

On the Pre-Predicate *Lai* and *Qu* in Chinese*

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ZAS, Feb. 5, 2001

ABSTRACT This paper argues that the syntactic position of the pre-predicate *lai* ‘come’ and *qu* ‘go’ in Chinese is the head of a functional phrase higher than AspP but lower than NegP, that the syntactic position of the post-predicate *lai* and *qu* is T, and that the pre-predicate *lai/qu* and the post-predicate *lai/qu* form a chain of head movement.

1. Introduction

This paper argues that the words *lai* ‘come’ and *qu* ‘go’ in Chinese can occur in three structural positions: V, the head of a functional phrase higher than AspP but lower than NegP, and T. Specifically, *lai* and *qu* can be base-generated at the first two positions, and can also raise from the second position to the third position, T, adjoining to the sentence-final temporal particle *le*, if there is one, which has been argued to be base-generated at T (Sybesma 1997, Zhang 2000, among others).¹ The conclusions of this study, on the one hand, support two claims made by the Distributed Morphology (Halle & Marantz 1993, Marantz 1997, etc.) that the structural properties of an element is decided in syntax rather than in the lexicon, and that lexical insertion with full phonological features takes place at some late stage rather than at the beginning of the syntactic derivation, and on the other hand, argue against the current hypothesis in the literature that there is no movement to T in Chinese (Tsai 1999, among others).

The word *lai* ‘come’ can be followed by either a locative nominal, as in (1a), or a predicate XP (vP or VP), as in (1b) (the predicate XP is bracketed), and can also be preceded by a predicate XP, as in (1c). The last construction has three main properties: first, an optional copy of *lai* can occur to the left of the predicate XP, if the predicate verb is not a directional motion verb (see section 3.4 for a discussion of directional motion verbs); second, the post-predicate *lai* appears immediately before the temporal particle *le*; and third, no aspect suffix is allowed to occur with the verb in the predicate XP.²

- (1) a. Baoyu lai-guo Xiang Gang.
Baoyu come-EXP Hong Kong
‘Baoyu came to Hong Kong.’

* An early version of this paper benefited from comments made by Zhang Bojiang. I am grateful to him.

The abbreviations used in the Chinese example sentences are: EXP: experience aspect, PRF: perfect aspect, PROG: progress aspect, PRT: (temporal) particle, Q: question particle, BA: causative particle, CL: classifier.

¹ Zhang (2000) shows that the sentence-final temporal particle *laizhe* encodes past tense, since it cannot occur in sentences whose reference time is within or after the utterance time. *Laizhe* is thus base-generated at T. She presents the syntactic properties shared by *laizhe* and the sentence-final *le*. For instance, neither has a force feature and thus neither can be at ForceP of C-domain (Rizzi 1995); and unlike an aspect marker, neither allows their c-commanded verb to have an A-not-A form. Based on these syntactic similarities between *laizhe* and the sentence-final *le*, she argues that the latter is also base-generated at T.

² In this paper I do not discuss the constructions where the unique argument of *lai* and *qu* is shared with the internal argument of the matrix transitive verb, as those in (i). The verb *lai* and *qu* in (i) are like those in (1a) and (2a) in that they have their own argument structures, and do not co-occur with another copy of *lai* or *qu*. See Law (1996) for an analysis of such constructions.

- (i) a. Da Bao mai-le liwu lai le.
Da Bao buy-PRF gift come PRT
‘Da Bao has bought a gift.’ (The gift came since he bought it.)
b. Da Bao tou-qu-le wode qianbao.
Da Bao steal-go-PRF my purse
‘Da Bao has stolen my purse.’ (My purse was gone since he stole it.)

- b. Baoyu lai [xia-le yi pan qi].
 Baoyu come play-PRF one round chess
 ‘Baoyu has come to play a round of chess.’
- c. Da Bao (lai) [kan-(*{le/zhe/guo}) Lao Li] lai le.
 Da Bao come see Lao Li come PRT
 ‘Da Bao has come to see Lao Li.’

Similarly, the word *qu* ‘go’ can be followed by either a locative nominal, as in (2a), or a predicate XP, also has three main properties: first, an optional copy of *qu* can occur to the left of the predicate XP if the predicate verb is not a directional motion verb; second, if the temporal particle *le* occurs, the post-predicate *qu* appears immediately before *le*, as in (2c2); and third, as noted by Lu (1985: 24), no aspect suffix is allowed to occur with the verb in the predicate XP.

- (2) a. Baoyu qu-guo Xiang Gang.
 Baoyu go-EXP Hong Hong
 ‘Baoyu went to Hong Kong.’
- b. Baoyu qu [kan-le dianying].
 Baoyu go see-PRF movie
 ‘Baoyu has gone to see a movie.’
- c1. zanmen (qu) [mai-(*{le/zhe/guo}) shu] qu.
 we go buy book go
 ‘Let us go to buy books.’
- c2. Da Bao (qu) [mai-(*{le/zhe/guo}) shu] qu le.
 Da Bao go buy book go PRT
 ‘Da Bao has gone to buy books.’

It is not controversial that in the construction of (1a) and (2a), *lai* and *qu* are verbs, base-generated at V, and their following nominal is the complement. In this paper, I will discuss the syntax of the other two constructions represented by the b-sentences and c-sentences in (1) and (2) only. I will call the construction illustrated by (1b) and (2b) Lai/Qu-Predicate Construction, and the construction illustrated by (1c) and (2c1, 2c2) Predicate-Lai/Qu Construction.

This paper is organized as follows. In section 2 I discuss the Lai/Qu-Predicate Construction, arguing that the syntactic position of *lai* and *qu* in this construction is the head of a functional phrase higher than AspP but lower than NegP. In section 3 I discuss the Predicate-Lai/Qu Construction, arguing that the optional pre-predicate *lai/qu* and the post-predicate *lai/qu* form a chain of a head movement, and the landing site of the movement is T. Finally, I briefly summarize my conclusions and consider their theoretical implications in section 4.

2. The Lai/Qu-Predicate Construction

I propose that the structural position of *lai* and *qu* in the Lai/Qu-Predicate Construction is the head of a functional phrase higher than AspP but lower than NegP, assuming AspP is higher than VP (Cheng 1989, Zou 1993 among others). I have four pieces of evidence.

