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Syntactic Structures of Mandarin Purposives (to appear in Linguistics)

Abstract: This paper investigates three constructions in Mandarin, all of which convey a purposive/teleological meaning, including the lai purposive, the hao purposive, and the bare purposive. Despite the fact that each type of purposive clause in Mandarin occurs at the right edge of a sentence, it is argued that none of the purposive clause is a genuine right adjunct in the underlying syntactic structure. On the other hand, our analysis shows that the lai purposive employs complementation of a secondary predicate, the hao purposive involves conjunction of two clauses, and the bare purposive should be analyzed as left adjunction that is stranded in the right edge after verb movement. The evidence for our analysis is drawn from subject and object gaps, the ba-construction in Mandarin, agentivity, and linear ordering of multiple purposive clauses. This work thus demonstrates representative cases where a structure that appears to involve right adjunction may in fact employ no right adjunction at all. The conclusion is thus consistent with the prediction of Kayne’s (1994) Linear Correspondence Axiom (LCA).

Keywords: Mandarin, purposive, LCA, adjunction, phrase structure

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1 Introduction
In this article we investigate the syntactic structures of three “purposive” constructions in Mandarin. By the linking elements that introduce the purposive clauses, we call them the lai purposive, the hao purposive, and the “bare” purposive, respectively. See the examples below:

(1) a. Zhangsan mai-le yi-ge hanbao lai chi.
   Zhangsan buy-PFV one-CLF hamburger LAI eat
   ‘Zhangsan bought a hamburger to eat.’

b. Zhangsan mai-le yi-ge hanbao hao guyue Lisi.
   Zhangsan buy-PFV one-CLF hamburger HAO please Lisi
   ‘Zhangsan bought a hamburger to please Lisi.’

c. Zhangsan mai-le yi-ge hanbao chi.
   Zhangsan buy-PFV one-CLF hamburger eat
   ‘Zhangsan bought a hamburger to eat.’

The lai purposive is characterized by the presence of the linking element lai, which literally means ‘to come’, as in (1a). The hao purposive is characterized by the presence of the linker hao, which literally means ‘good’ or ‘nice’; see (1b). The bare purposive, on the other hand, does not have an overt grammatical linker, and a bare verb phrase occurs at the end of the predicate, as shown in (1c).

One might assume that these purposive clauses are simply adverbial clauses right-adjoined to the main clause, as proposed in Wu (2002). But there are difficulties with the right adjunction analysis. In particular, Mandarin generally does not permit right adjunction, as shown in (2):

4 As pointed out by an anonymous reviewer, one apparent counterexample to the left adjunction rule is the duration/frequency phrases in Chinese (Tang 1994; Sybesma 1999: Ch. 5). However, it has been argued that such phrases are not genuine right adjuncts in the underlying structure, but they are either predicates or complements (see Huang 1982; Li 1987; Li 1990: Ch. 2; Sybesma 1999: Ch. 5). For a recent discussion on this issue, see Liao (2014), who argues that they are numeral-classifier phrases in disguise.
This concern motivates us to look into these Mandarin purposive constructions in more details. It turns out that the three purposive constructions in (1a–c) actually do not constitute a coherent set in terms of their syntactic structures. Specifically, the lai purposive involves complementation of a purposive clause as a secondary predicate, the hao purposive conjunction of two clauses, and the bare purposive left adjunction of a purposive clause to the verb. Thus, none of the purposive constructions employ right adjunction.

The contributions of this work are the following. First, it provides a detailed investigation of the syntactic structures of the three types of purposive constructions in Mandarin, which have not received much attention so far. Second, it provides support to the theory of Kayne (1994). According to Kayne’s (1994: Ch. 2) Linear Correspondence Axiom (LCA), an adjunct of XP is base-generated in a position asymmetrically c-commanding the head X, and therefore, it must precede the head X at PF; thus left adjunction is possible but right adjunction is not (which reflects the temporal asymmetry in Kayne’s assumption), and the apparent rightward adjunction results from the leftward movement of the head(-complement) across the adjunct to a position that in turn asymmetrically c-commands the adjunct, and such a movement results in a reversed order at PF. The word order phenomena in Mandarin generally conform to the LCA. That is, a head or XP always takes its complement to the right, and its adjunct to the left, and Mandarin does not allow right adjunction in the underlying form. Lin (2009) demonstrates that Mandarin phrase structure is representative of the LCA from a wide range of adjunct/complement asymmetries in Mandarin, including the distributions of the locative, goal, and beneficiary phrases, resultative phrases, and other adverbs (see also footnote 13). The Mandarin purposives yet provide more challenging cases. Nevertheless, our analysis shows that what appears to be right adjunction in Mandarin is in fact not so, consistent with the LCA.

The sentence is acceptable only if the first clause is focalized, which might involve leftward focus-fronting (see Cheung 2009).
This work is organized as follows. Section 2 discusses the *laï* purposive, Section 3 the *hao* purposive, and Section 4 the bare purposive. Section 5 discusses the word orders of different combinations of the three purposive clauses in Mandarin sentences and the extra-grammatical factors that may be interfering with our theoretical predictions. Section 6 is the conclusion.

2 The *laï* purposive

For each type of purposive clause, a list of grammatical properties of the purposive clause is given (Section 2.1), and will be followed by a syntactic analysis that accounts for the properties (Section 2.2).

2.1 Properties of the *laï* purposive

We start with the *laï* purposive. Below is a list of properties of the *laï* purposive construction. The list is not meant to be exhaustive; we only examine those properties that have a direct bearing on the syntactic structure of the *laï* purposive.

(A) Obligatory subject gap. For ease of exposition, we call the purposive clause introduced by *laï* the “*laï* clause”. The syntactic subject of the *laï* clause must be phonetically empty, and the reference of the empty subject may vary depending on whether the embedded object is empty or not. When the embedded subject and object are both empty, the former must refer to the semantic subject (or the understood Agent) of the main clause, and the latter refers to the closest argument (or Theme) of the main clause, as shown in the sentences in (3a). The referential condition still holds in the case of passivization. (3b) is ruled out because the embedded subject gap in the *laï* clause does not refer to the Agent, and (3c) shows that the subject gap in the *laï* clause still refers to the Agent (i.e., Zhangsan) when the main predicate is passivized:

(3) a. *Zhangsan*₁ *mai-le yi-ge hanbao j lai e_j </*Lisi/*taziji, chi e_j.
Zhangsan buy-PFV one-CLF hamburger LAI Lisi/he-self eat
‘Zhangsan bought a hamburger to (*Lisi/*himself) eat.’

b. *Zhangsan*₁ *mai-le yi-ge hanbao j lai e_j bei chi e_j.
Zhangsan buy-PFV one-CLF hamburger LAI PASS eat
Intended: ‘Zhangsan bought a hamburger to be eaten.’

c. *Na-ben shuj bei Zhangsan*₁ *mai e_j [laï e_j du e_j].
that-CLF book PASS Zhangsan buy LAI read

On the other hand, when the only argument in the *laï* clause is a subject gap, the gap refers to the closest argument (or Theme) of the main clause:

6 We model our tests after the study of English purposive clauses (Faraci 1974; Jones 1991; Whelpton 1995, Whelpton 2001, Whelpton 2002). Specifically, Jones (1991) argues that the presence/absence of an overt object is correlated with the complement/adjunct distinction of the purposive clause. Whelpton (1995, 2001, and 2002) argues for three types of purposive constructions (purpose, rationale, telic clauses) and provide a detailed event semantic account. For the lack of space, we are not able to provide a detailed comparison of our analysis and Whelpton’s analysis in terms of the syntax-semantics mapping. We leave it for our future work.

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(4) Zhangsan, sheji-le xin-de dianchi lai e_i/j zai-shuili yunzhuan.
Zhangsan design-PFV new-MOD battery LAI in-water operate
‘Zhangsan designed a new battery to operate under water.’

(B) Optional object gap. The object argument of the lai clause may or may not be phonetically empty; see (5a–b). When the object argument is a gap, it must refer to the closest argument in the matrix clause, as in (3a) and (5a). When the object argument is present, as in (5b), the predication relation between the lai clause and the main predicate can also be one of manner or means. Therefore, (5b) means that the event of Zhangsan’s buying a puppy is intended as a means to please Lisi:

(5) a. Zhangsan, mai-le yi-ge hanbao lai e_i chi e_j.
Zhangsan buy-PFV one-CLF hamburger LAI eat
‘Zhangsan bought a hamburger to eat.’

b. Zhangsan, mai-le yi-zhi xiaogou lai e_i quyue Lisi.
Zhangsan buy-PFV one-CLF puppy LAI please Lisi
‘Zhangsan bought a puppy to please Lisi (with the puppy).’

With the observations in (A) and (B), a descriptive generalization of the lai clause is that one of the gaps inside the lai clause must refer to the closest argument in the main clause (usually the Theme argument).\footnote{This is consistent with the purposive clause in English, where the purposive clause indicates the natural or designed purpose of the matrix object (Whelpton 1995, Whelpton 2002):}

(i) a. Mary, sent John into the camp [Op_j tj to find out for heri who the traitor was].
   b. Mary, bought a hamburgerj [Op_j PROi to eat tj].

