

# CP Selection at the Syntax-Semantics Interface: A Case Study in Mandarin *think* “*xiang*”

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## 1 Introduction

Zheng (2023) identifies a semantic shift in the Mandarin predicate *xiang* between two interpretations: *think* and *want*. The verb *xiang* also shows a interaction between interrogativity and complement selection, which involves factors like stativity. As illustrated by Figure 1, the selectional puzzles of *xiang* are beyond interrogativity. This work tries to mainly figure out the connections between the complements taken and the verb meanings. One factor I want to discuss particularly is finiteness, which I assume to be ONE OF the factors influencing the interpretation of *xiang*.

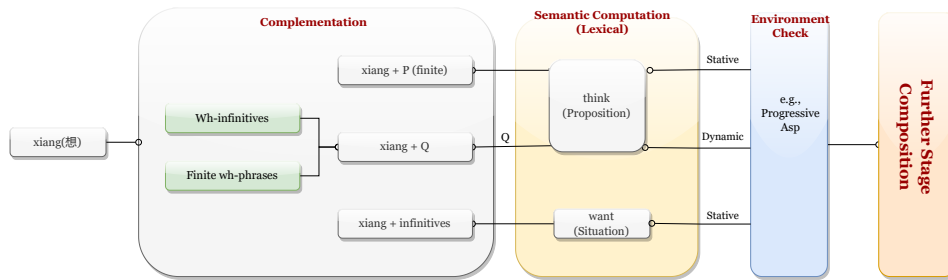


Figure 1: The empirical picture of the semantic shift in *xiang*

Departing from a pure lexicalist view, I argue that the alternation and selection pattern we saw in *xiang* is a result of interactions at the syntax-semantics interface. That is, only limited structures are allowed by the semantics. The complements taken play a crucial role in the overall meaning computation (see also Moulton 2009 a.o.). However, this paper does not address all the factors in this alternation, but it hopes to provide some insights into clausal complement selection.

## 2 Finiteness in the Doxastic and Bouletic Alternation

Take a look at the following examples (1, 2). We can notice that the addition of the aspect marker ‘le’ and the future modal ‘hui (will)’ seem to alternate the verb from *want* to *think*. The extra elements are usually related to finiteness in Mandarin. According to Huang (2022) and references therein, a clause is finite if (1) the clause has an indefinite time reference, (2) there is a speaker-oriented evaluative expression, (3) there is a(n) epistemic/future modal (e.g., *keneng*, *yinggai*, *hui*, *yao*), (4) there is a perfective marker or a clausal final ‘le’ (also, *laizhe*, *ne*), or (5) it is compatible with before collocation (e.g., *congqian -guo*). By saying a clause is finite in the rest of the paper, I mean the clause must at least pass one of the above diagnostics.

- (1) a. Wo *xiang* ta qu-le Beijing  
I think he go-PERF Beijing  
‘I think that he have gone to Beijing.’
- b. Wo *xiang* ta qu Beijing  
I want he go Beijing  
‘I want him to go to Beijing.’

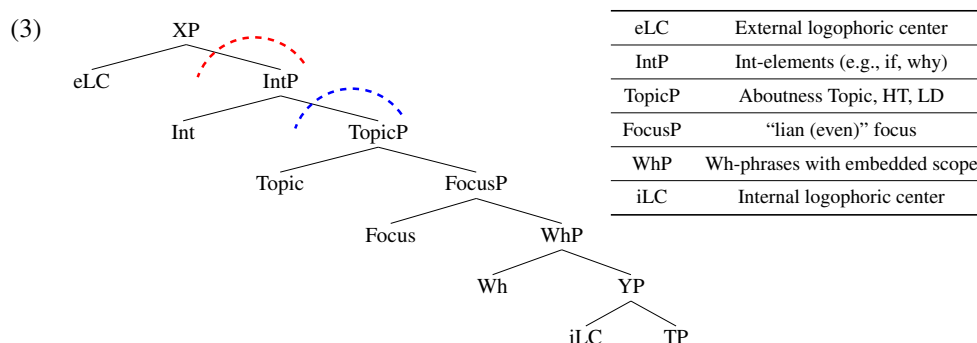
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- (2) a. Wo xiang Lisi hui canjia na-chang huiyi  
I think Lisi will attend that-CL conference  
'I think Lisi will attend that conference tonight.'
- b. Wo xiang Lisi canjia na-chang huiyi  
I want Lisi attend that-CL conference  
'I want Lisi to attend that conference.'