First, unlike regular verbs in Chinese, *lai* and *qu* in this construction cannot have an aspect suffix.

- (6) a. nimen (qu) yanju-yanjiu, kan gai zeme jiejie.
 you go study-study see should how solve
 ‘Study and see how to solve (the problem).’
 b. zanmen (lai) yanju-yanjiu, kan gai zeme jiejie.
 we come study-study see should how solve
 ‘Let us study and see how to solve (the problem).’

It seems that like English auxiliaries (Roberts 1998), *lai* and *qu* do not have an argument structure and thus do not play a role in theta-role assignment in the Lai/Qu-Predicate Construction.⁴

Third, being in a position other than V, *lai* and *qu* in the Lai/Qu-Predicate Construction do not show a strong semantic contrast between themselves. In some cases *qu* and *lai* are interchangeable in the Lai/Qu-Predicate Construction, without any change in meaning (Zhu 1984: 166), as shown in (7).

- (7) a. Women dasuan yong zhe ge banfa {lai/qu} bangzhu ta.
 we plan with this CL method come/go help he
 ‘We plan to help him in this way.’
 b. yong jianrenbubade jingshen {lai/qu} kefu kunnan
 with persistent spirit come/go overcome difficulty
 ‘to overcome difficulties with a persistent spirit’

People like Lü et al (1980, 1999) and Zhu (1984: 166) claim that the meaning of the pre-predicate *lai* and *qu* is empty in this case. Our analysis that *lai* and *qu* in this case are base-generated at a functional head and thus do not have an argument structure captures this vacuous reading of *lai* and *qu*.

Fourth, a sentential negation word in the Lai/Qu-Predicate Construction must be to the left of the pre-predicate *lai* and *qu*, indicating that the position of *lai* and *qu* is lower than NegP:

- (8) a. Baoyu mei lai zhao ni.
 Baoyu not come seek you
 ‘Baoyu did not come to look for you.’
 b. *Baoyu lai mei zhao ni.
 Baoyu come not seek you
 (9) a. Baoyu mei qu kan dianying.
 Baoyu not go see movie
 ‘Baoyu did not go to see a movie.’
 b. *Baoyu qu mei kan dianying.
 Baoyu go not see movie

In the well-formed (8a) and (9a), the sentential negation word *mei* is to the left of *lai* and *qu*, respectively. In contrast, in the unacceptable (8b) and (9b), *mei* is to the right of *lai* and *qu*, respectively. The contrast between the a-sentences and the b-sentences suggests that NegP must be higher than the phrase where *lai* and *qu* occur.

⁴ Roberts (1998) argues that unlike regular verbs in English, the auxiliaries *have* and *be* overtly move to T from a VP which dominates the main VP and is dominated by NegP. Similarly, I will argue in section 3.4 that the Predicate-Lai/Qu Construction is derived by the raising of *lai* and *qu* overtly to T. However, I do not adopt his higher-VP hypothesis, since if the elements which are base-generated in the head of α P do not have an argument structure, as he claims, α P should not be termed VP. Instead, α P should be a functional phrase.

I conclude that *lai* and *qu* in the Lai/Qu-Predicate Construction are place-holders or lexicalizations of the head of a functional phrase above AspP and below NegP.

3. The Predicate-Lai/Qu Construction

The full string of the Predicate-Lai/Qu Construction is represented in (10), where XP is a predicate phrase:

- (10) Subject {*lai/qu*} XP {*lai/qu*} *le*

I first argue that the optional pre-predicate *lai* and *qu* in this construction are in the same syntactic position as they are in the Lai/Qu-Predicate Construction (3.1). I then argue that the post-predicate *lai/qu* in this construction is in a higher structural position than the predicate XP (3.2). Moreover, I argue that the post-*lai/qu* *le* in this construction is the sentence-final temporal particle rather than an aspect suffix of *lai/qu* (3.3). Based on these three proposals, I study the relationship between the two occurrences of *lai/qu* in this construction, arguing that they form a chain of head movement to T (3.4). Finally, I account for the constraint on the predicate XP of this construction that the verb cannot have an aspect suffix (3.5).

3.1 The base-position of the pre-predicate *lai* and *qu* in the Predicate-Lai/Qu Construction

I argue that the optional pre-predicate *lai* and *qu* in the Predicate-Lai/Qu Construction are in the same syntactic position as they are in the Lai/Qu-Predicate Construction, i.e., the head of a functional phrase higher than AspP and lower than NegP. My evidence is that they exhibit the same four properties in this construction as they do in the Lai/Qu-Predicate Construction.

First, as in the Lai/Qu-Predicate Construction, the pre-predicate *lai* and *qu* in the Predicate-Lai/Qu Construction cannot have an aspect suffix, as shown in (11).

- (11) a. Baoyu *lai*-(*{*le/zhe/guo*}) kan ni *lai le*.
 Baoyu come-PRF/PROG/EXP see you come PRT
 ‘Baoyu has come to see you.’
 b. Baoyu *qu*-(*{*le/zhe/guo*}) kan dianying *qu le*.
 Baoyu go-PRF/PROG/EXP see movie go PRT
 ‘Baoyu has gone to see a movie.’

Second, as in the Lai/Qu-Predicate Construction, the pre-predicate *lai* and *qu* in the Predicate-Lai/Qu Construction can be removed without any change in the reading of the construction:

- (12) a. Baoyu (*lai*) kan ni *lai le*.
 Baoyu come see you come PRT
 ‘Baoyu has come to see you.’
 b. Baoyu (*qu*) kan dianying *qu le*.
 Baoyu go see movie go PRT
 ‘Baoyu has gone to see a movie.’

Third, as in the Lai/Qu-Predicate Construction, the pre-predicate *lai* and *qu* are interchangeable in some cases, without any change in meaning in the Lai/Qu-Predicate Construction, as shown in (13) (Lu 1985: 31).

- (13) a. ta ba ren dou dezui-le, wo {lai/qu} pei bushi qu?
 he ba person even offend-prf I come/go offer apology go
 ‘He has even offended the person(s), shall I go to offer an apology?’
 b. zhe shir hai de you nin {lai/qu} gen dahuor shuo qu.
 this matter still must by you come/go to fellow speak go
 ‘This matter, it still has to be you who can speak to the fellows about.’

