

A Head-to-Specifier Movement Account of Multiple Pre-Subject Modals in Mandarin Chinese

Jackie Yan-Ki Lai & Haoming Li

University of Chicago

April 2021

Thesis

Pre-subject modal constructions in Mandarin Chinese are derived from post-subject modal constructions through head-to-specifier movement of the modals to Spec, FocP.

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 - Modals in Mandarin Chinese
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Modals in Mandarin Chinese – Types and Ordering

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- dynamic (M_{dyn}): *keyi* ‘be able to,’ *neng* ‘be able to’

There is usually the ordering of $M_{\text{epis}} \prec M_{\text{deon}} \prec M_{\text{dyn}}$:

(1) Zhangsan **keneng** **bixu** qu Chengdu.

Zhangsan MAY MUST go Chengdu

‘It may be the case that Zhangsan must go to Chengdu.’

(2) Zhangsan **bixu** **neng** zuo zhe ti.

Zhangsan MUST BE.ABLE solve this problem

‘It is required that Zhangsan be able to solve this problem.’

Modals in Mandarin Chinese – Positions in Sentence

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 ‘It may be the case that Zhangsan will go to Chengdu.’
- b. Zhangsan **keneng** qu Chengdu.
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The first kind we will call *pre-subject modal constructions*; the second, *post-subject modal constructions*.

Modals in Mandarin Chinese – Position of Multiple Modals

This is also true when there are multiple modals:

- (4) a. **yinggai dei** Huang laoshi shuo hua le.
 should must Huang teacher say speech SP
 ‘It should be the case that Teacher Huang must speak now.’
- b. Huang laoshi **yinggai dei** shuo hua le.
 Huang teacher SHOULD MUST say speech SP
- c. **yinggai** Huang laoshi **dei** shuo hua le.
 SHOULD Huang teacher MUST say speech SP

le, glossed as SP, is a sentence-final aspectual particle.

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Subject-Merge Approaches

- By **Subject-Merge** approaches, we mean those deriving post-subject modal constructions from pre-subject modal constructions through either *Internal Merge* or *External Merge* of the subject, such as topicalization (Tsai, 2015; Pan, 2018), raising (Lin, 2010, 2012), or control (Lin, 2010, 2012; Pan, 2018).

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- We will illustrate this camp of approaches with Lin's (2010; 2012) account of modals.

Lin (2012)

If the modals follow the subject, then the subject undergoes raising across epistemic modals and controls into deontic and dynamic modals:

- (5) $[_{TP} \text{Zhangsan}_i \text{ T}_{FIN} [_{VP} \text{keneng} [_{TP} t_i \text{ T}_{FIN} [_{VP} \text{keyi} [_{TP} \text{PRO}_i \text{ T}_{NONFIN} \text{qu Taipei}]] \text{le}] \emptyset]]]$
 Zhangsan MAY BE.ABLeL
 go Taipei SP
 ‘Zhangsan may have become able to go to Taipei.’

Problems with Subject-Merge

Hsu (2019) provides a host of arguments against Subject-Merge approaches.

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- Pre-subject modal constructions are more marked in terms of information structure than post-subject counterparts; post-subject ones should be the base case.
- Pre-subject modal constructions display focus-related properties that cannot be explained by Subject-Merge approaches.

Information-Structural Markedness

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- In a search of the CCL corpus (Zhan et al., 2003), only 2,549 examples out of the 92,099 retrieved sentences containing *yinggai* feature *yinggai* to the left of the subject.
- We expect the more neutral, more common structure to be the base case.

Informational-Structural Markedness

In the following example, only the pre-subject modal construction is felicitous in this special context.

(6) [Context: Both A and B hear the doorbell ringing.]

A: zenme le?

how SP

‘What happened?’

B: yinggai Zhangsan mai pisa huilai-le

should Zhangsan buy pizza return-PFV

‘It should the case that Zhangsan has bought pizzas and now returned.’

B': #Zhangsan yinggai mai pisa huilai-le

Zhangsan should buy pizza return-PFV

‘Zhangsan should have bought pizzas and now returned.’

