

Feature Inheritance and Object Raising in Epistemic Modal Constructions in Mandarin Chinese

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1. Introduction

Epistemic modals verbs like *yinggai* ‘should’ in Mandarin Chinese (MC) have been analyzed as a verb that takes a TP as its clausal complement as in (1) (cf. Lin and Tang 1995, Lin to appear), and the subject can optionally move to matrix TP-spec, as shown in (2):

- (1) *Yinggai* [_{TP} *Akiu zhunbe wancan*]
Should *Akiu* prepare dinner
‘It is should be the case that *Akiu* prepares the dinner.’
- (2) *Akiu yinggai* [_{TP} _____ *zhunbe wancan*]
Akiu should prepare dinner
‘It should be the case that *Akiu* prepares the dinner.’

As noted by Lin (to appear), it is also possible for the embedded object *wancan* to raise to the matrix clause as shown in (3):

- (3) *Wancan yinggai* [_{TP} *Akiu zhunbe* _____]
Dinner should *Akiu* prepare
‘It should be the case that the dinner is prepared by *Akiu*.’

What makes (3) interesting is that the object raising seems to violate the Minimal Link Condition (MLC, Chomsky 1995, 2000) which excludes movement of α to a position K if there is another element β of the same type which is closer to K. In (3), it is the embedded subject *Akiu* that is closer to the matrix TP-spec, rather than the embedded object *wancan*. Thus, the object raising in (3) is predicted to be ruled out by MLC, contrary to fact. To explain this, Lin suggests that the object raising in (3) is actually topicalization with the matrix TP-spec occupied by a null expletive. Consequently, there is no MLC violation in (3). In the next section, we presents two arguments that challenge this A'-movement analysis.

2. Against the topicalization approach in Lin (to appear)

2.1 Weak Crossover Effect

Let's start from the Weak Crossover Effect induced by null arguments in MC. According to Huang (1984), only the null subject in MC is a genuine *Pro* which is subject to his Generalized Control Rule (GCR), whereas the null object is a variable bound by a (possibly

null) discourse topic. The null object cannot be a *Pro* due to the conflict between GCR and binding condition B. This analysis explains why the null object cannot refer to the matrix subject *Akiu* in (4) because as a variable, the null object cannot be A-bound.

- (4) **Akiu_i shuo [Yangguo bu renshi e_i]*
Akiu say Yangguo not know
'Akiu_i said that Yangguo does not know him_i.'

Further, the A'-dependency between the object variable and the discourse topic *Akiu* in (5) exhibits Weak Crossover Effect (WCO). (5) indicates that the A'-dependency in MC is subject to WCO as well.

- (5) *Akiu, [ta_i de baba] shuo [Yangguo bu renshi e_i]*
Akiu ta DE father say Yangguo not know
'As for Akiu_i, his_i father said that Yangguo does not know him_i.'

If the object raising in (3) is an instance of A'-movement, then we expect it to show WCO. However, this prediction is not borne out. This directly challenges the A'-movement analysis of the object raising.

- (6) *Akiu_i yinggai [TP [ta_i-de erzi] lai zhaogu ____]*
Akiu should his son come take-care
'It should be the case that Akiu_i is taken care of by his_i son.'

2.2 Binding Condition A

If object raising cannot be A'-movement, then it should be A-movement targeting the matrix TP-spec, and we expect it to be feed Binding Condition A. This prediction is borne out as in (7). Note that reflexives in MC can be bound by a sub-commanding subject (Tang 1989).

- (7) [*Akiu_i de gongke*] yinggai [_{TP} *taziji_i xie ____*]
Akiu DE homework should himself write
'It should be the case that Akiu's homework is written by himself.'

3. Analysis – feature inheritance in Chomsky (2007, 2008) & Richards (2007)

We adopt Chomsky's hypothesis that ϕ -features on T are inherited from C. The implication of this hypothesis is that T would only have the inherent EPP structural requirement in the absence of the higher CP-layer. This is exactly the situation for the T of the TP complement clause of the epistemic modal verb *yinggai* in MC. In addition, we further assume that

minimality condition only obtains when there is feature-matching relation between the probe and the goal, and EPP, in itself, does not impose minimality condition on the search for the goal to satisfy its structural requirement. With these two assumptions, let's examine the step-by-step derivation of the object raising in epistemic modal constructions in MC. In (8), the EPP on the embedded T does not need to obey minimality, and it can attract the object *wancan* to the embedded TP-spec, deriving (9). Next, the ϕ -features on the matrix T locate the closest goal, *wancan* at the embedded TP-spec, to satisfy the EPP on the matrix T in (10). Note that the effect MLC is still evidenced elsewhere, as in (11). The presence of ϕ -features on the matrix T requires that the goal attracted to its specifier must be the closest feature-matching goal; therefore, *Akiu* at vP-spec in (10) cannot raise to matrix TP-spec because it is further away from the matrix TP-spec than the raised object *wancan* at embedded TP-spec.

- (8) Yinggai [TP ____ T [vP Akiu [VP zhunbe wancan]]]
 (9) Yinggai [TP **wancan** [vP Akiu [VP zhunbe ____]]]
 (10) **Wancan** yinggai [TP ____ [vP Akiu [VP zhunbe ____]]]
 (11) ***Akiu** yinggai [TP wancan [____ [VP zhunbe ____]]]

4. Theoretical implications

4.1 Agreement-based approach to A-movement

Our analysis contributes to the long-standing debate on the motivation for A-movement in linguistic theory. In particular, it presents evidence against the *universality* of a checking-based theory of A-movement (cf. Epstein & Seely 1999, 2006, Bošković 2002, 2007, and Epstein, Pires & Seely 2005) since A-movement still occurs in (9) where the embedded T does not have any ϕ -features, which are only available when a CP-layer is present under Chomsky's feature inheritance hypothesis.

4.2 Two versions of Phase Impenetrability Condition

There are two versions of Phase Impenetrability Condition (PIC):

- (12) Chomsky (2001: 13-14) *delayed* version of PIC
 a. Ph1 is interpreted/evaluated at the *next* relevant phase Ph2.
 b. The domain of the phase head of Ph1 H is not accessible to operations at the **next** relevant phase Ph2; only H and its edge are accessible to such operations.

- (13) Chomsky (2000: 108)

In phase α with head H, the domain of H is not accessible to operations outside α , only H and its edge are accessible to such operations.

Our analysis in (8-11) indicates that Mandarin Chinese employs delayed PIC in (12). The VP cannot be spelt-out right after the completion of vP; otherwise, *wan* would be invisible for EPP on the embedded T at the derivational step in (9). In this connection, consider the corresponding English structure:

- (14) a. John seems [_{TP} ___ to [_{vP} ___ [_{vP} like Mary]
b. *Mary seems [_{TP} ___ to [_{vP} John [_{vP} like ___]

No matter which version of PIC English employs, the object becomes inactive within the VP phase because of Case-valuation by v*/V.

4.3 Activity Condition

The delayed PIC alone does not guarantee the object raising in (9). It is necessary that the object within VP be active when the derivation reaches the embedded T. Otherwise, the object cannot raise to embedded Spec-T despite the delayed PIC. However, there is evidence that the Case on NP is also valued by v*/V in MC (cf. Li 1985, Huang *et al.* 2009). This implies that the activity condition in MC is subject to factor(s) other than Case (possibly semantic features such as focus?). We leave the factor(s) that is responsible for the activity condition in MC for future research.

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