Fourth, as in the Lai/Qu-Predicate Construction, a sentential negation word, if it occurs, must be to the left of the pre-predicate *lai* and *qu* in the Predicate-Lai/Qu Construction, as shown below:

- (14) a. Baoyu genben jiu mei lai kan ni lai.
 Baoyu absolutely then not come see you come
 ‘Baoyu absolutely did not come to see you.’
 b. *Baoyu (genben jiu) lai mei kan ni lai.
 Baoyu absolutely then come not see you come
 (15) a. Baoyu mei qu kan dianying qu.
 Baoyu not go see movie go
 ‘Baoyu did not go to see a movie.’
 b. *Baoyu qu mei kan dianying qu.
 Baoyu go not see movie go

In the well-formed (14a) and (15a), the sentential negation word *mei* is to the left of the pre-predicate *lai* and *qu*, respectively. In contrast, in the unacceptable (14b) and (15b), *mei* is to the right of the pre-predicate *lai* and *qu*, respectively. The contrast between the a-sentences and the b-sentences suggests that NegP must be higher than the phrase where the pre-predicate *lai* and *qu* occur in the Predicate-Lai/Qu Construction, as in the Lai/Qu Predicate Construction.

The four shared properties of *lai/qu* in the two constructions, the Lai/Qu-Predicate Construction and the Predicate-Lai/Qu Construction, indicate that they are in the same structural position in the two constructions.

3.2 The high structural position of the post-predicate *lai* and *qu*

The post-predicate *lai* and *qu* are structurally higher than their preceding predicate phrase. I present the following three arguments for this claim.

First, the answer of a yes-no question in Chinese contains the highest verbal element, as in (16). In (16), Answer 1 is appropriate, since it contains the highest verb *xiang* ‘want’ of the question, while Answer 2 is not appropriate, since it does not contain the highest verb *xiang* of the question. Similarly, the answer of a question in the Predicate-Lai/Qu Construction form must contain the verb *lai* or *qu*, as in (17a) and (17b), showing that *lai* or *qu* here is the highest verbal element. In (17a) and (17b), the first three answers are appropriate, since they contain *lai* or *qu*, parallel to the one in the corresponding question. In contrast, Answer 4 is not appropriate, since it does not contain *lai* or *qu*.

- (16) Ques: Da Bao xiang mai shu ma?
 Da Bao want buy book Q
 ‘Does Da Bao want to buy books?’
 Ans1: Dui, ta xiang mai.
 right he want buy
 ‘Right, he wants to.’

- Ans2: #Dui, ta mai (shu).
Right he buy (book)
'Right, he buys books.'
- (17) a. Ques: Da Bao xia qi lai le ma?
Da Bao play chess come PRT Q
'Has Da Bao come to play a chess?'
- Ans1: Dui, ta lai le.
Right, he go PRT
'Right, he has come.'
- Ans2: Dui, ta xia qi lai le.
Right, he play chess come PRT
'Right, he has come to play a chess.'
- Ans3: Dui, ta lai xia qi le.
Right he come play chess PRT
'Right, he has come to play a chess.'
- Ans4: #Dui, ta xia qi le.
Right, he play chess PRT
'Right, he has played a chess.'
- b. Ques: Da Bao kan dianying qu le ma?
Da Bao see movie go PRT Q
'Has Da Bao gone to see a movie?'
- Ans1: Dui, ta qu le.
Right, he go PRT
'Right, he has gone.'
- Ans2: Dui, ta kan dianying qu le.
Right, he see movie go PRT
'Right, he has gone to see a movie.'
- Ans3: Dui, ta qu kan dianying le.
Right he go see movie PRT
'Right, he has gone to see a movie.'
- Ans4: #Dui, ta kan dianying le.
Right, he see movie PRT
'Right, he has seen a movie.'

Second, a scopal adverbial such as *yijing* 'already' scopes over its immediately c-commanded elements, rather than the elements which are more deeply embedded. In (18a), *yijing* scopes over the matrix verb *dasuan* 'plan' rather than the embedded *xue Yingyu* 'learn English'. In the Predicate-*Lai/Qu* Construction (18b) and (18c), we see that *yijing* scopes over *lai* and *qu*, respectively, rather than the predicate phrase *kan luxiang/dianying* 'see video/movie'.

- (18) a. Da Bao yijing dasuan [xue Yingyu] le.
Da Bao already plan learn English PRT
'Da Bao already planned to learn English.'
not: 'Da Bao already learned English.'

- b. Da Bao yijing [kan luxiang] lai le.
 Da Bao already see video come PRT
 ‘Da Bao already came to watch a video.’
 not: ‘Da Bao already watched a video.’
- c. Da Bao yijing [kan dianying] qu le.
 Da Bao already see movie go PRT
 ‘Da Bao already went to see a movie.’
 not: ‘Da Bao already saw a movie.’

This fact tells us that in the Predicate-Lai/Qu Construction, it is *qu* or *lai*, rather than the predicate phrase, that is immediately c-commanded by the adverbial *yijing* ‘already’ in a certain stage of the derivation. Thus the post-predicate *qu* and *lai* are structurally higher than their preceding predicate phrase in the Predicate-Lai/Qu Construction.

Third, in a conjunction construction in Chinese, it is possible to have a complement pro in the second conjunct, co-indexed with the complement of the first conjunct; however, it is impossible to have a null form co-indexed with the matrix verb of the first conjunct, while retaining the complement elements of the first conjunct, in the second conjunct, as shown in (19) and (20). In (19), *tingshuo* ‘hear’ is the matrix verb and the phrase *chu che-huo* ‘occur car-accident’ is the complement of *tingshuo*. In the second conjunct, it is possible to retain *tingshuo* while using a pro to represent the complement phrase, as in (19a); however, it is impossible to retain the complement *chu che-huo* while using an empty category to represent the matrix verb *tingshuo*, as shown by the unacceptable (19b). Similarly, in (20), *xiang* ‘want’ is the matrix verb and *shuijiao* ‘sleep’ is the complement of *xiang*. In the second conjunct, it is possible to retain *xiang* while using a pro to represent the complement *shuijiao*, as in (20a); however, it is impossible to retain the complement *shuijiao* while using an empty category to represent the matrix verb *xiang*, as shown by the unacceptable (20b).