On the other hand, since Chinese allows empty object pronouns on independent grounds (Huang 1984; Li 2014a), an extra empty object can be observed; e.g. pro in (ii) contextually salient entity:

(ii) Jin-nian muqinjie, ta, dasuan xiekapijan, [Op_j lai PROi song pro_k tj].
   this-year Mother’s.day 3SG plan write card LAI send
   ‘On this year’s Mother’s day, she plans to write a card to give as gift (to her mother).’

\footnote{The condition may seem complicated at first sight, but as we are going to show in Section 2.2, the referential property of the gap in the lai clause is nicely predicted by the empty operator analysis (Browning 1987: 53; Lasnik and Stowell 1991; Whelpton 1995: 141; Williams 1980).}

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(D) The scope of the negation. When a negation occurs in the main predicate of the sentence, the \textit{lai} clause is negated as well, as indicated by the polarity items, \textit{ban-ge ren} ‘(lit.) half person’ and \textit{renhe} ‘any’ in the \textit{lai} clause in (7). The fact from negation shows that the \textit{lai} clause is under the scope of the main predicate of the sentence (this is to be contrasted with the \textit{hao} purposive in Section 3.1).

(7) a. Zhangsan mei-you mai hanbao lai gei ban-ge ren chi.
Zhangsan not-have buy hamburger LAI give.to half-CLF person eat
‘Zhangsan did not buy a hamburger for anyone to eat.’ [NPI reading]
b. Zhangsan mei-you xie kapian lai gei renhe ta renshi de ren.
Zhangsan not-have write card LAI give.to any he know MOD person
(i) ‘Zhangsan did not write a card to anyone that he knows.’ (In fact, Zhangsan never wrote a card.) [NPI reading]
(ii) *‘Zhangsan did not write a card to whoever he knows.’ (He only wrote it to you because he likes you.) [Free choice reading]

The example (7b) further suggests that the \textit{lai} clause must fall in the scope of negation. The ambiguous lexical item \textit{renhe} ‘any’ in Chinese may be interpreted as a negative polarity item (NPI) (when it is under the scope of \textit{mei-you} ‘not-have’ or other polarity licensors) or a free choice item (FCI) (Giannakidou and Cheng 2006). In the \textit{lai} clause (7b), \textit{renhe} ‘any’ can only obtain the NPI reading, suggesting that it must fall under the scope of negation.8

In addition, the \textit{lai} clause cannot express the purpose of a negative action (or the lack of action). Consider (8). While a normal/intended reading is that Zhangsan does not smoke, and his not doing so is for the purpose of health promotion, the \textit{lai} clause (8a) is infelicitous since the sentence would have a preposterous reading – “to promote health by smoking, Zhangsan did not do so.” The fact indicates that the \textit{lai} clause must be interpreted under the negation along with the main predicate. On the other hand, when such a reading is desired, the \textit{hao} clause is employed, as in (8b):

(8) a. #Zhangsan mei-you [chou yan lai zengjin jiankang].
Zhangsan not-have smoke cigarette LAI promote health
Intended: ‘In order to promote health, Zhangsan does not smoke.’
b. [Zhangsan mei-you chou yan] hao zengjin jiankang.
Zhangsan not-have smoke cigarette HAO promote health
‘In order to promote health, Zhangsan does not smoke.’

8 We thank an anonymous reviewer for pointing out the potential FC reading of \textit{any} to us. In Chinese, the FC reading of \textit{renhe} ‘any’ in (7bii) can be achieved by putting a focus-associated negation marker (\textit{bu-shi}) directly before the \textit{lai}-clause. Notice that the focus-associated negation marker cannot license a negative polarity item in Mandarin, as in (ii):

(i) Zhangsan xie kapien bu-shi lai ji-gei renhe ta renshi de ren.
Zhangsan write card not-be LAI send-to any he know MOD person
‘Zhangsan wrote a card, and it is not for anyone he knows.’ (He wrote it for you.)
(ii) Zhangsan bu-shi xihuan renhe ren. Ta shi xihuan ni.
Zhangsan not-be like any person he be like you
‘It is not the case that Zhangsan likes just anybody. He likes you.’
The overall facts then show that the lai clause is located in a position c-commanded by the negation of the main predicate.

(E) The ba-construction. In Mandarin, the object argument of a sentence can be preposed to a preverbal position marked by ba (see Li 2006; Huang et al. 2009: Ch. 5 and the references therein). In general, a grammatical ba sentence requires the ba-object to be “affected” by the predicate, and a typical way of expressing the requirement in Mandarin is by adding a resultative secondary predicate after the ba-predicate, in order to express the affectedness that has led to some result state of the object (or a “bounded” situation) (see Li and Thompson 1981; Liu 1997; Sybesma 1999: Ch. 6, among others). As in (9), the lai clause can occur after the ba-predicate, and expresses a result state of the ba-object (i.e., the novel is affected by the buying event, and the result state of the novel is for Zhangsan to read it).

(9) a. Zhangsan mai na-ben xiaoshuo, lai du e.  
   Zhangsan buy that-CLF novel LAI read  
   ‘Zhangsan bought that novel to read.’

b. Zhangsan ba na-ben xiaoshuo mai lai du e.  
   Zhangsan BA that-CLF novel buy LAI read  
   ‘Zhangsan bought that novel to read.’ (lit. ‘Zhangsan had that novel bought to read.’)

2.2 The structure of the lai purposive

Based on the properties above, we propose that the lai clause is a non-finite CP complement of the main predicate. See the structure in (10): 9

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9 We assume the phrase structure theory proposed in Larson (1988), Tang (1990a), Bowers (1993), Lin (2001), and Li (2014b), among many others, to represent the argument structure in syntax. The subject and the object are base-generated in the Spec-vP (or Spec-PrP) and Spec-VP, respectively, and the complement position is reserved for the secondary predication (see especially Bowers 1993 and the references therein).
In (10) the lai clause is treated as a secondary predicate of the main predicate mai ‘buy’, and the predication relation between the two predicates is mediated by the element lai, which we assume as a C element, whose Spec hosts an empty operator Op (Jones 1991; Whelpton 1995). The empty operator has a bridging function that allows the lai purposive construction to represent the two grammatical roles of the object argument (e.g., na-ben xiaoshuo ‘that novel’). On the one hand, it plays the Theme role in the main predicate; on the other, the lai clause expresses its (intended/designated) purpose. Technically, it is commonly assumed that the empty operator is translated at LF to a predicative variable through lambda abstraction – \( \lambda x. P(x) \) (Browning 1987: 53; Lasnik and Stowell 1991; Whelpton 1995: 141; Williams 1980). The variable is later identified with its closest argument through

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10 We will adopt here the criteria of finiteness and the control theory of subject PRO in Mandarin in Huang (1984), Li (1990), Tang (1990b), and Lin (2015) (but see Hu et al. 2001). The lai clause passes the common criteria of non-finiteness: (a) the verb in the lai clause cannot occur with the aspectual marker -le or a modal auxiliary (ia), and (b) the embedded guo ‘experiential marker; EXP’ can be licensed by the matrix adverb congqian ‘before’ (ib) (see Li and Thompson [1981: Ch. 6] for grammatical aspects in Chinese):

(i) a. Zhangsan mai yi-ben shu lai (*yao) du(*-le)
   Zhangsan buy one-CLF book LAI will read-PFV
   ‘Zhangsan bought a book to read.’

  b. Zhangsan congqian mai na-ben shu lai du guo.
    Zhangsan before buy that-CLF book LAI read EXP
    ‘(lit.) Zhangsan has the experience of buying the book to read.’
predication.\textsuperscript{11} Note that Op can only be identified with the closest argument in the matrix clause, which is usually the Theme argument if the main predicate is a two-place predicate, as in (11).\textsuperscript{12}

\[(11) \quad \text{Subject}_i \ V \ \text{Object}_j \quad [\text{CP} \ Op_1 \ \text{RPO}_1 \ \ldots \ \text{to}_p].\]

If the Op were co-indexed with the matrix subject that controls the PRO in (11), the variable $t_{op}$ would also be locally A-bound by PRO (violating Principle C). On the other hand, when the variable is identified with the matrix object, it is not A-bound in the minimal clause that contains it (see Browning 1987; Chomsky 1986: 85, 109), and no binding violation ensues. This structure accounts for the properties of the lai purposive as follows.