## 2.1 Finiteness as clause size

Finiteness, once primarily defined by morphosyntactic features like tense and agreement, carries syntactic significance. Its association with tense, agreement, and other factors (e.g., illocutionary force) remains relevant (Nikolaeva 2007, Wurmbrand et al. 2020). In addition to this string of investigations, considerations extend to clause size (Pesetsky 2019 among others, see also references in Satk 2021; For Mandarin, such a view is discussed by Grano 2015, 2017, Xue and McFetridge 1998) given the arbitrariness of morphosyntactic features encoded in different languages, which found itself hard to form a uniform explanation. This view prompts queries about the critical clause size for finiteness. The conventional truncation stance (e.g., Adger 2007) posits three tiers: CP, TP, and vP<sup>1</sup>. Each can host non-finite forms under different predicates. Recent research by Satk (2021) delves into a nuanced non-finite clause size in terms of CP cartography, showcasing how different languages differ in the maximal infinitival projection in left peripheries.

Following the typology work on left peripheries of non-finite clauses by Satk (2021), I examined the fine-grained left-peripheries of Mandarin (non-)finite clauses. Given that this (i.e., the cartography) is not the main focus of my study, the detailed discussion is omitted.



The maximal left peripheries of non-finite clauses can be illustrated as in (3). The boundary between non-finite and finite clauses is indicated by the red dashed line (N.B. for the specific case of *xiang*, the boundary is indicated by the blue dashed line<sup>2</sup>). Although there are many issues under debate in this cartographic approach (i.e., eCL/iCL cf. the ForceP/FinP, see also Huang 2021), the structure above should suffice to show a difference in clause size between (non-)finite clauses.

## 2.2 Mapping finiteness (clause size) onto the semantics

In light of this difference in finiteness, we are in need of an account that maps the clause size distinction onto different interpretations (i.e., semantics). Wurmbrand and Lohninger (2023)’s Im-

<sup>1</sup>For Mandarin, Xue and McFetridge (1996) initially proposed a simpler binary split: clausal complement and VP complements.

<sup>2</sup>I noticed that *xiang* cannot embed non-finite IntP (see ex.1: diagnostic: *congqian* cannot occur inside a non-finite clause but can occur inside its matrix (finite) clause.), and I leave this to further investigation.

- (1) Wo (\*congqian) zai xiang Lisi ?weishenme/shifou (congqian) canjia-guo na-chang huiyi  
I before -PROG think Lisi why/whether before attend-EXP that-CL conference  
'I'm thinking why/whether Lisi has attend that conference before.'

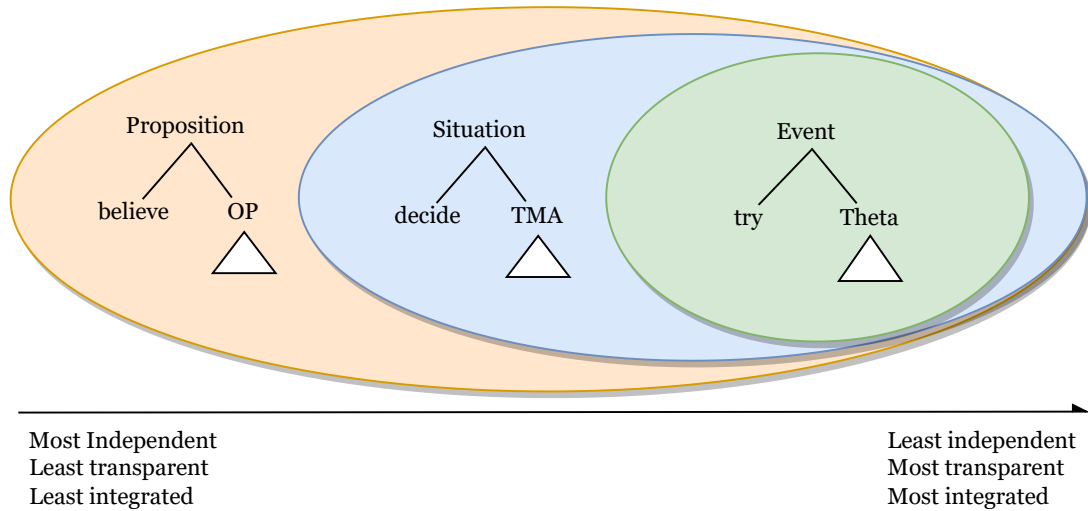


Figure 2: ICH with the minimal structure of each domain adapted from Wurmbrand & Lohninger (2023)

plicational Complementation Hierarchy (ICH) and the synthesis model establish a fundamental link between clause size and semantics. Each semantic object corresponds to a *minimal* structure or Canonical Structural Realization (CSR), as pointed out in Chomsky (1986). Building on this concept, I propose that the interpretation (*want*), specified as SITUATION, selects a minimal structure like TP, while another interpretation (*think*), specified as PROPOSITION, aligns with a minimal CP structure. This elucidates the distinction between “think P” and “want P”, albeit not comprehensively. As the synthesis model grants greater syntactic flexibility, it also reveals a challenge: there is no upper boundary; that is, the structure can become very large (e.g., the largest complement taken by *think* can also be the complement of *want*). The Wurmbrand’s model provides an explanation for the availability of larger structures but lacks a limit on clause size.