- (19) a. Lao Li tingshuo [chu che-huo]_i le, Lao Gao ye tingshuo pro_i le.
 Lao Li hear occur car-accident PRT Lao Gao also hear PRT
 ‘Lao Li heard that a car-accident had happened, so did Lao Gao.’
- b. *Lao Li tingshuo_i chu che-huo le, Lao Gao ye e_i chu che-huo le.
 L L hear occur car-accident PRT L G also occur car-accident PRT
- (20) a. Lao Li xiang shuijiao_i, Lao Gao ye xiang pro_i.
 Lao Li want sleep Lao Gao also want
 ‘Lao Li wants to sleep, so does Lao Gao.’
- b. *Lao Li xiang_i shuijiao, Lao Gao ye e_i shuijiao.
 Lao Li want sleep Lao Gao also sleep

Following Kayne (1994), we assume that an element asymmetrically c-commands its complement. The above data show that if there is only one overt verbal element in the second conjunct in such constructions, it must be the one whose structural position is higher than the one that is represented by a null form. In the Predicate-Lai/Qu Construction (21) and (22), we see that when *lai* and *qu* rather than the predicate XP *kan luxiang* ‘see video’ are present in the second conjunct, the sentences are acceptable, as shown in (21a) and (22a); while when *kan luxiang* rather than *lai* and *qu* is present in the second conjunct, the sentences are not acceptable, as shown in (21b) and (22b). This contrast indicates that the post-predicate *lai* and *qu* are structurally higher than the predicate XP *kan luxiang* ‘see video’.

- (21) a. Lao Li [kan luxiang] lai le, Lao Gao ye lai le.
 Lao Li see video come PRT Lao Gao also come PRT
 ‘Lao Li has come to watch a video, so has Lao Gao’

- (22) b. *Lao Li [kan luxiang] lai le, Lao Gao ye [kan luxiang] le.
 Lao Li see video come PRT Lao Gao also see video PRT
 a.. Lao Li [kan luxiang] qu le, Lao Gao ye qu le.
 Lao Li see video go PRT Lao Gao also go PRT
 ‘Lao Li has gone to watch a video, so has Lao Gao’
 b. *Lao Li [kan luxiang] qu le, Lao Gao ye [kan luxiang] le.
 Lao Li see video go PRT Lao Gao also see video PRT

The above three facts support the claim that post-predicate *lai* and *qu* are structurally higher than their preceding predicate phrase.

3.3 The post-*lai/qu* le in the Predicate-Lai/Qu Construction

After we have examined each of the two occurrences of *lai/qu* in the Predicate-Lai/Qu Construction in the previous two subsections respectively, we now consider the construction-final *le* in this subsection.

There are two temporal *les* in Chinese. One is a perfect aspect suffix of verbs, and the other is a sentence-final particle. It has long been noted in the literature that the latter *le* is not specified with a perfect aspect reading (Chao 1968, among others. See Zhang 2000 for a recent discussion of the interpretation of this *le*). Since the final *le* in the Predicate-Lai/Qu Construction is right-adjacent to *lai/qu*, it needs to clarify whether it is a perfect aspect suffix of *lai/qu*, or the sentence-final temporal particle *le*. I will argue that it is the latter. Two arguments are presented.

First, other semantically compatible aspect suffixes do not occur with the post-predicate *lai* and *qu*. If the *le* in this position were an aspect suffix of *lai* or *qu*, other semantically appropriate aspect suffixes such as the experiential aspect suffix *guo* should also be able to occur in this position. However, *guo* is banned from this position, as shown below:

- (23) a. Lao Li [kan luxiang] lai {le/*guo}.
 Lao Li see video come PRT/EXP
 ‘Lao Li has come to watch a video.’
 b. Lao Li [kan luxiang] qu {le/*guo}.
 Lao Li see video go PRT/EXP
 ‘Lao Li has gone to watch a video.’

In our data in (1a) and (2a), we have seen that *lai* and *qu* can have *guo* and thus they do not resist *guo* intrinsically. Thus the absence of *guo* to the right of the post-predicate *lai* and *qu* shows that the structural position is not that for an aspect suffix.

Second, a certain constraint on the sentence-final temporal particle *le* is also applied to the *le* which is to the right of the post-predicate *lai* and *qu*. The constraint is generally recognized, although it is controversial how to account for it. The constraint is that the sentence-final temporal particle *le* cannot co-occur with a post-verbal nominal which starts with a numeral, a NumP in Li’s (1998) term, without the support of an aspect suffix on the verb which is semantically related to the NumP. Consider the data in (24):

- (24) a. Lao Wang chi-*(le) san wan fan le.
 Lao Wang eat-PRF three bowl rice PRT
 ‘Lao Wang has eaten three bowls of rice.’
 b. Lao Wang shui-*(le) si ge xiaoshi le.
 Lao Wang sleep-PRF four CL hour PRT
 ‘Lao Wang has slept for four hours.’

- d. *Lao Wang tongyi-(le/guo) yaoqing san ge ren le.
Lao Wang agree-PRF/EXP invite three CL person PRT

In (24a), the object of the verb *chi* ‘eat’ is the NumP *san wan fan* ‘three bowls of rice’. The sentence is unacceptable if the verb does not have the perfect aspect suffix *le*. Similarly, in (24b), the NumP *si ge xiaoshi* ‘four hours’ is semantically related to the verb *shui* ‘sleep’. The sentence is unacceptable if the verb does not have the perfect aspect suffix *le*. In the unacceptable (24c), the NumP *san ge ren* ‘three persons’ is the object of the verb *yaoqing* ‘invite’, which does not have (and in fact cannot have here) an aspect suffix.

In contrast to the sentence-final temporal particle *le*, aspect suffixes can co-occur with a NumP without the support of the sentence-final *le*, as shown in (25):

- (25) a. jintian Lao Wang chi-{le/guo} san wan fan.
today Lao Wang eat-PRF/EXP three bowl rice
‘Lao Wang ate three bowls of rice today.’
b. Lao Wang tongyi-{le/guo} yaoqing san ge ren.
Lao Wang agree-PRF/EXP invite three cl person
‘Lao Wang agreed to invite three persons.’

The effect of this constraint on the sentence-final *le* can be seen in the Predicate-Lai/Qu Construction. In the following (26) and (27), the unacceptable a-sentences differ from the acceptable b-sentences only in the absence of the demonstrative *na* ‘that’ in the object of the predicate XP. In the a-sentences, *na* is absent, and thus the nominal, which starts with the numeral *san* ‘three’, is a NumP, while in the b-sentences, *na* is present, and thus the nominal is not a NumP.