(A) The subject gap. The subject gap has two different statuses depending on whether the lai clause involves the control structure. Either way, however, the subject of the lai clause must be phonetically empty, and the lai clause must hold an Op in its Spec of CP. When the empty subject of the lai clause is a PRO, it is controlled by the matrix subject (or the understood Agent), and the Op in the lai clause must refer to the Theme argument. On the other hand, when the lai clause does not involve the control structure, as in (4)/(12), the gap is an Op that is generated in the subject position of the lai clause, and it subsequently moves to Spec of CP to be identified with the closest argument, battery in (12) (adapted from Whelpton 1995, Whelpton 2002). Notice that there is no interfering PRO in the structure, and hence no Principle C violation in the lai clause:

\[(12) \quad \text{Zhangsan sheji-le  xin-de  dianchi_i} \quad [\text{CP} \ Op_i \ \text{la} \ \text{[t_i  \ zai-shuili yunzhuan]}. \]

\[\text{Zhangsan design-PFV new-MOD battery LAI in-water operate} \]

\[\text{‘Zhangsan designed a new battery to operate under water.’}\]

(B) The object gap. When the lai clause contains an object gap, the object Op moves to the Spec of CP of the lai clause, and is identified with the closest argument (Browning 1987; Whelpton 1995, Whelpton 2002). Through the empty operator, the lai clause represents the purpose related to the Theme argument of the main predicate. The following examples on

\[\text{\textsuperscript{11} One might wonder whether the lai clause can be viewed as a type of (reduced) relative clause of the object, as it also involves identification of the empty operator in the Spec of CP. The relative clause analysis, however, is implausible in Chinese because all relative clauses in Chinese (like other modifier/adjuncts) are leftward. We thank an anonymous reviewer for urging us to clarify this point:}\]

\textsuperscript{(i)} \[\text{[Op_i  Wo  renshi t_i  de]  na  ge  ren_i} \]

\[\text{1SG know MOD that CLF person} \]

\[\text{‘The person (that) I know’}\]

\[\text{\textsuperscript{12} If the main predicate is a one-place predicate, the Op will be identified with the subject argument of the main predicate (being the closest argument in that case), as in the tough-construction in English (i) (Browning 1987 et seq.). We thank an anonymous reviewer for urging us to clarify this point:}\]

\textsuperscript{(i)} \[\text{The problem, is tough [Op_i to solve to}_p]}.\]
long-distance dependency and island sensitivity show that A’-movement is indeed involved in the lai purposive.

(13) Zhangsan mai-le yi-ben xiaoshuo lai rang Lisi yao
    Zhangsan buy-PFV one-CLF novel LAI make Lisi want
    ta meimei yaoqiu Wangwu du [e].
    3SG sister ask Wangwu read
    ‘Zhangsan bought a novel to make Lisi want his sister to ask Wangwu to read.’

(14) *Zhangsan mai-le yi-ben xiaoshuo lai rang Lisi xiangxin
    Zhangsan buy-PFV one-CLF novel LAI make Lisi believe
    Wangwu du-le [e] de shuofa.
    Wangwu read-PFV MOD claim
    Intended: ‘Zhangsan bought a novel to make Lisi believe Wangwu read it.’

(C) The scope of the negation. Syntactically, when the main predicate is in the scope of the negation, the lai clause is also in the scope of the negation. This follows from the structure in (10) as the lai clause and the matrix clause are both c-commanded by the negation, and the test with the ambiguous NPI/FCI renhe ‘any’ (7b) indicates that the lai clause must be interpreted under the negation. Notice that semantically speaking, it is the purposive relation of the whole construction that is being negated or asserted (Whelpton 1995, Whelpton 2001, and Whelpton 2002), rather than the apparent truth value of the lai clause. Therefore, (15) is possible, and the apparent truth value of the lai clause is irrelevant to the purposive relation (the sentence is still true even if the proposition in the lai clause is false):

(15) Zhangsan mai-le hanbao lai chi, danshi ta mei-you chi.
    Zhangsan buy-PFV hamburger LAI eat but 3SG not-have eat
    ‘Zhangsan bought a hamburger to eat, but he did not eat it.’

Likewise, when the purposive relation is negated, it suffices that either the matrix clause is negated or the intended purpose is negated, as indicated by the following pair. Yet, this is irrelevant to the syntactic scope of negation in the underlying structure:

    Zhangsan not-have buy hamburger LAI eat 3SG buy fries
    ‘Zhangsan did not buy a hamburger to eat; he bought fries.’

b. Zhangsan mei-you mai hanbao lai chi. Ta mai lai song Lisi.
    Zhangsan not-have buy hamburger LAI eat 3SG buy LAI give Lisi
    ‘Zhangsan did not buy a hamburger to eat; he bought one for Lisi.’

(D) The ba-construction. One can embed the lai clause under the ba-predicate, and the lai clause provides an object-related “result state” to the ba-predicate. Compare the following two examples:

(17) a. Zhangsan ba na-ben shu na-zou/*na.
    Zhangsan BA that-CLF book take-away/take
    ‘Zhangsan took that book (away).’
b. *Zhangsan ba na-ben shu na [gei Lisi].
   Zhangsan BA that-CLF book take give.to Lisi
   ‘Zhangsan took that book to Lisi.’

c. *Zhangsan ba na-ben shu na [lai song Lisi].
   Zhangsan BA that-CLF book take LAI give Lisi
   ‘Zhangsan took that book to give to Lisi.’

As mentioned above, the *ba-construction in Mandarin requires that the *ba-object be affected by the action denoted by the predicate (see Liu 1997; Li 2006), and one common way of expressing the affectedness in Mandarin is to embed a secondary predicate (a complement resultative phrase) under the *ba-predicate to indicate the result state of the *ba-object. (17a) is ungrammatical with a bare verb *na ‘take’ because bare verbs in Chinese generally cannot entail a result state (cf. *na-zou ‘take away’, which entails a result state of the object). (17b) shows that with an object-related secondary predicate *gei Lisi ‘(give) to Lisi’, the sentence becomes grammatical. Likewise, (17c) shows that the *lai clause must be able to provide a result state of the *ba-NP to the *ba-predicate. Since the object-related resultative phrase is a complement of the main VP (see Bowers 1993; Lin 2009; Zhang 2001), the *lai clause is best analyzed as the complement of the matrix verb (This property is to be contrasted with the bare purposive clause in Section 4). 13

13 There are many examples in Mandarin where the addition of the secondary predicate makes the formation of the *ba-construction possible, for instance the post-verbal *dao ‘to’ phrase and *gei ‘give.to’ phrase in (ia) and (iia), both of which provide the result state to the *ba-object. Lin (2009) argues that these post-verbal phrases are complements due to the pre-verbal and post-verbal asymmetry. In contrast to the post-verbal *dao and *gei phrases (in the canonical complement position), pre-verbal ones (in the canonical adjunct position) cannot satisfy the requirements of the *ba-construction. See Lin (2009) for further discussion:

(i) a. Zhangsan mai dongxi.
   Zhangsan buy thing
   ‘Zhangsan bought things.’

b. *Zhangsan ba dongxi dao Lisi jia mai.
   Zhangsan BA thing to Lisi home buy

c. *Zhangsan ba dongxi mai dao Lisi jia.
   Zhangsan BA thing buy to Lisi home
   ‘Zhangsan had things bought to Lisi’s home.’

(ii) a. Zhangsan jian yu.
   Zhangsan fry fish
   ‘Zhangsan fried the fish.’

b. *Zhangsan ba yu gei Lisi jian.
   Zhangsan BA fish give.to Lisi fry

c. *Zhangsan ba yu jian gei Lisi.
   Zhangsan BA fish fry give.to Lisi
   ‘Zhangsan had the fish fried for Lisi.’
3 The hao purposive

Next we turn to the hao purposive. At first sight, the hao purposive looks very similar to the lai purposive. In fact, in several cases, lai and hao are interchangeable without any significant loss of meaning, e.g. (18):

(18) Zhangsan mai-le yi-ben shu lai/hao quyue Lisi.
    "Zhangsan bought a book to please Lisi."

But a closer examination of the hao purposive reveals that it grammatically differs from the lai purposive in a number of aspects. In what follows, we demonstrate the differences between the two purposive constructions, and argue that the hao purposive involves conjunction of two clausal structures. Section 3.1 lists the properties of the hao purposive. Section 3.2 and Section 3.3 offer a syntactic analysis that explains the properties. Section 3.4 focuses on the atypical behavior of the object argument in the hao clause.

3.1 Properties of the hao purposive

For ease of exposition, we call the clause preceding hao the “pre-hao clause,” and the clause introduced by hao the “hao clause.”

(A) The subject argument of the hao clause. Unlike the lai purposive, the subject argument of the hao clause can optionally be lexically realized. When the subject is lexically realized, it precedes the element hao when it is a definite/specific DP, as in (19b), and when the subject is non-specific indefinite, it follows hao, as in (19c):

(19) a. Zhangsan, mai-le yi-ben xiaoshuo hao quyue Lisi.
    "Zhangsan bought a novel so as to please Lisi."
b. Zhangsan ban-kai zhuozi, Lisi hao tuo diban.
    "Zhangsan moves the table away, so that Lisi can mop the floor."
c. Zhangsan ban-kai zhuozi, hao you-ge ren tuo diban.
    "Zhangsan moves the table away, so that somebody can mop the floor."

(B) The object argument of the hao clause. The question of object gap in the hao purposive is more complicated than that in the lai purposive. In some examples, object gaps do not seem to be readily acceptable, as in (20a); yet in others, object gaps are clearly acceptable, as in (20b). This phenomenon needs an explanation, and we return to this question in Section 3.4.