(Hsu, 2019, 24, ex. (10))

Focus Intervention

It has been observed that focus operators (F-Op) will interfere with interrogative operators (Q-Op) (Beck, 2006):

(7) *Beck-style intervention effects*

*[Q-Op_x ... F-Op [TP ... wh_x ...]]

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Pre-subject modal constructions display the same effects:

(8) ***Q-Op**_x [FocP yinggai **F-Op** Zhangsan xihuan-guo **shei**_x ne]?
 should Zhangsan like-EXP who Q

Intended: ‘Who should have Zhangsan liked?’

(Hsu, 2019, 32, ex. (23a))

There is no way for Subject-Merge approach to derive such an effect.

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Head Movement Approaches

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Head Movement Approaches

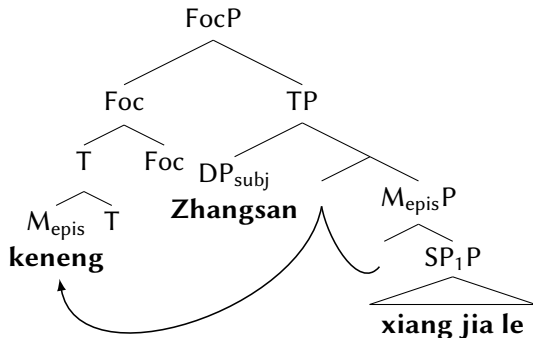
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Head Movement Approaches

- Hsu (2019) involves a drastically different approach.
- Now, post-subject modal constructions are the base configurations, while pre-subject ones are derived from them through head movement of the modal.
- The presence of a Foc^0 head, indicating propositional focus, draws modals to it across the subject.

Hsu (2019)

(9) Hsu's (2019) Proposal



Hsu (2019)

This approach is now able to account for the focus-related properties of pre-subject modal constructions. Example (9) for focus intervention reproduced here.

(10) ***Q-Op**_x [_{FocP} [_{Foc} yinggai_i] Zhangsan *t_i* xihuan-guo **shei**_x
 should Zhangsan like-EXP who
 ne]?

Q

Intended: 'Who should have Zhangsan liked?'

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Problems of Hsu (2019) – HMC

However, the head movement approach fails to generate multiple pre-subject modal constructions. We know by the

(11) Head Movement Constraint (Travis, 1984, 131)

An X^0 may only move into the Y^0 which properly governs it.
that we cannot skip heads in head movement. In a hierarchy of heads, we can only move a consecutive initial segment of heads.

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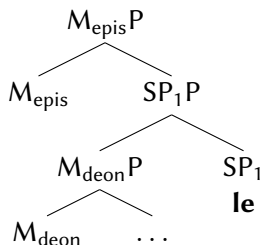
A classic example is in English:

- (12) a. Will_i John t_i have finished his homework by tomorrow?
 b. *Have_i John will t_i finished his homework by tomorrow?
 c. *Finished_i John will have t_i his homework by tomorrow?

Problems of Hsu (2019) – HMC

The local structural context of the Chinese involved, according to studies such as Erlewine (2017); Lin (2010), is as follows. Notice the intervening head *le* between the two modals.

(13)



Problems of Hsu (2019) – Order of Multiple Modals

Additionally, Hsu (2019) predicts the incorrect order of the moved heads, even if we disregard the problem of intervening heads (there are people who suggest that SP_1 *le* does not intervene between epistemic and deonic modals; see Pan, 2018; Zhang, 2019)

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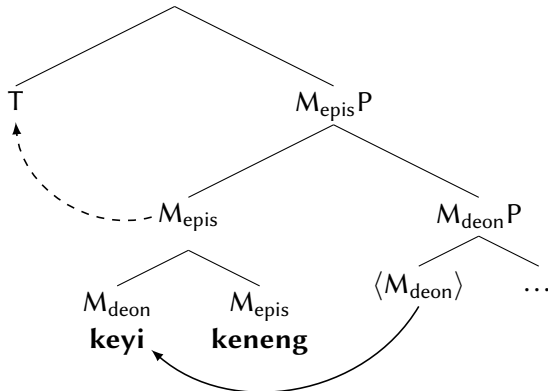
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Then, if head movement were the mechanism for deriving multiple pre-subject modals, lower heads should surface to the left of higher heads.