- (26) a. *Lao Li [kan san pan luxiang] lai le.
Lao Li see three CL video come PRT
b. Lao Li [kan na san pan luxiang] lai le.
Lao Li see that three CL video come PRT
‘Lao Li has come to watch those three videos.’
(27) a. *Lao Li [kan san pan luxiang] qu le.
Lao Li see three CL video go PRT
b. Lao Li [kan na san pan luxiang] qu le.
Lao Li see that three CL video go PRT
‘Lao Li has gone to watch those three videos.’

Clearly, the presence of a NumP makes the a-sentences unacceptable. This is exactly what we have seen in (24). Notice that unlike (24a) and (24b), the verb *kan* ‘see’ in (26) and (27) cannot have an aspect suffix in the Predicate-Lai/Qu Construction (to be discussed in 3.5), thus there is no way to remedy the ungrammaticality of the a-sentences in (26) and (27). If the post-*lai/qu* *le* in the Predicate-Lai/Qu Construction were the perfect aspect suffix *le*, data like the a-sentences in (26) and (27) should pattern with the data in (25) in being exempt from the constraint on the sentence-final temporal particle *le*, contrary to the fact. I thus conclude that the post-*lai/qu* *le* in the Predicate-Lai/Qu Construction is the sentence-final temporal particle *le*, and the ungrammaticality of the a-sentences in (26) and (27) is captured by the constraint on the sentence-final temporal particle *le*, regardless of the possible explanation of this constraint.

Based on the above two arguments on the absence of other aspect suffixes and the shared constraint with the sentence-final temporal particle *le*, I claim that the *le* to the right of the post-predicate *lai* and *qu* is the sentence-final temporal particle *le*.

3.4 The raising of *lai* and *qu* to T

If the post-predicate *lai* and *qu* in the Predicate-Lai/Qu Construction are structurally higher than their preceding predicate XP at certain step of the computation (3.2), there are still various possibilities of the derivations. Adopting Kayne (1994), I assume that heads are to the left of their complement (contra Saito & Fukui 1998). One might claim that the pre-*lai/qu* predicate XP undergoes a predicate raising so that it lands to the left of *lai/qu*. However, I will argue for the claim that the Predicate-Lai/Qu Construction is derived by raising of *lai/qu* to T, where the sentence-final temporal marker *le*, according to Sybesma (1997), Zhang (2000), among others, is base-generated.

Before I start to present my arguments, I want to clarify that the question how and why the T-element *le* surfaces to the right of its c-commanded predicate XP is irrelevant to the issue we are working on here. Kayne (1994) claims that all apparent head-final phrases are derived by raising of the complement of the head to the left of the head. Another possibility is that *le* is base-generated at T, which is to the left of the predicate XP, and then raises to C, which is sentence-final in Chinese, however this is derived (Zhang 1997, Tang 1998). The present analysis of the raising of *lai* and *qu* to T is compatible to all of these approaches.

Now I start my four arguments for the raising of *lai* and *qu* to T: the first two support a movement approach in general, and the other two support the claim that the assumed movement is a head movement.

First, the Predicate-Lai/Qu Construction is sensitive to CSC. If a movement occurs with the post-predicate *lai* and *qu*, the relevant structures should exhibit a sensitivity to syntactic principles governing movement operations. Ross's (1967) Coordinate Structure Constraint (CSC) is one of such principles. CSC states that if a constituent α external to a coordinate structure binds a trace in one conjunct C_1 , then α must bind a trace in every conjunct C_n . In (28a) the moved wh-phrase *what* binds a trace in the second conjunct but not in the first conjunct. Thus the sentence is unacceptable. Similarly, in (28b), the raised auxiliary *is* binds a trace in the second conjunct, but not in the first conjunct, and thus the sentence is unacceptable as well.

- (28) a. *What_i did John kiss [Mary and t_i]?
 b. *Is_i [John has come] and [he t_i going to dance]?

Crucially, CSC-effect is not attested with interpretive dependencies such as anaphor-binding and Negative Polarity Items, as shown in (29):

- (29) a. John_i has [fallen] and [hurt himself_i]
 b. Nobody [looked at me] or [said anything]

If the post-predicate *lai* and *qu* did not undergo movement, the Predicate-Lai/Qu Construction should not be sensitive to CSC. However, it is, as shown in (30) and (31):

- (30)a. *[Lao Li bujin lai kan ni], [ta hai chang-le na shou ge] lai le.
 Lao Li not-only come see you he also sing-PRF that CL song come PRT
 b. [Lao Li bujin lai kan ni] lai le, [ta hai chang-le na shou ge].
 Lao Li not-only come see you come PRT he also sing-PRF that CL song
 'Lao Li not only came to see you, but also sang that song.'
 (31)a. *[Lao Li bujin qu kan dianying], [ta hai guang-le shangdian] qu le.
 Lao Li not-only go see movie he also stroll-PRF shop go PRT

- b. [Lao Li bujin qu kan dianying] qu le, [ta hai guang-le shangdian].
 Lao Li not-only go see movie go PRT he also stroll-PRF shop
 ‘Lao Li not only went to see a movie, but also strolled in shops.’

In (30a) and (31a), the post-predicate *lai* and *qu* are to the right of both conjuncts but are related to the first conjunct only. They are not related to the second conjunct since the verbs in the second conjunct have an aspect suffix, which cannot co-occur with a post-predicate *lai/qu* (we mentioned this constraint in section 1, and will discuss it in section 3.5). In (30b) and (31b), however, the post-*lai* and *qu* are to the right of the first conjunct only, and are not computed with the second conjunct. The grammaticality contrast between the a-sentences and the b-sentences shows the effect of CSC, and supports the movement hypothesis.

Second, the two occurrences of *lai/qu* in the Predicate-Lai/Qu Construction suggest the existence of a movement chain. It is hard to give a semantic explanation of the two occurrences of *lai/qu* in the Predicate-Lai/Qu Construction. We have shown that the pre-predicate *lai* and *qu* are sometimes optional and even interchangeable. We have proposed that they are in the head of a functional phrase. The post-predicate *lai* and *qu*, like the pre-predicate ones, cannot have an aspect suffix either (3.3). If they were also base-generated in some independent functional phrase, we cannot explain the over-redundancy of the computation. If the pre-predicate and the post-predicate copies of *lai/qu* form a movement chain, we can assume that both links of the chain are spelled out at PF, and the pre-predicate one is the tail copy of the chain.