(20) a. ??Zhangsan mai-le yi-ben xiaoshuo hao du [e].
    "Zhangsan bought a novel so as to read."
b. Zhangsan mai-le yi-ben xiaoshuo hao song-gei Lisi [e].
    "Zhangsan bought a novel to give to Lisi."
(C) The scope of the negation. When a negation occurs in the pre-\textit{hao} clause, its scope only covers the pre-\textit{hao} clause itself but does not extend to the \textit{hao} clause, as indicated by the failure to license the NPI \textit{ban-ge ren} ‘(lit.) half person’ in (21a). Contrary to (7) in the \textit{lai} purposive, the \textit{hao} clause is never negated along. Likewise, (21b) means that Zhangsan does not smoke, and his not doing so is for the purpose of health promotion. The availability of the free choice reading of \textit{renhe} ‘any’ in (21c) further confirms that the \textit{hao} clause is not in the scope of the negation:

\begin{enumerate}
\item a. *Zhangsan mei-you mai xiaoshuo hao quyue ban-ge ren.
\hspace{2em}Zhangsan not-have buy novel HAO please half-CLF person
\hspace{2em}Intended: ‘Zhangsan did not buy the novel to please anybody.’
\item b. Zhangsan mei-you chou yan hao cujin jiankang.
\hspace{2em}Zhangsan not-have smoke cigarette HAO promote health
\hspace{2em}‘In order to promote health, Zhangsan does not smoke.’
\item c. Zhangsan mei-you kai che hao bimian renhe xiang
\hspace{2em}Zhangsan not-have drive car HAO avoid any wish
\hspace{2em}\textit{da shunfengche de ren}.
\hspace{2em}take hitchhike MOD person
\hspace{2em}‘(In order) to avoid anyone who wishes to hitchhike, Zhangsan did not drive his car’ (FC reading only)
\end{enumerate}

(D) The \textit{ba}-construction. In some cases the \textit{hao} clause appears to be incompatible with the \textit{ba} construction. See (22a–b):

\begin{enumerate}
\item a. \textit{Zhangsan mai na-ben xiaoshuo hao quyue Lisi}.
\hspace{2em}Zhangsan buy that-CLF novel HAO please Lisi
\hspace{2em}‘Zhangsan bought that novel so as to please Lisi.’
\item b. *\textit{Zhangsan ba na-ben xiaoshuo mai hao quyue Lisi}.
\hspace{2em}Zhangsan BA that-CLF novel buy HAO please Lisi
\hspace{2em}Intended: ‘Zhangsan bought that novel so as to please Lisi.’
\end{enumerate}

However, there are also cases where the \textit{hao} clause may occur with the \textit{ba}-construction, such as (23):

\begin{enumerate}
\item \textit{Zhangsan ba chuangzi da-kai hao chui-chui liang feng}
\hspace{2em}Zhangsan BA window open HAO blow-blow cold wind
\hspace{2em}‘Zhangsan opened the window to get some cold air.’
\end{enumerate}

Thus, the \textit{hao} purposive is compatible with the \textit{ba}-construction in some cases but not in others.

(E) Agentivity of the main predicate. Another significant difference between the \textit{lai} purposive and the \textit{hao} purposive is that the main predicate before the \textit{lai} purposive must be agentive, but the predicate/clause before the \textit{hao} clause is not necessarily so. See the following examples:
(24) a. *Hu jie-bing le, (women) hao liu bing.*  
   lake freeze SFP 1PL HAO skate ice  
   ‘The lake is frozen, so that [we] can skate.’

b. *Huaduo diaoxie le, guoshi hao chengzhang.*  
   flower wither SFP fruit HAO grow  
   ‘The flower withers, so that the fruit can grow.’

The events of a lake’s being frozen and a flower’s withering do not involve agentivity of a volitional being, and (24a–b) are grammatical. On the other hand, when the element *hao* in (24a) is substituted with *lai*, the sentence becomes infelicitous. See (25):

(25) #*Hu jie bing le lai liu bing.*  
   lake freeze ice SFP LAI skate ice

3.2 The paratactic nature of the *hao* purposive

The properties of the *hao* purposive suggest that it involves paratactic clauses (unlike the subordination of *lai* clause to the matrix clause). First, the scope of the negation indicates that the pre-*hao* clause is itself an independent clause, because the scope of the negation is restricted to the pre-*hao* clause. Second, the fact that the *hao* clause may have an overt lexical subject of its own indicates that the *hao* clause is also an independent clausal structure. These lead to the conclusion that the *hao* purposive involves a paratactic conjunction structure. In this subsection we provide two more pieces of evidence for the paratactic nature of the *hao* purposive.

The first piece of evidence is that we can put an overt conjunctive adverb between the two clauses of the *hao* purposive. See the following examples:

(26) a. *Zhangsan ban zhuozi, ranhou Lisi hao qing diban.*  
   Zhangsan move table then Lisi HAO clean floor  
   ‘Zhangsan moves the table away, so that Lisi may clean the floor.’

b. *Zhangsan kan shu, ranhou hao gai fangzi.*  
   Zhangsan chop tree then HAO build house  
   ‘Zhangsan chopped the trees, so that he could build a house.’

14 We thank an anonymous reviewer for urging us to clarify this point.

15 An anonymous reviewer correctly points out that the conjunction *ranhou* ‘then’ implies a temporal sequence between the two conjuncts. Therefore, not every *hao* sentence can be conjoined by *ranhou*, especially when a temporal sequence is not relevant:

(i) *Zhangsan mei-you shou yan (ranhou) hao cujin jiankang.*  
   Zhangsan not-have smoke cigarette then HAO promote health  
   ‘Zhangsan does not smoke, in order to promote his health.’

In this case, we assume that there is a silent conjunction that does not refer to the temporal sequence. Crucially, even when a temporal sequence is involved, the *lai* clause (or the bare purposive) cannot be conjoined by *ranhou* ‘then’.

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c. Ta shuo: “Ba jihua gaosu ni, ranhou hao rang ni ba qingbao mai-gei bie-ren?”
‘He said: “[Do you want me to] tell you the plan, so that you could sell the intelligence to other people?”’

In comparison, the conjunctive adverb ranhou ‘then’ cannot be inserted into the lai purposive, as in (27). This fact thus indicates that the hao purposive involves conjunction of two clauses.

(27) Zhangsan mai zuanshi (*ranhou) lai quyue Lisi.
Zhangsan buy diamond then LAI please Lisi
‘(Intended) Zhangsan bought a diamond to please his wife.’

The second piece of evidence is the independent status of the hao clause. If the hao purposive involves conjunction of two clauses, one expects that the hao clause could be used as a typical full clause in syntax. At first sight this does not seem correct since (28) cannot be used out of the blue (without a preceding clause like Zhangsan did so):

(28) #(Zhangsan zheyang zuo) ta hao quyue Lisi.
Zhangsan so do 3SG HAO please Lisi
‘In order to please Lisi, Zhangsan did so.’

But what actually goes wrong in (28) is not syntax, but semantics. A hao clause requires another clause as its semantic antecedent. The fact that the requirement is semantic in nature can be proven by the following examples, in which the hao clause is embedded within an adverbial clause:

(29) a. Buguo ruguo yao guo-lai dehua, yiding yao xian shuo o, yinwei wo hao qu mai mianbei gen zhentou.17
but if want come-over if must want first speak MOOD because I HAO go buy quilt and pillow
‘But if [you guys] are coming over, [you] must let me know first, since so that I will go buy quilts and pillows.’

b. Weile hao ba gongzuo xian jiancha yi bian, for HAO BA work first check one time Zhangsan jintian lai-de tebie zao.
Zhangsan today come-MOD particularly early
‘In order to check the work first, Zhangsan came particularly early today.’

In these two sentences, the hao clause is embedded within a reason adverbial clause, so it cannot be linked to the main clause in a direct syntactic way. These examples therefore show

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17 Source: http://www.osa.nchu.edu.tw/group/group16/magazine/191/friendessay.htm
that the *hao* clause only requires a semantic antecedent. As long as the semantic condition is satisfied, the *hao* clause can be used as a typical full clause in syntax. In conclusion, the evidence points to a paratactic conjunction analysis for the *hao* purposive. The *hao* clause is not a rightward adjunct, either.

### 3.3 The structural analysis of the *hao* purposive

We propose that the *hao* purposive be analyzed in the following way:

(30) a. Zhangsan mai-le yi-ben xiaoshuo *hao* quyue Lisi.
    Zhangsan buy-PFV one-CLF novel *HAO* please Lisi
    ‘Zhangsan bought a novel so as to please Lisi.’

b. 

![Diagram of ConjP with CP and Conj]

We assume that both the pre- *hao* clause and the *hao* clause are CPs conjoined under the projection ConjP. We assume that *hao* is a CP-level mood element, representing the speaker’s evaluation of the logical connection between the two conjoined clauses (A *hao* B: A allows for B). It is of interest to examine the corresponding element of *hao* in another Chinese dialect, Southern Min, where *hoh* ‘(lit.) good/nice’ can be used as a deontic modal marker that expresses the speaker’s own attitude towards the situation:

(31) a. Li *hoh* chia a!
    2SG *good* eat SFP
    ‘You are allowed to/had better eat it!’

b. Ong-e *hoh* khi khun a!
    Ong-e *good* go sleep SFG
    ‘Ong-e is allowed to/had better go to bed!’

