAV constructions always feed Principle A. Consider the sentences in (81). Regarding the A'-movement in (81a), whether the embedded subject stays in situ or raises to the sentence-initial position, the reflexive *taziji* takes it as its antecedent. As for the A-movement in (81b), the embedded subject is raised to the matrix subject position obligatorily and still binds the reflexive *taziji*.

(81)  
a. Zhangsan, keneng [t_{i} beipan [taziji,-de pengyou]].  
‘Zhangsan may betray his friend.’
b. Zhangsan, hui \(t\), [beipan [tazij\(\text{-}de\) pengyou]].
Zhangsan be-likely betray himself-DE friend
‘Zhangsan is likely to betray his friend.’

Furthermore, embedded object raising also displays reconstruction since it is A’-movement. To be specific, when the embedded object is topicalized, the reflexive in the embedded object still takes the embedded subject as its antecedent, as in (82).

(82) a. [Taziji\(\text{-}de\) pengyou], Zhangsan, keneng \([t_i,\ beipan \ t_j]\).
himself-DE friend Zhangsan be-possible betray
‘As for his friend, Zhangsan may betray.’

b. [Taziji\(\text{-}de\) pengyou], Zhangsan, hui \([t_i,\ beipan \ t_j]\).
himself-DE friend Zhangsan be-likely betray
‘As for his friend, Zhangsan is likely to betray.’

In short, Principle A is obeyed in A-movement and A’-movement structures. Raising the embedded object with a reflective does not destroy the binding relationship between the embedded subject and the reflective.

3.5.3 Optional raising and unaccusative constructions

When the complement clause of the MAV *hui* is an unaccusative clause, the embedded object can be raised to the sentence-initial position or stay in situ. For example:

(83) a. Hui fasheng na yang de shi.
be-likely happen that CL DE thing
‘That kind of thing will happen.’

b. Na yang de shi hui fasheng.
that CL DE thing be-likely happen
‘That kind of thing will happen.’

Firstly, the complement clause of the MAV *hui* is nonfinite, and cannot be assigned tense value by the broader context. Hence, the embedded T has no tense and cannot help fix the TT of the aspect. The Asp only has a static aspect, and neither perfect nor imperfect aspects can be licensed. For example:

(84) a. Hui fasheng na yang de shi (*le).
be-likely happen that CL DE thing PERF

b. Hui (*zheng) fasheng na yang de shi.
be-likely IMPERF happen that CL DE thing

Secondly, if the verb is unaccusative, the object cannot stay in situ or be raised to the Spec-TP in the nonfinite clause that cannot be assigned tense value by the broader context. For example:

(85) a. *Fasheng na yang de shi.
happen that CL DE thing
b. *Na yang de shi fasheng.
    that CL DE thing happen

The object of unaccusative verbs can be probed by T and get its abstract case valued when the TP clause is finite, or it can be raised to the Spec-TP. But since there is no EPP in Chinese, the object of unaccusative verbs can get its abstract case valued and stay in situ. The raising of the object in unaccusative construction, therefore, is optional, as in (86).

(86) a. [CP C [TP na yang de shi] TF [Asp Asp [vp fasheng le t]]]].
    that CL DE thing happen PERF
    ‘That kind of thing has happened.’

b. [CP C [TP T F [Asp Asp [vp fasheng le na yang de shi]]]].
    happen PERF that CL DE thing
    ‘That kind of thing has happened.’

We assume that the embedded object of unaccusative verbs obeys the same mechanism. When the abstract case of the embedded object is valued by the matrix T, the embedded object can be raised to the Spec-TP of the matrix clause in the MAV hui construction, or stay in situ, as in (87).

(87) a. [CP C [TP na yang de shi] TF [vp hui [TP TNF [vp fasheng t]]]].
    that CL DE thing be-likely happen
    ‘That kind of thing will happen.’

b. [CP C [TP T F [vp hui [TP TNF [vp fasheng na yang de shi]]]]].
    be-likely happen that CL DE thing
    ‘That kind of thing will happen.’

To sum up, the complement clause of the MAV hui with an unaccusative verb is nonfinite, and cannot be assigned tense value by the broader context. Hence, neither perfect nor imperfect aspects can occur in the complement clause. However, the embedded object of unaccusative verbs can stay in situ or be raised to the Spec-TP when its case got valued by the matrix T.

