Selectional restrictions of tenses and temporal reference of Chinese bare sentences

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Abstract

This paper discusses temporal reference of Chinese bare sentences without any time adverb or tense-like marker. We argue that temporal reference of such sentences can be resolved by selectional restrictions of two empty tenses, i.e., covert present tense and covert past tense. We show that while covert present tense must select a homogeneous situation as its complement, covert past tense must select a heterogeneous situation as its complement. We also argue that covert tenses must be distinguished from empty tenses that agree with time adverbs, because the latter do not have selectional restrictions.

Keywords: Temporal reference; Tense(s); Aspect; Bare sentences; Selectional restrictions of tenses; Agreement tenses; Descriptive complements; Resultative complements

1. Introduction

A great difference between Mandarin Chinese and the Indo-European languages lies in grammaticalization of tense morphology. To express the location of an event or state in time axis, the Indo-European languages often make use of verbal inflections. For example, English uses the verbal suffix -ed to express past tense and -e(s) to indicate present tense. In comparison, Chinese does not have verbal inflections corresponding to English -ed and -e(s). In other words, tense morphology in Mandarin Chinese is not grammaticalized. If temporal reference in Mandarin Chinese is not indicated by verbal morphology, how is it determined? A common assumption is
that Mandarin Chinese expresses its temporal reference by temporal adverbs such as zuotian ‘yesterday’, ming nian ‘next year’ or by aspectual markers such as le and guo, or by the context in which a given sentence is uttered. There is no doubt that time adverbs, aspectual markers and the context of utterance play a very important role in resolving temporal reference of Chinese sentences. However, if we carefully look at the data, we will find that a large number of Chinese sentences contain neither time adverbs nor aspectual markers. Nor is it necessary to resort to the context of utterance to determine their temporal reference. For example, independently of any context, the sentences in (1) can be easily construed as present tense sentences and those in (2) as past tense sentences.

(1) a. Wo shi xuesheng
   I be student
   ‘I am a student.’

   b. Ta hen chengshi
      he very honest
      ‘He is very honest.’

   c. Wo xiangxin ta hui lai
      I believe he will come
      ‘I believe he will come.’

(2) a. Ta song wo yi ben shu
      he give me one CL book
      ‘He gave me a book.’

   b. Ta ma wo bendan
      he call me idiot
      ‘He called me an idiot.’

   c. Ta quan wo xuan lingwai yige timu
      he advise me choose another one CL topic
      ‘He advised me to choose another topic.’

In this paper, we will refer to sentences like those in (1) as covert present tense sentences and sentences like those in (2) as covert past tense sentences. We will use the cover term ‘bare sentences’ to refer to sentences with a covert tense. Bare sentences do not contain a time adverb or tense-like element such as le and guo, which provide important information that helps resolve temporal reference of the sentence. We will come back to the temporal semantics of le and guo later.

The use of covert tenses is not only a major characteristic of Mandarin Chinese but also a typological distinguishing feature between the Chinese dialects and the Indo-European languages. It is a pity, however, that previous studies of temporal reference in the Chinese dialects have paid little attention to this phenomenon, let alone account for how covert tenses are interpreted. The major purpose of this paper is to fill this gap by proposing a plausible theory that may systematically explain when a covert tense gets which interpretation. Our theory mainly consists of two hypotheses:
(A) Covert present tense must select a homogeneous situation as its complement.
(B) Covert past tense must select a heterogeneous (quantized) situation as its complement.

In the text, we will provide more linguistic facts to support the above two hypotheses. We will also discuss other relevant tense phenomena, showing that there are two kinds of empty tenses in Chinese, one being covert tenses, which are subject to selectional restrictions, and the other being agreement tenses, which are not subject to selectional restrictions.

This paper is organized as follows. After explaining what tenses mean in Section 2, we will in Section 3 discuss the different sentence patterns that manifest covert present and covert past tense. Then in Section 4, we will propose a theory that may account for the interpretations of covert tenses. In Section 5, we will extend our analysis to temporal reference of bare sentences with a de-complement. Section 6 will examine issues related to future tense. Section 7 will focus on time adverbs and their relation to tenses as well as the differences between covert tenses and agreement tenses. In Section 8, we will make some comments on Smith and Erbaugh’s recent analysis about temporal information of Chinese sentences. Finally Section 9 is a conclusion of this article.