In this respect, Mandarin purposive *hao* simply differs slightly from Southern Min *hoh* in that the former expresses the speaker’s evaluation between the two conjoined clauses, in a way that the situation in the pre-*hao* clause allows for/facilitates the situation in the *hao*-clause.19

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18 The conjunction here can be attributed to a type of relator in the sense of den Dikken (2006), where a functional head introduces a predication relation between the two related/conjoined syntactic objects. Here, the predication relation is established between the two clauses with a meaning of “facilitation/allowance.”
19 The “allowance” reading is also reflected in the use of *hao* as an affirmative interjection:
If we adopt Cinque’s (1999) hierarchy of the functional heads in the left periphery, it is plausible to say that Mandarin *hao* is located in the (higher) Mood\textsubscript{Evaluative} Phrase and Southern Min *hoh* in the (lower) Mod\textsubscript{Permission} Phrase.

Our analysis accounts for the properties of the *hao* purposive as follows.

(A) The subject argument of the *hao* clause. The subject argument of the *hao* clause can be phonetically empty, in which case it is a *pro*. Alternatively, it can be lexically realized, as in examples like (19b–c). Unlike the subject PRO in the *lai* clause, the *pro* subject of the *hao* clause does not need to refer to the subject argument of the pre-*hao* clause; it can refer to a salient nominal in the context or assume a generic reference, as in (24a). One remaining question is why a definite/specific subject precedes *hao*, and a nonspecific one follows *hao*. We believe that this is due to the topicalization effect in Chinese, as shown in Tsai (2015), where it is argued that the definite/specific subject in Chinese needs to surface in the clause-initial topic position, hence leaving the evaluative mood element in the second position, as in (32a), and the non-specific subject must remain in the canonical subject position, hence following the mood element, as in (32b):

(32) a. *(Zhangsan) jingran (*Zhangsan) qu Niuyue nianshu.*
   Zhangsan unexpectedly Zhangsan go New.York study
   ‘Unexpectedly, Zhangsan studies in New York.’
   b. *(Henshao ren) jingran henshao ren qu Niuyue nianshu.*
   few person unexpectedly few people go New.York study
   ‘Unexpectedly, few people study in New York.’

If *hao* heads the Mood\textsubscript{Evaluative} P, as in our analysis, then the distribution of the overt subject in the *hao* purposive can be fully accounted for.

(B) The object argument of the *hao* clause. See the next subsection.

(C) The scope of the negation. According to the structure (30b), the scope of the negation is limited to the first CP, i.e. the pre-*hao* clause, and it does not extend to the second CP, i.e. the *hao* clause, because a negation cannot c-command out of its own clause.

(D) The *ba*-construction. It was observed that the *hao* purposive is compatible with the *ba*-construction in some cases but not in others. In the acceptable cases, the pre-*hao* clause itself can stand alone as a grammatical *ba* sentence, as in (33). On the other hand, in the less acceptable cases, the pre-*hao* clause is not a good *ba* sentence, as in (34) (and the *hao* clause, being an independent clause, is not able to provide the resultative complement phrase to the pre-*hao ba*-sentence):

(33) a. *[Zhangsan ba chuangzi dakai] hao chui-chui liang feng.*
   Zhangsan BA window open HAO blow-blow cold wind

   (i) A: *Wo keyi qu youyong ma?*  B: *Hao!*
   1SG can go swim SFP good
   ‘May I go swimming?’   ‘Okay’
‘Zhangsan opened the window to get some cold air.’

b. Zhangsan ba chuangzi dakai.
Zhangsan BA window open
‘Zhangsan opened the window.’

(34) a. ??[Zhangsan ba na-ben xiaoshuo mai-le] hao quyue Lisi.
Zhangsan BA that-CLF novel buy-PFV HAO please Lisi
Intended: ‘Zhangsan bought that novel so as to please Lisi.’

b. ??Zhangsan ba na-ben xiaoshuo mai-le.
Zhangsan BA that-CLF novel buy-PFV
Intended: ‘Zhangsan bought that novel.’

Thus, what undergoes the ba-transformation is the pre-hao clause; the hao clause is irrelevant. This is predicted by the bi-clausal analysis since the pre-hao and the hao clauses are syntactically two independent clauses.

(E) Agentivity of the pre-hao clause. The pre-hao clause may denote a situation without agentivity of a volitional being. This is due to the meaning of the linking element hao, which simply conveys that the situation in the pre-hao clause facilitates the situation in the hao-clause. The “facilitation” meaning of the hao purposive can be further illustrated in contrast to the lai purposive, as shown in the following examples:

(35) a. Zhangsan kan shu [lai PRO i gai fangzi].
Zhangsan chop tree LAI build house
‘Zhangsan cut trees to build a house.’

b. Zhangsan kan shu [(dajia) hao gai fangzi].
Zhangsan chop tree people HAO build house
‘Zhangsan cut trees so that he/people could build a house.’

In (35a), the trees are necessarily understood as the means (to be accurate, the instrument, i.e. the construction material) of building the house, and the builder of the house must be Zhangsan. This interpretation follows from the syntax of the lai purposive, where the PRO in the infinitive clause is controlled by the subject (or the understood Agent), and the predication relation between the object shu ‘tree’ and the empty category in the lai purposive is established through the empty operator. Such a reading, however, can be absent in (35b). (35b) can be interpreted in such a way that the event of Zhangsan’s chopping trees facilitates the house-building in some other way (for instance, to make space for the construction site), and the builder does not have to be the subject Zhangsan. This contrast shows that the pre-hao clause and the hao clause are only linked semantically through the facilitation reading (since they are in a coordinate structure). This is why the pre-hao clause can denote a situation that involves no agentivity.

3.4 The object argument of the hao clause
Now we turn to the question of the object gap in the hao clause. It was observed that the object gap in the hao clause is acceptable in some cases, but unacceptable in others. The examples are repeated here.
An intriguing phenomenon is that those unacceptable examples with object gaps can be made acceptable if some additional modifications are added to the hao clauses. See the following contrast:

(37) a. ??Zhangsan mai yi-fen baozhi hao du [e].
   Zhangsan buy one-CLF newspaper HAO read
   Intended: ‘Zhangsan bought a newspaper to read.’

b. Zhangsan mai yi-fen baozhi hao zi ji du [e].
   Zhangsan buy one-CLF newspaper HAO self read
   ‘Zhangsan bought a newspaper so that he could read [it] alone’

c. Zhangsan mai yi-fen baozhi hao man man du [e].
   Zhangsan buy one-CLF newspaper HAO slowly read
   ‘Zhangsan bought a newspaper so that he could read [it] slowly.’

(37a) has an object gap and is not fully acceptable. Intriguingly, in (37b–c), the presence of the adverbial modifiers zi ji ‘by oneself’ and man man ‘slowly’ improve the sentences.

We propose that the reason behind this perplexing phenomenon is not syntactic, but is rather pragmatic. The hao purposive permits the object gap when the hao clause is not only relevant to the preceding clause, but is also informative enough to convey a “remarkable purpose or outcome” (following Whelpton 1995, Whelpton 2001). Such a requirement may also follow from the Maxim of Quantity in Grice (1975). For example, reading a newspaper is, in a sense, the most typical consequence of buying a newspaper, hence carrying minimal information content, but reading the newspaper alone or reading it slowly is not, both of which add some quantity of information to the purpose of buying the newspaper. This is why the insertion of the adverbial modifiers zi ji ‘self’ and man man ‘slowly’ may improve the acceptability of the sentences in (37b–c). See also the following examples:

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20 Whelpton (1995, 2001) (see also Minkoff 1994) notices that the modification is anomalous when the telic clause in English conveys a subsequent event that is fully expected, as in (i):

(i)  #a. Billy came home, to put down his coat and briefcase.
    #b. Billy came home, to watch TV.

On the other hand, Whelpton (2001: 333) argues that a legitimate telic clause should meet the following two conditions: (i) “a set of expectations about projected outcomes” and (ii) “the element of uncertainty or unpredictability about the specific event that will satisfy or answer those expectations.” That is to say, it must represent a “remarkable outcome” of the preceding event. While the hao purposive cannot be fully compared to the telic clause in English, the pragmatic condition is similar in both constructions. That is, they must convey a “remarkable purpose/outcome.” We thank an anonymous reviewer for pointing this out to us.
If someone buys a hamburger, it is most common to expect that she or he will eat it, rather than have someone else take it home to give it to a third party. This is clearly the factor that distinguishes (37a)/(38a) from the rest of the examples. Admittedly, the “quantity of information” is a pragmatic notion that is hard to characterize formally; however, there seems to be a contrast between (37a)/(38a) and the rest of the examples, in that the hao-clauses in the former denote some sorts of “normal purposes” that only carry minimal information content. We leave the relevant questions for future study. However, it is clear that the conditions that govern the acceptability of the hao-clause may not be entirely syntactic in nature, and, as a result, these conditions do not affect the structural analysis of the hao purposive in (30b).  

4 The bare purposive
In this section, we examine the bare purposive. We argue that the bare purposive is best analyzed as an adjunct clause left-adjoined to the phrase structure.

4.1 The properties of the bare purposive
Wu (2002: 154-155) has already proposed that the bare purposive clause is a rightward adjunct clause to V’, as in (39a–b).

(39)  a. Libai mai LGB kan.
   Libai buy LGB read
‘Libai bought LGB to read.