4 Conclusion

In conclusion, assuming that abstract case and finiteness exist in Chinese, subject raising in Chinese MAV constructions can be analyzed either as A-movement or as A′-movement, which can be distinguished by the fronting of the embedded object, the semantic constraints of topics, topic stacking and resumptive pronouns. In this paper, we agree with Lin and Tang (1995) that A-movement in Chinese is triggered by case checking but reject the stipulation that the INFL assigns case optionally. We agree with Lin (2011) and Chou (2013) that the complement of Chinese MAVs can be either finite or nonfinite. Still, we disagree with Lin (2011) in the EPP-driven analysis of subject raising and argue against Chou (2013) on the topic A-movement hypothesis. The topic A-movement is challenged by the MLC effect and topic stacking. To be more specific, this paper argues for the following points:
(i) The abstract case in Chinese is assumed to help us understand the NP movement in the Chinese MAV construction. It enables us to predict the relevant phenomena and describe the linguistic generalizations more explicitly and precisely.

(ii) There is a finite and nonfinite contrast in Chinese MAV complements. T in a finite clause has a value and can provide a reference time for the Asp, so the sentence-final perfect aspect le is legitimate in the Asp position. In contrast, T in a nonfinite clause has no value and cannot provide a reference time for the Asp, so the perfect aspect le cannot be in the Asp position. The progressive aspect zai and the aspect auxiliary you in the complement clause of MAVs also show the finite and nonfinite contrast.

(iii) The MAV hui ‘be-likely’ is an obligatory raising verb that selects a nonfinite TP complement. The raising of the embedded subject in the MAV hui construction, triggered by the abstract nominative case valuation, is A-movement. The raising of the embedded object over the embedded subject is ungrammatical because of the violation of MLC, and NPs such as henshaoren and meiyouren can occur in the subject position of hui.

(iv) The MAVs yinggai ‘should’ and keneng ‘be-possible’ are optional raising verbs that select a finite CP complement. The raising of the embedded subject in the MAV yinggai/keneng construction, triggered by topicalization, is A′-movement. The raising of the embedded object over the embedded subject is acceptable because A′-movement is not constrained by MLC, and the occurrence of NPs such as henshaoren and meiyouren in the sentence-initial position is not grammatical.

Acknowledgments

We would like to extend our gratitude to the four anonymous reviewers for their constructive and insightful comments. The research described here was supported by the Key Project of National Social Science Fund of China “The Study of Chinese in Generative Grammar and the Innovation of Chinese Grammar Theory in the New Era” (生成語法的漢語研究與新時代漢語語法理論創新, 18ZDA291). All remaining errors and shortcomings are our own.

References


Bo Hu
Mailing address: Faculty of Humanities and Social Sciences, City University of Macau, Macao
Email: hubo@cityu.mo

Hong Chen
Mailing address: Faculty of International Tourism and Management, City University of Macau, Macao
Email: hongchen@cityu.mo
Received: September 4, 2020
Accepted: November 26, 2021
漢語情態助動詞結構的主語提升：論元移位還是非論元移位？

胡波、陳紅
澳門城市大學

提要
漢語情態助動詞的主語提升既可以是論元移位，也可以是非論元移位。情態助動詞如“會、要”帶一個非定式 TP 補足語子句。其子句主語的格位不能得到核查。但其子句主語可以通過主句 T 核查格位，並提升到主句 TP 的標誌語位置。這類提升屬於論元移位，是強制的移位。情態助動詞如“可能、應該”帶一個定式 CP 補足語子句。子句能在大語境中獲得時態賦值，因此子句主語的格位可以在子句得到核查，不需要提升至主句。子句主語也可以通過話題化提升到句首位置，這類提升屬於非論元移位，是非強制的移位。論元移位與非論元移位的區分可以進一步解釋漢語情態助動詞結構中子句賓語移位的最小連結條件規則、弱量化名詞短語與強量化名詞短語、話題疊加、漢語複現代詞現象。

關鍵詞
主語提升，漢語情態助動詞，論元移位，非論元移位，抽象格，話題化