It is not difficult to find the similar cases where both the tail and the head of a movement chain are realized phonologically. For instance, Mahajan (2000: 208) shows that Hindi relative clauses can contain repeated head noun, as shown by the two occurrence of *a:dmi*: ‘man’ in (32):

- (32) [jo a:dmi: si:ta:-ko pasand h[☞]] mujhe vo a:dmi: acc^ha: nahi: lagta:
 REL man Sita-DAT like be-PRES I-DAT DEM man nice not seem-IMP
 ‘I do not like the man who Sita likes.’

Another case is the so-called “predicate clefts”, where the clefted predicate has its tail realized phonologically in its base-position, in some languages (Chris Wilder, personal communication). A further case is in child English. The data in (33) are cited from Radford (1997: 265). The speakers are children aged 2-4 years. We see that the head raising of *is* has both overt head and tail copies.

- (33) a. Is the clock is working? (Stem)
 b. Is this is a dog? (Nina)

Furthermore, it has been reported that retaining both the head and the tail copy of a chain at PF is also found in the wh-movement in the American Sign Language (Luis López, personal communication). Thus, the occurrence of the double copies of the movement here in the Predicate-Lai/Qu Construction should not be unexpected.⁵

It should be obvious that the absence of an overt tail copy does not mean the absence of a movement chain. However, the presence of a possible overt tail copy does suggest the presence of a movement chain. It is in this sense I present this argument for the movement of *lai/qu* in the Predicate-Lai/Qu Construction.

⁵ However, Nunes (1995) argues against any possibility of spelling out more than one copy in a chain and tries to reanalyze some putative cases.

However, there is one case where the tail copy of the head chain of *lai/qu* must be deleted at PF. Specifically, if the predicate verb is a directional motion verb such as *jin* ‘enter’, *hui* ‘return’, and *chu* ‘exit’, no copy of *lai/qu* can occur to the left of the verb:

- (34) a. Akiu jin cheng {qu/lai} le.
 Akiu enter town go/come PRT
 ‘Akiu has gone/come to the town.’
 b. *Akiu {qu/lai} jin cheng (qu/lai) le.
 Akiu go/come enter town go/come PRT
- (35) a. Akiu hui jia qu le.
 Akiu return home go PRT
 ‘Akiu has gone to home.’
 b. *Akiu qu hui jia (qu) le.
 Akiu go return home go PRT
- (36) a. Akiu chu guo qu le.
 Akiu exit country go PRT
 ‘Akiu has gone abroad.’
 b. *Akiu qu chu guo (qu) le.
 Akiu go exit country go PRT

The constraint suggests that the functional words *lai* and *qu* in the Predicate-Lai/Qu Construction still have some semantic features of direction, and thus have interactions with directional motion verbs.

Third, the relative order of the post-predicate *lai/qu* to the temporal particle *le* suggests the occurrence of a head adjunction. On the one hand, no element can occur between the post-predicate *lai/qu* and *le*. This immediate adjacency indicates a head adjunction occurs. On the other hand, the position of the post-predicate *lai/qu* is to the immediate left rather than right, of the sentence-final temporal particle *le*.

- (37) a. Lao Li [kan luxiang] {lai/qu} le.
 Lao Li see video come/go PRT
 ‘Lao Li has {come/gone} to watch a video.’
 b. *Lao Li [kan luxiang] le {lai/qu}.
 Lao Li see video PRT come/go

If this *le* is not an aspect suffix of *lai/qu* (3.3), and if the syntactic position of the post-predicate *lai* and *qu* is simply higher than the preceding predicate XP (3.2), why cannot *lai* and *qu* occur to the right of the *le*, as in (37b), if they are base-generated in the high position, or if the predicate XP has raised to their left?

Recall that we have adopted the assumption that the sentence-final temporal *le* is at T. According to Baker (1996) and Kayne (1994), a head adjunction lands to the left of a higher head. If the post-predicate *lai* and *qu* form a chain with the optional pre-predicate *lai* and *qu*, which are at a functional head above AspP and lower than NegP (3.1), then their immediate left-adjacency to the T-element *le* suggests that they may adjoin to *le*, and that is why they must be to the left of *le* if *le* occurs.

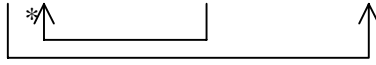
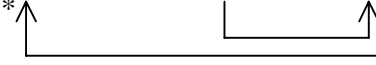
Fourth, the Predicate-Lai/Qu Construction is subject to the constraints on a head movement. The scope relevant to the distance between the two copies of *lai/qu* in the Predicate-Lai/Qu Construction shows the effect of the Head Movement Constraint (HMC Travis 1984), which prevents a head X from moving to a head Z, crossing an intervening head Y, and the clause-bound condition of a head movement, which prevents a head element from moving across a clause boundary. Consider the data in (38):

- (38) a. [TP wo qu [zhunbei youyong] qu].
 I go prepare swim go
 ‘I will go to prepare for swimming.’ ≠ b
- b. wo zhunbei [TP qu youyong qu].
 I prepare go swim go
 ‘I will prepare to go for swimming.’ ≠ a
- c. wo zhunbei youyong qu.
 I prepare swim go
 ‘I will go to prepare for swimming.’ = a
 ‘I will prepare to go for swimming.’ = b
- d. *wo qu zhunbei qu youyong qu.
 I go prepare go swim go

(38a) and (38b) are different in the position of the pre-predicate *qu*. In (38a), the pre-predicate *qu* is to the left of the verb *zhunbei* ‘prepare’, and *qu* scopes over *zhunbei* in the reading. In (38b), however, the pre-predicate *qu* is to the right of *zhunbei*, and *qu* does not scope over *zhunbei* in the reading. (38c) does not have a pre-predicate copy of *qu*, and the sentence is ambiguous between the wide scope of *qu*, as in (38a), and the narrow scope of *qu*, as in (38b). (38d) contains two pre-predicate copies of *qu*. One is to the left of *zhunbei* and the other is to the right of *zhunbei*, and the sentence is not acceptable.