21 If our analysis is on the right track, Chinese has at least two types of empty objects (contra Xu 1986). One is the empty operator base-generated in the object position in the lai clause, which is always empty. The object gap in the hao clause, on the other hand, is attributed to the empty object pronoun, which is commonly assumed in Chinese (see also Aoun and Li 2008; Li 2014a). The null object pronoun can optionally be filled with a lexical DP, as in (i):

(i) Zhanpsan mai-le [yi-jian xin chenshan], hao rang Lisi
   Zhanpsan buy-PFV one-CLF new shirt HAO let Lisi
   chuan-zhe pro/[na-jian xin chenshan], qu shang-ban.
   wear-DUR that-CLF new shirt to go-work
‘Zhangsan bought a new shirt, so that he could have Lisi go to work wearing that new shirt.’
We provide further evidence to show that the bare purposive clause is indeed an adjunct clause (but we diverge from Wu in proposing that the bare purposive should be a “leftward” adjunct).

(A) Subject and object. Similar to the *lai* purposive, the subject argument of the bare purposive clause must be phonetically empty; see (40a–b). The object argument of the bare purposive can be phonetically overt or covert. If the embedded object is overt, then the matrix object is understood as the manner or means by which the purpose is achieved; see (40c).

   Zhangsan buy-PFV one-CLF novel read
   ‘Zhangsan bought a novel to read.’
   b. *Zhangsan mai-le yi-ben xiaoshuo j Lisi du [ej].
   Zhangsan buy-PFV one-CLF novel Lisi read
   Intended: ‘Zhangsan bought a novel for Lisi to read.’
   c. *Zhangsan mai-le yi-ba tie-chui qiao dingzi.
   Zhangsan buy-PFV one-CLF iron-hammer hit nail
   ‘Zhangsan bought a hammer to hit the nail with.’

(B) The scope of the negation. The bare purposive clause must fall within the scope of the negation in the main predicate. Therefore, the polarity items *ban-ge ren* ‘(lit.) half person’ and *renhe* ‘any’ can only have the NPI reading, and the latter cannot have the FC reading:

(41) a. *Zhangsan mei-you mai xiaoshuo [song ban-ge ren]
   Zhangsan not-have buy novel give half-CLF person
   ‘Zhangsan did not buy any novel to give to anyone.’
   b. *Zhangsan mei-you xie kapian [ji-gei renheta renshi de ren].
   Zhangsan not-have write card send-to any 3SG know MOD person
   (i) ‘Zhangsan did not write a card to anyone he knows.’ [NPI reading]
   (ii) **‘Zhangsan did not write cards to whoever he knows.’ [FC reading]

On a par with the *lai* clause and in contrast to the *hao* clause, the bare purposive clause cannot be interpreted as a purpose of the lack of action (42), indicating that the bare purpose clause must remain in the scope of the negation. Therefore, like its *lai*-clause counterpart, (42) has an infelicitous reading:
(42) #Zhangsan mei-you [chou yan cujin jiankang].
   Zhangsan not-have smoke cigarette promote health
   ‘By smoking cigarette to promote health, Zhangsan did not do so.’

(C) The ba-construction. Unlike the lai purposive, but similar to the hao purposive, the bare
purposive is compatible with the ba-construction in some cases but not in others.22

(43) a. Zhangsan ba na-ben xiaoshuo mai-le ??(lai) du.
   Zhangsan BA that-CLF novel buy-PFV LAI read
   ‘Zhangsan bought that novel to read.’

   b. Zhangsan ba na-zhi gou lingyang *(lai) fangsheng.
   Zhangsan BA that-CLF dog adopt LAI release
   ‘Zhangsan adopted the dog to release to the wild.’

(44) Zhangsan ba na-ben xiaoshuo na chulai du.
   Zhangsan BA that-CLF novel take out read
   ‘Zhangsan took that novel out to read.’

4.2 The structural analysis of the bare purposive
The following considerations suggest that the bare purposive clause is a V’-level adjunct
clause. First, the bare purposive clause is within the scope of the negation in the main
predicate, indicating that it is c-commanded (along with the main predicate) by the negation.
Second, the (in-)compatibility of the bare purposive clause with the ba-construction suggests
that the bare purposive clause should be an adjunct clause, because it cannot function as a
secondary predicate that provides a result state of the ba-object to the predicate (recall that
this is in sharp contrast to the lai purposive, which is a complement that can provide a result
state). Note also that A’-movement must be involved in the bare purposive, as it exhibits
long-distance dependency and island sensitivity, as in (45):

22 An anonymous reviewer points out that compound formation might be a factor here. Tang
(2002), for example, observes that the object extraction is not acceptable in the control
structure when the control verb is monosyllabic, but is more acceptable when the control verb
is disyllabic, as in (ia–b) below. The reason behind the contrast is that two adjacent
monosyllabic verbs automatically form compounds, and when the object is extracted, the
sentence is ruled out if the formed compound is not salient (i.e. *jiao-chi):

   (i) a. Zhangsan jiao/yaoqiu Lisi chi fan.
       Zhangsan ask/request Lisi eat rice
       ‘Zhangsan asked/requested Lisi to eat rice.’

       b. Lisi bei Zhagnsan *jiao/ok yaoqiu chi fan.
       Lisi BEI Zhangsan ask/request eat rice
       ‘Lisi was requested to eat rice by Zhangsan.’

   The “compounding” factor can be filtered out if we employ a verbal suffix (43a) or disyllabic
verbs (43b). In such cases, the sentences are still unacceptable in the bare purposive form.
Since the verb combinations are not compounds in (43), the unacceptability of the sentences
without lai is then attributed to the syntactic factor (that the bare purposive is not the
complement).
(45) a. Zhangsan mai-le yi-ben xiaoshuo rang Lisi yaoqiu
    Zhangsan buy-PFV one-CLF novel make Lisi ask
    Wangwu du [e].
    Wangwu read
    ‘Zhangsan bought a novel to make Lisi ask Wangwu to read.’

b. *Zhangsan mai-le yi-ben xiaoshuo rang Lisi xiangxin
    Zhangsan buy-PFV one-CLF novel let Lisi believe
    Wangwu du-le [e] de shuofa.
    Wangwu read-PFV MOD claim
    Intended: ‘Zhangsan bought a novel to make Lisi believe the claim that Wangwu has
    read it.’

The above conclusion may support Wu’s (2002) adjunction analysis, but we diverge from
Wu’s analysis in one point, the direction of the adjunct. We propose that the bare purposive
clause is in fact ‘left-adjointed’ to the predicate, and it is stranded at the right end of the
sentence due to the movement of the main verb to v. See (46a–b) for illustration.23

    Zhangsan buy one-CLF novel read
    ‘Zhangsan bought a novel to read.

23 An anonymous reviewer correctly points out that (46) is not compatible with the original
version of LCA in Kayne (1994), where an adjunct and specifier cannot co-occur in an XP
because they would create an ordering problem (they c-command each other). The problem
can be avoided if we assume a dynamic version of LCA (Chomsky 1995; Moro 2000), where
the bare purposive CP is adjoined to V, and the subsequent raising of V would eventually
work around the ordering problem. In addition, the object DP might move to a higher
functional projection (depending on the theory assumed, an object DP may move to AgrP in
Pollock [1989], to vP in Chomsky [1995: 352], or is based generated in an object vP in Lin
[2001: Ch. 4]). Again, the ordering problem can be avoided with additional function heads
that have been assumed on independent grounds.
Evidence in favor of the left adjunction analysis comes from the relative positions between the *lai* purposive and the bare purposive. If the bare purposive were right-adjointed to the VP of the sentence, it should follow the *lai* clause in the linear order, as illustrated below:

(47) Predicted (incorrect) linear order from the right adjunction analysis:
*[lai purposive] >> [bare purposive]*
(48a), however, shows that the above word order is unattainable:

(48) a. *Zhangsan [vP mai shu tV1 [CP lai song Lisi]] [CP hua-guang qian].
   Intended: ‘Zhangsan bought a book to send it to Lisi to spend up the money.’
   
b. Zhangsan mai shu song Lisi lai hua-guang qian.
   ‘Zhangsan bought a book to send to Lisi so as to spend up the money.’

When both the *lai* purposive and the bare purposive convey the purposes of the main predicate, the *lai* purposive clause cannot precede the bare purposive, as in (48a). Such ordering challenges the right adjunction analysis. If the bare purposive clause were a right V'-adjunct of the matrix VP, we would wrongly predict that (48a) is grammatical. On the other hand, when both purposive clauses convey the purposes of the main predicate, the reversed ordering (i.e., the bare purposive precedes the *lai* purposive) is observed, as in (48b). The left adjunction analysis of the bare purposive thus successfully accounts for the contrast between (48a) and (48b). According to the left adjunction analysis, the bare purposive clause naturally occurs to the left of the *lai* purposive clause, the former being a V'-adjunct of the matrix verb, and the latter being a complement clause stranded by verb movement, as in (49):

![Diagram of sentence structure](image)

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24 One can find apparent counterexamples where the bare purposive clause conveys the purpose of the *lai* clause, but not the main predicate. In such cases, the bare purposive (CP2 in [i]) is adjoined to the V' inside the *lai* purposive clause (CP1), and CP2 represents a purpose of CP1 (see also the next section):

(i) Zhangsan hua yiqian-yuan [CP1 lai [vP v-mai shu [V'CP2 song Lisi tV]]].
   Intended: ‘Zhangsan spent a thousand dollar to buy gifts to send to Lisi.’