### 2.3 Explaining the syntax-semantics mismatch

The challenge lies in explaining this overgeneralization by the synthesis model. One such solution is to claim there is something besides clause size in the complement structure that helps us distinguish *think* and *want*. Such account found its precedents in Kratzer (2006, 2013) and Moulton (2009, 2015). They argued there are modals in the complements, quantifying the possible worlds and contributing to different interpretations. Following this idea, in the specific case of *xiang*, the doxastic modal is located higher than the bouletic modal. Consequently, the bouletic modal is superimposed in a larger structure setting, preventing bouletic interpretation from co-occurring with a larger structure in Mandarin. Hence, the synthesis model’s syntactic flexibility is maintained, and the surface meaning emerges after the interactions (involving factors like clause size and modals) at the interface.

$$(4) \quad [[\text{xiang}]] = \lambda e. \text{ATTITUDE}(e)$$

- (5) a.  $[[\text{Wo } \nu_{Exp} \text{ xiang eLC}_{ModalBelief} \text{ Lisi xihuan Wangwu}]] = \exists e [\text{experiencer}(e) = \text{Wo} \ \& \ \text{attitude}(e) \ \& \ \forall w \in \text{BELIEF}(e): \text{Lisi xihuan Wangwu in } w]$
- b.  $[[\text{Wo } \nu_{Exp} \text{ xiang TopicP}_{ModalDesire} \text{ Lisi xihuan Wangwu}]] = \exists e [\text{experiencer}(e) = \text{Wo} \ \& \ \text{attitude}(e) \ \& \ \forall w \in \text{DESIRE}(e): \text{Lisi xihuan Wangwu in } w]$

**Limitations and other possibilities** The cartographic approach to clause size combined with the Moulton (2009)’s account to explain this alternation is not explanatory enough. For example, this

explanation relies on the mapping between clause size and interpretations. Even if there is much empirical evidence (see Wurmbrand and Lohninger 2023), it remains unclear how the extended projections get interpreted in the account above. For example, how do we relate TopicP/FocusP/WhP to the *want* interpretation? Otherwise, we need semantically more transparent left-peripheral projections, which can actually provide a more direct mapping with semantics (e.g., ContP and SitP, as in Bondarenko 2022).

On the other hand, finiteness is not the only factor that gives rise to the alternation. Aspect, negation, and collocational constraints are also involved. Take aspect as an example. *think* and *want* exhibit distinct Aktionsarten (lexical aspects). Progressives are known to be selecting the Aktionsart of the verb phrase (Dowty 1979, inter alios). “*xiang (want)*” does not harmonize with the progressive, but “*xiang (think)*” is compatible. This implies that only *think* is “chosen” in a dynamic environment (e.g., progressives, see 6a), excluding *want*. Additionally, a stative environment yields ambiguity for *xiang*, permitting both *think* and *want* interpretations (see 6b). Hence, a dynamic context rules out *want*. This divergence in Aktionsart holds true across languages (e.g., the ungrammatical \*be wanting in English). Apart from the grammatical aspects in matrix clauses, I noticed the lexical aspects of the embedded verbs will also influence meaning (6b cf. 6c). When the embedded verb is stative (i.e., like), *think* interpretation is allowed, while the embedded verb is dynamic (i.e., attend), the same interpretation is gone. However, I have to point out that (after p.c. with Yimei Xiang) 6b and 6c have different embedded clause sizes because ‘Lisi attend conference’ is not an independent sentence while ‘Lisi like Wangwu’ is. Hence, clause size might still play a role here, but it does not exclude the possibility that aspect also lends a hand. To give a unified account, we need to take all these factors into consideration, and I leave this to further investigation.

- (6) a. Wo zai-xiang Lisi weishenme xihuan Wangwu  
I think-PROG Lisi why like Wangwu  
'I'm thinking why Lisi likes Wangwu.' (not want)
- b. Wo xiang Lisi xihuan Wangwu  
I want Lisi like Wangwu  
'I think Lisi likes Wangwu.' (also 'I want Lisi to like Wangwu.')
- c. Wo xiang Lisi canjia huiyi  
I want Lisi attend conference  
'I want Lisi to attend the conference.'

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