The ambiguity of (38c) is expected, if we assume that the covert copy of the pre-predicate *qu* can be either to the left or the right of *zhunbei*, deriving two readings.

Why is (38d) not acceptable? And why neither (38a) nor (38b) is ambiguous? If (38a) could contain a null copy of *qu* to the right of *zhunbei*, and if (38b) could contain a null copy of *qu* to the left of *zhunbei*, both sentences would be ambiguous. (39) illustrates the two imagined derivations of (38d), where the *qu*-chain has three links:

- (39) a. *wo qu zhunbei [TP qu youyong] qu.
 I go prepare go swim go

- b. *wo qu zhunbei [TP qu youyong qu].
 I go prepare go swim go


Either the clause-bound condition of head movement or HMC can capture the impossibility of the derivations in (39a) and (39b). The clause-bound condition rules out the possibility that a head element moves across a clause, TP here. The short movement in (39a) and the long one in (39b) both violate this condition, since *qu* moves from the lower clause to the higher clause in both cases. On the other hand, the HMC rules out the possibility that a head element moves across another head element. The short movement in (39a) and the long one in (39b) both violate this condition, since *qu* moves across the verb *zhunbei* ‘prepare’ in the higher clause in both cases.

A similar analysis can be applied to the Predicate-Lai Construction. Consider (40):

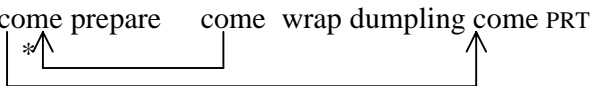
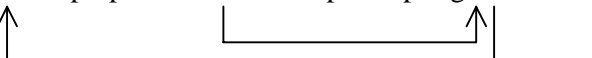
- (40) a. [TP Lao Wang lai [zhunbei bao jiaozi] lai le].
 Lao Wang come prepare wrap dumpling come PRT
 ‘Lao Wang has come to prepare for wrapping dumplings.’ ≠ b

- b. Lao Wang zhunbei [_{TP} lai bao jiaozi lai] le.
 Lao Wang prepare come wrap dumpling come PRT
 ‘Lao Wang has prepared to come for wrapping dumplings.’ ≠ a
- c. Lao Wang zhunbei bao jiaozi lai le.
 Lao Wang prepare wrap dumpling come PRT
 ‘Lao Wang has come to prepare for wrapping dumplings.’ = a
 ‘Lao Wang has prepared to come for wrapping dumplings.’ = b
- d. *Lao Wang lai zhunbei lai bao jiaozi lai le.
 Lao Wang come prepare come wrap dumpling come PRT

(40a) and (40b) are different in the position of the pre-predicate *lai*. In (40a), the pre-predicate *lai* is to the left of the verb *zhunbei* ‘prepare’, and *qu* scopes over *zhunbei* in the reading. In (40b), however, the pre-predicate *lai* is to the right of *zhunbei*, and *lai* does not scope over *zhunbei* in the reading. (40c) does not have a pre-predicate copy of *lai*, and the sentence is ambiguous between the wide scope of *lai* as in (40a), and the narrow scope of *lai*, as in (40b). (40d) contains two pre-predicate copies of *lai*. One is to the left of *zhunbei* and the other is to the right of *zhunbei*, and the sentence is not acceptable.

The ambiguity of (40c) is expected, if we assume that the covert copy of the pre-predicate *lai* can be either to the left or the right of *zhunbei*, deriving two readings.

Why is (40d) not acceptable? And why neither (40a) nor (40b) is ambiguous? If (40a) could contain a null copy of *lai* to the right of *zhunbei*, and if (40b) could contain a null copy of *lai* to the left of *zhunbei*, both sentences would be ambiguous. (41) illustrates the two imagined derivations of (40d), where the *lai*-chain has three links:

- (41) a. *LW lai zhunbei [_{TP} lai bao jiaozi] lai le.
 LW come prepare come wrap dumpling come PRT

- b. *LW lai zhunbei [_{TP} lai bao jiaozi lai] le.
 LW come prepare come wrap dumpling come PRT


Again, either the clause-bound condition of head movement or HMC can capture the impossibility of the derivations in (41a) and (41b). The clause-bound condition rules out the possibility that a head element moves across a clause, TP here. The short movement in (41a) and the long one in (41b) both violate this condition, since *lai* moves from the lower clause to the higher clause in both cases. On the other hand, the HMC rules out the possibility that a head element moves across another head element. The short movement in (41a) and the long one in (41b) both violate this condition, since *lai* moves across the verb *zhunbei* ‘prepare’ in the higher clause in both cases.

Note that a negation word does not block a head movement, since it occurs at a Spec position (Spec of NegP, as generally assumed, or Spec of AuxP, as assumed by Ernst (1995) for Chinese), rather than a head position. Thus a negative Predicate-Lai/Qu Construction such as (15a) is grammatical.

Sum up, in the Predicate-Lai/Qu Construction, we have seen the effect of CSC, which is found in movement chains, the detectable tail of a movement chain (i.e., the possible presence of the pre-predicate lower copy), the expected landing site of a head movement of *lai* and *qu* to T (i.e., to the immediate left of the sentence-final *le*), and the property of being subject to the constraints on a head movement (i.e., the clause-bound constraint and HMC). Neither the in-situ dependency relation hypothesis nor the predicate-raising hypothesis can

capture all of these four aspects. My conclusion is thus that *lai* and *qu* move to T in the Predicate-Lai/Qu Construction.

3.5 To raise or not to raise: an Agree account

If *lai* and *qu* in the Predicate-Lai/Qu Construction are base-generated in the same position as they are in the Lai/Qu-Predicate Construction, why do they raise to T in the former but not in the latter construction?

One constraint on the Predicate-Lai/Qu Construction that we mentioned in section 1 but have not discussed so far is that no aspect suffix can occur with the verb in the predicate XP. The relevant data are (1c), (2c1), and (2c2), repeated here as (42):

- (42) a. Da Bao (lai) [kan-(*{le/zhe/guo}) Lao Li] lai le. (=1c)
 Da Bao come see Lao Li come PRT
 ‘Da Bao has come to see Lao Li.’
- b. zanmen (qu) [mai-(*{le/zhe/guo}) shu] qu. (= 2c1)
 we go buy book go
 ‘Let us go to buy books.’
- c. Da Bao (qu) [mai-(*{le/zhe/guo}) shu] qu le. (=2c2)
 Da Bao go buy book go PRT
 ‘Da Bao has gone to buy books.’