Problems of Hsu (2019) – Order of Multiple Modals

(15)



Problems of Hsu (2019) – Order of Multiple Modals

This is clearly not the case, as we see in this same example, that the order of the moved heads is the same the same order:

- (16) **keneng_i** **keyi_j** Lisi [_{M_{epis}P} *t_i* [_{SP₁P} [_{M_{deon}P} *t_j* qu canjia
 MAY BE.ALLOWED Lisi go join
 bisai] [_{SP₁} le]]]
 competition SP
 ‘It may be the case that Lisi is now allowed to join the
 competition.’

An Interim Summary

- Subject-Merge approaches lack focus-related explainability.
- The only Head Movement approach, Hsu (2019), only accommodates a single pre-subject modal.

The aim then is to come up with a solution to both problems.

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The Current Proposal

Our proposal of head-to-specifier movement is such a solution, based on head-to-specifier movement. Head-to-spec movement is proposed in Harizanov and Gribanova (2019); Harizanov (2019), primarily with reference to Bulgarian:

(17) a. šte si bila **pročela** knigata [Bulgarian]
 FUT be-2.SG been-FEM read-FEM book-the
 ‘You will have read the book.’

(Embick and Izvorski, 1997, ex. (30a))

b. **pročela**₁ šte si bila —₁ knigata [Bulgarian]
 read-FEM FUT be-2.SG been-FEM book-the

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Head-to-Spec Movement

- Here, the verb head engages in displacement that clearly violates the HMC, making head-to-head movement unlikely.

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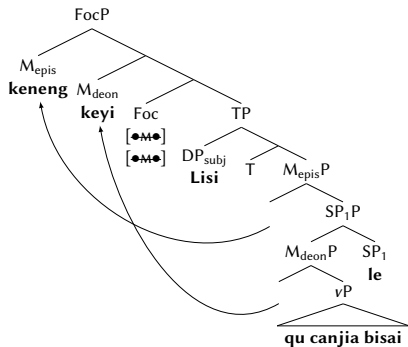
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- Therefore, the mechanism involved is phrasal movement, or Internal Merge, of the verb head.

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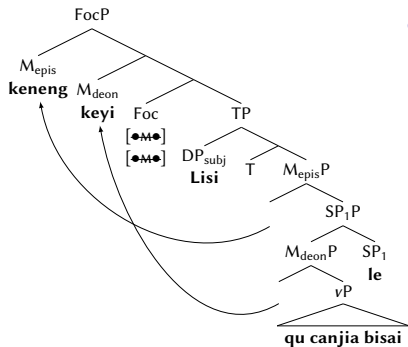
- Here, the verb head engages in displacement that clearly violates the HMC, making head-to-head movement unlikely.
- Therefore, the mechanism involved is phrasal movement, or Internal Merge, of the verb head.
- This is exactly the mechanism we propose for multiple pre-subject modal constructions in Chinese.