2. The meaning of tenses

Traditionally, tenses are understood as the location of an event or state in time axis relative to a reference time, which is usually the speech time. When an event or state takes place or holds before the speech time, the tense is past tense; when the situation is reversed, the tense is a future tense; when a process or state overlaps with the speech time, the tense is a present tense. It is this sense of absolute tense that we mean when we say that a covert tense is a present or past tense. However, tense can also be relative rather than absolute, when the reference time is not necessarily the speech time (Comrie, 1985).

3. Sentence patterns of covert tenses

In this section, we will discuss some typical sentence types that manifest covert present and past tenses.

3.1. Covert present tense

The most typical bare sentences manifesting covert present tense are those that contain a stative adjective, verb or modal auxiliary.

(3) Stative Adjectives
   a. Ta hen congming
      he very clever
      ‘He is very clever.’
b. Wo hen gaoxing ni lai
   I very happy you come
   ‘I am very happy that you come.’
c. Ta bi ni gao
   he than you tall
   ‘He is taller than you.’

(4) Stative Verbs
a. Wo xiangxin ni
   I believe you
   ‘I believe you.’
b. Ta renwei ni cuo le
   he think you wrong ASP
   ‘He thinks that you are wrong.’
c. Zhe ge pijia shuyu wo-de
   this CL purse belong me-DE
   ‘This purse belongs to me.’

(5) Stative Modal Auxiliaries/Verbs
a. Ta hui xie zi
   he can write character
   ‘He can write characters.’
b. Ni yinggai bang ta
   you should help him
   ‘You should help him.’
c. Ni chezi keyi ting zai zheli
   you car may stop in here
   ‘You may stop your car here.’

A second type of bare sentence that has covert present tense interpretation is generic or habitual sentences.

(6) a. Diqui rao taiyang xuanzhan
   earth turn sun around
   ‘The earth turns around the sun.’
b. Ni da lanqiu ma?
   you play basketball Q
   ‘Do you play basketball?’
c. Ta zi xie de hen piaoliang
   he character write DE very beautiful
   ‘He writes characters beautifully.’

A third type of bare sentence is those sentences containing an activity VP and a locative PP headed by the preposition zai ‘in’, as is illustrated in (7).
The interpretation of this type of sentence is completely identical to that of a progressive sentence.

Finally, sentences with the progressive marker zai or the durative (continuative) marker zhe may also get the covert present tense reading.

Some remarks are in order to clarify why sentences with the progressive marker zai and the durative marker zhe are bare sentences. In this paper, we contrast sentences containing zai and zhe with sentences containing the perfective marker le and the experiential marker guo. While the first type of sentence is analyzed as bare sentences, the second type of sentence is not. Thus, in contrast to (8a) and (8b), (9a) and (9b) are not treated as bare sentences, though zai, zhe, le and guo have all traditionally been assumed to be aspectual markers by Chinese linguists.

Although le, guo, zai and zhe have all traditionally been assumed to be aspectual markers, they are different in that zai and zhe are pure aspectual markers but le and guo involve not only an aspectual meaning but also contribute to temporal location of the eventuality that they modify. In fact, le and guo are sometimes treated as a tense-like element—more precisely, a relative past tense marker (e.g. Shi, 1990; Ross, 1995; Zhang, 1998a, b; Lin, 2000). The claim that zai and zhe do not make a contribution to the temporal location of an eventuality but le and guo do is supported by the fact that the former are compatible with time adverbs indicating past, present or future time but the latter are more restricted in their co-occurrence with time...
adverbs or tense-like elements such as hui ‘will’. This difference can be illustrated by the contrast between the following two sets of examples.