This constraint can be further seen in the contrast among the three sentences in (43):

- (43) a. wo zuo che qu.
 I sit car go
 A: ‘I will go in the way of sitting in a car.’
 B: ‘I will go to sit in a car.’
- b. wo zuo-zhe che qu.
 I sit-PRG car go
 ‘I will go in the way of sitting in a car.’ (= A above)
- c. Wo qu zuo(*-zhe) che qu.
 I go sit -PRG car go
 ‘I will go to sit in a car.’ (= B above)

(43a) is ambiguous. In reading A, *zuo che* ‘sit car’ functions as a manner expression and *qu* ‘go’ is the lexical head of the predicate. In this reading *qu* is a regular verb, as that in (2a). In reading B, the sentence is a Predicate-Qu Construction, where *qu* is a functional word. When an aspect is added to *zuo*, as in (43b), the ambiguity disappears, and the sentence has only reading A. In other words, when there is an aspect suffix with the verb to the left of *qu*, the construction cannot be a Predicate-Qu Construction. (43c) is clearly a Predicate-Qu Construction, in the absence of an aspect with the verb *zuo*.

The Lai/Qu-Predicate Construction, however, does not have this constraint. We have seen the relevant data (1b) and (2b) in section 1. Since we have argued that *lai* and *qu* in both constructions are base-generated at the head of a functional phrase higher than AspP, the constraint can be restated in the following way:

- (44) Lai/Qu cannot raise to T if it c-commands an aspect suffix.

Assume that like English auxiliaries (Roberts 1998), *lai* and *qu* are just collections of formal features whereas main verbs have intrinsic content in addition to their formal features. According to Chomsky (1998, 1999), formal features such as phi (person, number, and

gender) and Case need to be valued by either the in-situ operation Agree with an element that has the corresponding type of feature, or movement to a c-commanding element that has the corresponding type of feature. Assume that *lai* and *qu* have a temporal formal feature [temp], and they need this feature valued by the corresponding [temp] feature of a temporal functional head, Asp or T. Then the occurrence of a c-commanded aspect suffix must have an Agree relation with *lai/qu*, so that [temp] of *lai/qu* is valued. After the operation of Agree, *lai/qu* is frozen in the spot. This is one of the two ways how the Lai/Qu-Predicate Construction is derived.

If, in contrast, *lai/qu* does not have a c-commanded aspect suffix, its [temp] cannot be valued by anything in its complement domain. In this case, *lai/qu* can either move to T to get its [temp] valued by T, or stays in situ and has an Agree relation with the c-commanding T. In the former case, the Predicate-Lai/Qu Construction is derived. In the latter case, the Lai/Qu-Predicate Construction is derived. This is the second way, in addition to the way just now mentioned, to derive the construction. The optionality between raising of *lai/qu* to T and not raising exists since it is not the case that whenever there is no aspect suffix with the verb in the predicate XP, does *lai/qu* always surface to the right of the predicate XP. For instance, in (4b), the verb *kan* ‘see’ has no aspect suffix, and there is no post-predicate *lai* or *qu*. I leave this issue of optionality for future research.

The blocking of raising by the Agree operation with a c-commanded qualified feature is similar to that of the super-raising phenomenon, as shown in (45a). In (45a), the subject *John* cannot undergo A-movement to the matrix clause because its formal features have already been valued by the c-commanded finite T in the embedded clause locally.

- (45) a. *John_i is believed [t_i is intelligent]
 b. John_i is believed [t_i to be intelligent]

Summarizing, in this section I have analyzed the syntactic properties of each of the crucial elements of the Predicate-Lai/Qu Construction: the pre-predicate *lai/qu*, the post-predicate *lai/qu*, the construction-final *le*, and the predicate XP. My conclusions are that the pre-predicate *lai/qu* is merged at the head of a functional phrase above AspP and below NegP, that it forms a head movement chain with the post-predicate *lai/qu*, that the construction-final *le* is the temporal particle *le*, which is at T, that the landing site of the head movement of *lai/qu* is T, and that the formal features of aspect affixes which are c-commanded by *lai/qu* have an Agree relation with *lai/qu* and thus block the head movement.

4. Conclusions and Implications

In this paper I have argued that in Chinese the syntactic position of the pre-predicate *lai* and *qu* is the head of a functional phrase higher than AspP but lower than NegP, that the syntactic position of the post-predicate *lai* and *qu* is T, and that the pre-predicate *lai/qu* and the post-predicate *lai/qu* form a chain of head movement.

The conclusions of this study have the following three implications.

I have shown that if the words *lai* and *qu* are base-generated at V, they can have an aspect suffix; while if they are base-generated at the functional phrase higher than AspP, they cannot. Moreover, if they are merged to the functional phrase which c-commands an aspect affix, they cannot move to T, while if they are merged to the functional phrase which does not c-command an aspect affix, they can move to T. These dependencies imply that the syntactic properties of *lai* and *qu* such as whether they can have an aspect suffix and whether they can move are decided by the position they are base-generated and the structure they are merged into. These dependencies indicate that the syntactic properties of a lexical item are decided in syntax rather than in the lexicon or the item itself. This concurs with the lexical-

unspecification theory of Distributed Morphology (Halle & Marantz 1993, Marantz 1997, etc.).

Second, the occurrence-optionality and interchangeable property of the pre-predicate *lai* and *qu* in the Lai/Qu-Predicate Construction and the Predicate-Lai/Qu Construction suggests that phonological features may occur at some late stage of derivation. Specifically, what is merged at the assumed functional phrase is a bundle of formal features at an early stage of the derivation, and at some late stage of the derivation, the features are either phonologically spelled-out or not, and if they are, they can be spelled-out into either *lai* or *qu*. This hypothesis concords with the late insertion theory of Distributed Morphology.

Third, if *lai* and *qu* can overtly move to T, the claim that there is no movement to T in Chinese (Tsai 1999, among others) is questionable. It is generally recognized that English auxiliaries and modals overtly move to T while regular verbs do not, and French finite verbs overtly move to T while infinitive verbs do not (Pollock 1989, Roberts 1998). It thus seems that the boundary between move to T or not is not between two types of languages in general. Rather, in a single language, both possibilities occur.

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