The Derivation

- Foc^0 has multiple $[\bullet M \bullet]$ features

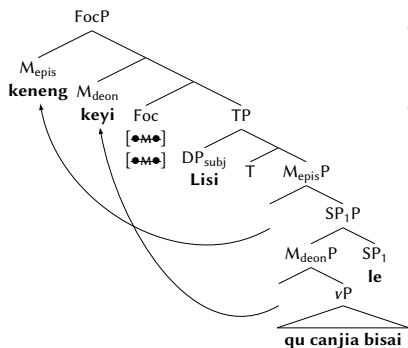


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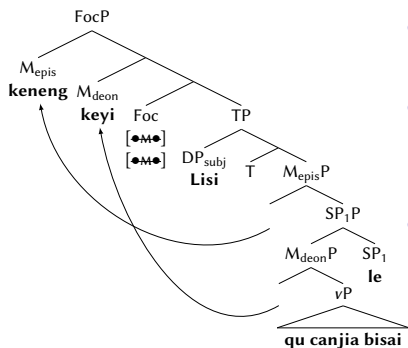
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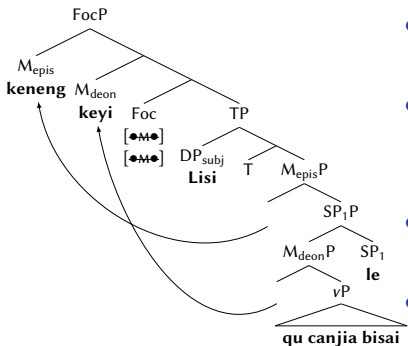
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The Derivation



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- Tucking-In (Richards, 2001) keeps the relative order of the modals unchanged
- Presence of Foc^0 confers propositional focus
- Intervening Foc^0 between Q-Op and the *wh*-variable derives focus intervention

Tucking-In

When α and β are both attracted by the same head, the (subsequent) movement of β must create a specifier *lower* than the specifier created by movement of α (Richards, 2001).

(18) Ko₁ si koga₂ tvrdio da je t₁ istukao t₂?

who AUX whom claimed that AUX beaten

‘Who did you claim beat whom?’

(Željko Bošković, 1997, Serbo-Croatian)

Tucking-In

Since in a multiple pre-subject modal constructions, all modals are attracted by the same Foc^0 head, we can apply Tucking-In to produce the correct order:

(19) $[\text{FocP } \text{keneng}_i \text{ keyi}_j \text{ Foc}^0 \text{ Lisi } [\text{M}_{\text{episP}} t_i \text{ } [\text{SP}_1\text{P } [\text{M}_{\text{deonP}} t_j \text{ qu } \text{ go } \text{ canjia bisai}] \text{ } [\text{SP}_1 \text{ le}]]]]]$

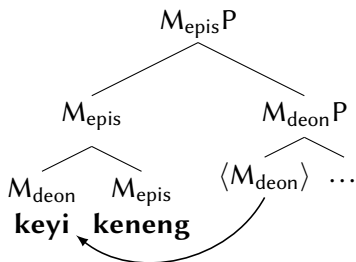
join competition SP

‘It may be the case that Lisi is now allowed to join the competition.’

Tucking-In

The left adjunction in traditional head movement *reverses* the base order

(20)



Tucking-In of phrasal movement resulting from a single head *preserves* the base order, which is desired.

Obviation of HMC

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- The fact that the SP_1 *le* intervenes between modals moved to the left of the subject does not pose a problem to our approach.
- Foc^0 , with [$\bullet M \bullet$] features, only attracts modals, and no other heads, in this case, to its specifier.

Minimality

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- So our approach predicts that only the highest modals can be moved to Spec, FocP.

- (21) a. ***keyi**_i Lisi **yinggai** **t_i** qu canjia bisai
 BE.ALLOWED Lisi SHOULD go join competition
 Intended: ‘It may be the case that Lisi is now allowed to join the competition.’
- b. **yinggai** Lisi **t_i** **keyi** qu canjia bisai
 SHOULD Lisi BE.ALLOWED go join competition

Focus-Related Properties

Our approach, further, preserves the focus-related explainability of Hsu (2019), which is lacking in all of the Subject-Merge approaches.

(22) ***Q-Op**_x [_{FocP} yinggai_i [_{Foc'} **Foc**⁰ Zhangsan *t*_i xihuan-guo
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who *q*

Intended: 'Who should have Zhangsan liked?'

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Propositional focus is trivially predicted with the presence of Foc^0 ; focus-intervention retained, since Foc^0 still intervenes between the *wh*-operator and the bound variable.

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- Focus: propositional focus and focus intervention
- Information-structural markedness
- No HMC effects
- Minimality effects
- Preservation of base order

Conclusion

Thanks for listening!

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