(10) a. Zaoshang liu dian de-shihou, wo hai zai shuijiao morning six o’clock when I still Prog sleep ‘I was still sleeping at six o’clock this morning.’
    b. Ta xianzai zai shuijiao he now Prog sleep ‘He is sleeping now.’
    c. Xiawu san dian, wo keneng hai zai gongzuo afternoon three o’clock I probably still Prog work ‘I will probably still be working at three o’clock this afternoon.’
    d. Ta zuotian chuan-zhe yi-jian xin yifu (qu canjia wuhui) he yesterday wear-DUR one-CL new dress go attend party ‘He wore a new dress yesterday (to attend a party).’
    e. Ta xianzai hai baochi-zhe mei tian zuo yundong de xiguan he now still keep-DUR every day do exercise DE habit ‘He now still keeps the habit of doing exercises every day.’
    f. Wo mingtian hui dai-zhe wo de xiaohai yiqi qu I tomorrow will bring-DUR I DE child together go ‘Tomorrow I will bring my child to go together.’

(11) a. Ta zuotian mai-le yi ben xin shu he yesterday buy-PERF one-CL new book ‘He bought a new book yesterday.’
    b. Wo xianzai zu-le yi-jian gongyu, (gen pengyou yiqi zhu) I now rent-PERF one-CL apartment with friend together live ‘I now have rented an apartment (and lived together with a friend).’
    c. *Wo mingtian hui mai-le yi-ben xin shu I tomorrow will buy-ASP one-CL new book ‘I will have bought a new book tomorrow.’
    d. Ta shang-ge yue qu-guo meiguo he last-CL month go-EXP America ‘He went to America last month.’
    e. *Ta xianzai zu-guo yi-jian gongyu he now rent-EXP one-CL apartment ‘He now has rented an apartment.’
    f. *Ta ming nian hui qu-guo meiguo he next year will go-EXP America ‘He will have been to America next year.’

The examples in (10) clearly show that the only component of meaning of zai and zhe is to convey the progressiveness or continuation of a durative situation. They say nothing about the temporal location of the situation. Thus, they are able to
occur with a time adverb with any time specification. So, sentences with zai and zhe are treated as bare sentences.

In contrast, the examples in (11) show that le and guo are more inclined to occur with a time adverb indicating a past time location.  

This is quite evident for guo, as the ungrammaticality of (11e) and (11f) indicate. As for le, although it seems to have a present tense interpretation in some context as in (11b), the initial subinterval of the situation must precede the speech time in order for the sentence to be true as Lin (2000) has argued. Thus, the meaning of le in (11b) still involves some kind of past. We agree with this view. In fact, Shi (1990), Ross (1995) and Lin (2000, in press) have proposed that le expresses relative anteriority of a situation, though their details differ. The view that le is tense-sensitive is further supported by the fact that future time adverbs are not allowed in locative inversion sentences, though it has been sometimes claimed that le and zhe may alternate in such constructions, as a referee pointed out to us. Compare (12) with (13).

(12) a. Qiang shang gua-le yi fu hua  
    wall on hang-PERF one CL painting  
    ‘On the wall hangs a painting.’

b. Qiang shang gua-zhe yi fu hua  
    wall on hang-DUR one CL painting  
    ‘On the wall hangs a painting.’

(13) a. *Mingtian qiang shang (hui) gua-le yi fu hua  
         tomorrow wall on will hang-PERF one CL painting  
    ‘On the wall hangs a painting tomorrow.’

b. Mingtian qiang shang hui gua-zhe yi fu hua

Guo and le may actually occur in a future context, but it must be embedded to a subordinate clause as the examples in (i) and (ii) show.

(i) Deng ni ting-guo ta tan gangqin yihou, ni jiu hui zhidao ta de jiqiao  
    wait you hear-EXP he play piano after you then will know he DE skill  
    you duo hao  
    have how good  
    ‘After you have heard him play piano, you will know how good his skill is.’

(ii) Deng ni bi-le-ye yihou, wo hui mai yi-bu che gei ni  
    wait you graduate-PERF after I will buy one-CL car for you  
    ‘After you have graduated, I will buy a new car for you.’

These examples are accommodated under a relative past tense analysis proposed in Lin (2000). Also notice that le occurs with a future time adverb in contexts like the following:

(iii) Mingtian zhe shihou wo yinggai yijing likai-le nanjing  
    tomorrow this moment I should already leave-PERF Nanjing  
    ‘I should have already left Nanjing by this moment tomorrow.’