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25
The structure in (46b) accounts for the properties of the bare purposive as follows.

(A) Subject and object. On a par with the *lai* purposive, the subject argument of the purposive can be PRO or Op (when PRO does not occur). The former must be controlled by the understood Agent and the empty object gap is an Op identified with the Theme argument. When the control structure is not involved, the embedded subject gap is an Op identified with the Theme argument. If both the subject and object arguments are referentially fixed, an Op is generated in the Spec of CP of the bare purposive clause instead, and the identified Theme is understood as the means or manner in the bare purposive.

(B) The scope of the negation. The bare purposive clause is in the c-command domain of the main predicate and thus falls within the scope of the negation, as evidenced by the obligatory NPI reading of *renhe* ‘any’ in (41b).

(C) The *ba*-construction. On a par with the *hao* purposive, the bare purposive clause plays little role in the formation of the *ba*-construction. What matters is whether the main predicate of the sentence could itself be legitimately transformed to the *ba*-construction. This can be verified directly with the examples (43) and (44). Since the bare purposive clause is not the complement, it cannot provide the required object with a result state during the formation of the *ba*-construction.

An anonymous reviewer points out that (50a) appears to be a counterexample to our analysis. The reviewer suggests that the *[gei-NP-V]* phrase is a bare purposive clause headed by the verb *ting* ‘listen’ due to the fact that the verb cannot be omitted even in the non-*ba*-counterpart (50b), and the embedded V is modified by the *[gei-NP]* phrase:

(50) a. Zhangsan ba na-shou ge chang [gei Lisi *(ting)*].
   Zhangsan BA that-CLF song sing give.to Lisi listen
   ‘Zhangsan sang that song for Lisi (to listen to).’

b. Zhangsan chang na-shou ge [gei Lisi *(ting)*].
   Zhangsan sing that-CLF song give.to Lisi listen
   ‘Zhangsan sang the song for Lisi to listen to.’

We contend that the *[gei-NP-V]* phrase is not a bare purposive clause, but it is a secondary predicate complement. In fact, the *[gei-NP-V]* construction has been investigated at length in Ting and Chang (2004) and Lin and Huang (2015). For Ting and Chang (2004), *gei* in (50) is analyzed as a complementizer (similar to English *for*), which heads the CP complement. Lin and Huang (2015) argue for a unified analysis of *gei* by proposing that *gei* is a (light) verb that may take different types of complements, and the various interpretations of *gei* hinge on the type of complement selected. Lin and Huang (2015: 331) assume that in its purposive use, the (light) verb *gei* takes an IP complement, which contains the verb *ting* ‘listen’ in (50). The syntax of the purposive *gei* is illustrated in (51). The (light) verb *gei* may also undergo head movement to the embedded C position in (51) (resulting in a similar analysis to Ting and Chang 2004). Importantly, in either analysis, it is argued that the *gei* phrase in (50) is contained in the complement phrase of the matrix verb *chang* ‘sing’. Since it is not a modifier of the embedded VP, the embedded clause should not be analyzed as a bare purposive.
The apparent exception to the \textit{ba-}construction test is not restricted to \textit{gei} alone. Other grammaticalized verbs may also introduce a resultative complement phrase that looks like a bare purposive, including the purposive \textit{lai} ‘come/purposive marker’ (see Section 2), the resultative \textit{de} ‘obtain/resultative marker’ (Huang 1988), and the locative \textit{dao} and \textit{jin} ‘enter/locative marker’ (Lin 2009). These elements are all ambiguous between a verbal use and a grammaticalized use, yet when they are embedded, they are grammatical linkers that may introduce an object-related resultative phrase as the complement (Bowers 1993; Lin 2009; Zhang 2001); therefore, they are compatible with the \textit{ba-}construction.\footnote{The same reviewer points out another problematic case regarding \textit{rang} ‘let/cause’, which is another (grammaticalized) verbal element that appears to lead a bare purposive clause: (i) \textit{Wo yao ba zhe-ben shu jin san-ge xiaoshi [rang ta landiao]. I want BA this-CLF book soak three-CLF hour let 3SG rot} ‘I want to soak the book for three hours to let it rot.’ Close scrutiny, however, reveals that the \textit{rang} clause cannot be analyzed as the bare purposive, and it is not a complement clause, either. On the other hand, \textit{rang} actually takes a (nominalized) sentential clause as its subject. The evidence comes from the fact that the negation in the \textit{pre-rang} clause does not c-command the \textit{rang}-clause.}

\begin{itemize}
\item \textit{(51) The syntax of purposive \textit{gei} (from Lin and Huang 2015: 331)\n
\begin{tikzpicture}
\node (Zhangsan) at (0,0) {$\text{Zhangsan}_j$};
\node (VP) [above of=Zhangsan] {$\text{VP}$};
\node (v) [above of=VP] {$v$};
\node (v') [right of=v] {$v'$};
\node (DP) [above of=v] {$\text{DP}$};
\node (gei) [below of=v'] {$\text{gei}$};
\node (chang) [below of=gei] {$\text{chang}$};
\node (‘song’) [above of=chang] {$\text{‘song’}$};
\node (C) [below of=VP] {$\text{C}$};
\node (C') [right of=C] {$\text{C'}$};
\node (CP) [right of=VP] {$\text{CP}$};
\node (Op) [below of=CP] {$\text{Op}_i$};
\node (V) [above of=Op] {$\text{V}$};
\node (‘listen’) [right of=V] {$\text{‘listen’}$};
\node (PROj) [below of=VP] {$\text{PRO}_j$};
\node (V') [right of=V] {$v'$};
\node (Lisi) [below of=V'] {$\text{Lisi}_k$};
\node (PROk) [right of=Lisi] {$\text{PRO}_k$};
\node (ting) [right of=PROk] {$\text{ting}$};
\node (tOpi) [right of=ting] {$t_{\text{Opi}}$};
\node (Opi) [below of=V'] {$\text{Opi}$};
\node (P) [below of=V'] {$\ell$};
\node (O) [above of=V'] {$\ell$};
\node (PROk) [below of=VP] {$\text{PRO}_k$};
\node (gei) [below of=VP] {$\text{gei}$};
\node (Zhangsan) [below of=VP] {$\text{Zhangsan}_j$};
\node (DP) [below of=VP] {$\text{DP}$};
\node (v) [below of=VP] {$v$};
\node (v') [right of=v] {$v'$};
\node (V) [right of=VP] {$\text{V}$};
\node (‘listen’) [right of=V] {$\text{‘listen’}$};
\node (PROj) [below of=VP] {$\text{PRO}_j$};
\node (V') [right of=V] {$v'$};
\node (Lisi) [below of=V'] {$\text{Lisi}_k$};
\node (PROk) [right of=Lisi] {$\text{PRO}_k$};
\node (ting) [right of=PROk] {$\text{ting}$};
\node (tOpi) [right of=ting] {$t_{\text{Opi}}$};
\node (Opi) [below of=V'] {$\text{Opi}$};
\node (P) [below of=V'] {$\ell$};
\node (O) [above of=V'] {$\ell$};
\node (PROk) [below of=VP] {$\text{PRO}_k$};
\node (gei) [below of=VP] {$\text{gei}$};
\node (Zhangsan) [below of=VP] {$\text{Zhangsan}_j$};
\node (DP) [below of=VP] {$\text{DP}$};
\node (v) [below of=VP] {$v$};
\node (v') [right of=v] {$v'$};
\node (V) [right of=VP] {$\text{V}$};
\node (‘listen’) [right of=V] {$\text{‘listen’}$};
\node (PROj) [below of=VP] {$\text{PRO}_j$};
\node (V') [right of=V] {$v'$};
\node (Lisi) [below of=V'] {$\text{Lisi}_k$};
\node (PROk) [right of=Lisi] {$\text{PRO}_k$};
\node (ting) [right of=PROk] {$\text{ting}$};
\node (tOpi) [right of=ting] {$t_{\text{Opi}}$};
\node (Opi) [below of=V'] {$\text{Opi}$};
\node (P) [below of=V'] {$\ell$};
\node (O) [above of=V'] {$\ell$};
\node (PROk) [below of=VP] {$\text{PRO}_k$};
\node (gei) [below of=VP] {$\text{gei}$};
\end{tikzpicture}

The apparent exception to the \textit{ba-}construction test is not restricted to \textit{gei} alone. Other grammaticalized verbs may also introduce a resultative complement phrase that looks like a bare purposive, including the purposive \textit{lai} ‘come/purposive marker’ (see Section 2), the resultative \textit{de} ‘obtain/resultative marker’ (Huang 1988), and the locative \textit{dao} and \textit{jin} ‘enter/locative marker’ (Lin 2009). These elements are all ambiguous between a verbal use and a grammaticalized use, yet when they are embedded, they are grammatical linkers that may introduce an object-related resultative phrase as the complement (Bowers 1993; Lin 2009; Zhang 2001); therefore, they are compatible with the \textit{ba-}construction.\footnote{The same reviewer points out another problematic case regarding \textit{rang} ‘let/cause’, which is another (grammaticalized) verbal element that appears to lead a bare purposive clause: (i) \textit{Wo yao ba zhe-ben shu jin san-ge xiaoshi [rang ta landiao]. I want BA this-CLF book soak three-CLF hour let 3SG rot} ‘I want to soak the book for three hours to let it rot.’ Close scrutiny, however, reveals that the \textit{rang} clause cannot be analyzed as the bare purposive, and it is not a complement clause, either. On the other hand, \textit{rang} actually takes a (nominalized) sentential clause as its subject. The evidence comes from the fact that the negation in the \textit{pre-rang} clause does not c-command the \textit{rang}-clause.}

\end{itemize}
These grammaticalized verbs are in sharp contrast to the regular non-grammaticalized verbs, like 'chi 'eat' and 'du 'read', which cannot function as grammatical linkers that introduce a resultative complement, and we assume that the regular verbs may enter the structure only by adjunction as the bare purposive clause. As a result, they are not compatible with the ba-construction.

Overall, the facts from the word order, the scope of negation, and the ba-construction unanimously suggest that the bare purposive clause is best analyzed as a leftward adjunct.

5 Multiple occurrences of purposive clauses in a sentence
Since the three different types of purposive clauses involve different structure-building strategies, it is predicted that they could co-occur in a single sentence in a strict order. This prediction is borne out. The example (53a) contains all three types of purposive clauses, in the order of [bare purposive – lai purposive – hao purposive]. Note that this order is predicted to be the canonical order. The hao purposive clause is an independent clause, hence following the other two types of purposive clauses, which are subordinates of the pre-hao clause. Besides, as already shown, the bare purposive clause is a left adjunct of the main predicate of the sentence, whereas the lai purposive clause is a complement clause of the main verb of the sentence. This puts the lai clause after the bare purposive clause after the V-to-v movement of the verb. See (53b):

(iii) a. [Zhangsan mei-you mai na-tai che] (de shi) rang
       Zhangsan not-have buy that-CLF car DE thing RANG
dajia hen gaoxing.
       everyone very happy
       ‘The fact that Zhangsan did not buy the car pleases everyone.’
       **‘It is not the case that Zhangsan bought the car to please everyone.’

b. Zhangsan mei-you kao dangao *rang/GEI ban-ge ren chi.
       Zhangsan not-have bake cake RANG/GEI half-CLF person eat
       ‘Zhangsan did not bake a cake for anyone to eat.’

We leave pending the detailed analysis of the rang clause, while noting that it does not constitute a counterexample to our generalization regarding the ba-construction test.
However, the possible combinations that can be found of different types of purposive clauses are in fact not limited to this ordering only. The hao purposive clause can be found preceding the lai purposive clause or the bare purposive clause, as in (54a) and (54b), respectively:

(54) a. Zhangsan mai-le yiben xiaoshuo [hao wanshang
Zhangsan buy-PFV one-CLF novel HAO night
yuedu] [lai dafa shijian].
read LAI kill time
‘Zhangsan bought a novel to read at night to kill the time.’

b. Zhangsan mai-le yi-ben xiaoshuo /hao zai sushe-li
Zhangsan buy-PFV one-CLF novel HAO at dormitory-in
du] [xuanyao ta dong wenxue].
read brag 3SG understand literature
‘Zhangsan bought a novel to read in the dormitory to brag that he understands literature.’

We argue that these sentences are acceptable because the predicate of a purposive clause itself may take another purposive clause. Thus, the following two structures can both be possible, depending on the meanings and structures of the two purposive clauses.

(55) a. … [purposive clause 1] [purposive clause 2]

b. … [purposive clause 1 [purposive clause 2]]

We argue that examples such as (54a–b) are instances of (55b), where a lai purposive clause and a bare purposive clause are further embedded in a hao purposive clause. The evidence is that in both examples, the sequence of hao purposive followed by the lai purposive or the bare purposive constitutes a legitimate purposive sentence as well. Observe the following examples:

(56) a. Zhangsan wanshang yuedu xiaoshuo lai dafa shijian.
Zhangsan night read novel LAI kill time
‘Zhangsan read a novel at night to kill the time.’

b. Zhangsan zai sushe-li du xiaoshuo xuanyao
ta dong wenxue.
3SG understand literature
‘Zhangsan read a novel in the dormitory to brag that he understands literature.’
Therefore, due to the “purposive within purposive” strategy, multiple occurrences of purposive clauses in a sentence are open to flexible ordering possibilities.26

Another non-structural factor that crucially affects the ordering of purposive clause in a sentence is the “inclusiveness” of the purposes. Consider the following case, where P1 and P2 are purposive clauses:

(57) Main clause – P1 – P2

It turns out that, in terms of meaning, P2 has to be more “inclusive” than P1, in the sense that P2 expresses a purpose that can be implied from the purpose expressed by P1 according to our world knowledge. In other words, P2 must be able to include P1 as a “sub-purpose”. Look at (58) for demonstration. In (58a), the first purpose $chi$ ‘to eat’ implies the second purpose $tianbao duzi$ ‘to fill stomach’, so this sentence is semantically acceptable. On the other hand, (58b) is unacceptable, where the order of the purposive clauses is such that $tianbao duzi$ ‘to fill one’s stomach’ comes first and then $chi$ ‘to eat’ comes second. Notice that even though $chi$ ‘to eat’ is introduced by $lai$ and the order [bare purposive clause – $lai$ purposive clause] follows the canonical order of two types of purposive clauses in our analysis, the resulting sentence is ungrammatical. This is because it makes no sense to say that one first fills one’s stomach so that one eats food; conceptually, eating does not take filling one’s stomach as a reasonable sub-purpose. This causal chain simply does not make sense.

(58) a. Zhangsan mai mianbao $chi$ $lai$ $tianbao duzi$.
   
   Zhangsan buy bread eat LAI fill stomach
   ‘Zhangsan bought bread to eat to fill his stomach.’

b. #Zhangsan mai mianbao $tianbao duzi$ $lai$ $chi$.

Zhangsan buy bread fill stomach LAI eat
Intended: ‘Zhangsan bought bread to fill his stomach so as to eat.’

Note also that the “inclusiveness” of the different purposive clauses does not necessarily coincide with the temporal precedence relation among the purposive clauses. In (59), or (48a), for example, P1 [song Lisi] ‘to send (the book) to Lisi’ need not precede P2 [ba qian $hua$-guang] ‘to spend up the money’ in the temporal ordering, because as soon as the book is

26 The possible structures of multiple purposive clauses in a sentence are not limited to (55a–b). For example, it is possible for a sentence to take two distinct $lai$ purposive clauses, but a pause is required between them, as in (i):

(i) Zhangsan mai-le yi-ben shu $lai$ kan, $lai$ dafa shijian.

Zhangsan buy-PFV one-CLF book LAI read LAI kill time

‘Zhangsan bought a book to read to kill time.’

Since $lai$ purposive clauses are complements, this sentence involves complementation of multiple $lai$ clauses to the verb. We will not provide a detailed analysis for the sentence (i). We would simply like to point out that the discussion in this section is not meant to be exhaustive on the possible combinations of purposive clauses in a sentence (e.g. multiple bare purposive clauses in a sentence appear to be possible, too). We leave the relevant questions aside.
purchased, the money may have been spent up (P2), while the action of sending the book to Lisi (P1) could happen later in time.

(59) Zhangsan mai shu [P1 song Lisi] [P2 lai ba qian hua-guang/
Zhangsan buy book send Lisi LAI BA money spend-up
‘Zhangsan bought a book to send to Lisi so as to spend up the money.’

6 Concluding Remarks
In this paper, we examine the three types of Mandarin purposive clauses, the lai purposive, the hao purposive, and the bare purposive. It is shown that the lai purposive involves complementation, the bare purposive left-adjunction, and the hao purposive conjunction. Notice that these strategies are all consistent with Kayne’s LCA. This does not seem to be a coincidence, but a general pattern of Chinese phrase structure. For instance, Simpson and Wu (2002) argue that the sentence-final particle/complementizer kong of the Southern Min dialect results from movement of TP to Spec of CP, leaving the complementizer kong behind. Lin (2009) and Takita (2009) argue that a similar analysis can be applied to the sentence-final perfect particle le in Mandarin. These studies show that what appears to be head-final can in fact be head-initial, consistent with the prediction of the LCA. Based on these and other phenomena in Mandarin, Lin (2009) claims that Mandarin exhibits strong Kaynean characteristics and can be said to be a prototypical “Kanyean” language at a descriptive level, as the modifier always precedes the modified head, the complement always follows the head, and there is no right adjunction in the language. The analyses of the Mandarin purposives argued for in this paper, therefore, amount to one more piece of evidence for Lin’s (2009) claim. It also adds strength to the hypothesis of LCA in Kayne (1994).

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27 Also see Escribano (2004), López (2009), and Simpson and Bhattacharya (2003), among many others, for attempts to analyze phenomena that seem to contradict the LCA in the Kaynean approach.
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