However, in such examples, the future time adverb specifies a reference time rather than an event time. For a detailed analysis of why le is allowed in (iii), see Lin (2000) for a detailed discussion.
tomorrow wall on will hang-DUR one CL painting
‘On the wall will hang a painting tomorrow.’

If the above discussion is correct, then the nature of le and guo are clearly different from zai and zhe, because the meaning of le and guo involves not only an aspectual component but also a component in locating a situation to the past relative to a reference time (Lin, 2000). It is precisely for this reason that sentences containing le and guo are excluded from the category of bare sentences. We refer readers to Lin (in press) for a more detailed analysis of these four tense-aspectual elements.

3.2. Covert past tense

As mentioned at the outset of this article, not every bare sentence in Chinese is construed as a present tense sentence. Many bare sentences are interpreted as having a past tense. We give more examples below.

(14) Ta dapuo yi ge hua ping
he break one CL flower vase
‘He broke a flower vase.’
(15) Ta ba wo gang-chu jiaoshi
he BA me drive-out classroom
‘He drove me out of the classroom.’
(16) Ta zai Shanghai chu-sheng
he in Shanghai give-birth
‘He was born in Shanghai.’
(17) Wo zai lu shang yujian yi wei lao taitai, shuo ta yishi pibao
I in road on meet one CL old woman say she lose purse
‘I met an old woman in a street, who said she lost her purse.’
(18) Ta dakai shubao, na-chu yi die chaopiao gei wo kan
he open schoolbag take-out one pile paper-money give me see
‘He opened the schoolbag and took out a pile of paper money, and showed it to me.’
(19) Ta gen wo shuo Lisi bu qu
he to me say Lisi not go
‘He told me that Lisi wouldn’t go.’
(20) Ta qiangpuo wo xiu ta-de ke
he force me take his class
‘He forced me to take his class.’
(21) Didi bang wo xiang-dao yi-ge hen hao de fangfa
brother help me think-of one-CL very good DE method
‘Brother thought of a very good idea for me.’
(22) Ta jujyue huida wo-de wenti
he refuse answer my question
‘He refused to answer my question.’
The above examples show that both simplex and complex bare sentences may get a covert past tense interpretation. They also indicate that examples with a covert tense are not exceptions but are a quite general phenomenon. Therefore, systematic principles are needed to explain when a covert tense may obtain a past tense interpretation and when it may obtain a past tense interpretation.

Although covert tense is a common phenomenon in Mandarin Chinese, it is not true that every sentence may employ covert tense to express temporal reference. For example, all the sentences below are ungrammatical regardless of whether they are construed as having a present or past tense.

(23) "Ta si
he die
(24) "Wo gai yi dong fangzi
I build one CL house
(25) "Ta xiuli nabu che
he fix that car
(26) "Ta yang yi-tiao yu
he raise one-CL fish
(27) "Ta mai mianbao
he buy bread

In order for the above sentences to express a certain tense, one has to add an aspectual marker or modal verb such as le, guo, zai or hui, bixu, etc.

(28) Ta si-le
he die-PERF
‘He died.’
(29) Wo gai-le yi dong fangzi
I build-PERF one CL house
‘I built a house.’
(30) Ta xiuli-guo nabu che
he fix-PERF that car
‘He fixed that car before.’
(31) Ta yang-guo yi-tiao yu
he raise-PERF one-CL fish
‘He raised a fish before.’
(32) Ta zai mai mianbao
he PROG buy bread
‘He is buying bread.’

Honestly, we do not understand why sentences like (23)–(27) may not use covert tense to express temporal reference; nor is it clear to us when an aspectual marker is
obligatory or optional or even impossible. There are some discussions of this issue in the literature as in Zhang (1998a,b) and Lin (2002). Although this issue is related to the use of covert tenses, it is an issue independent of what covert tenses mean. So, we will not try to review Zhang’s and Lin’s discussions. Our focus will be on the question of what interpretation a covert tense should get when it is permitted.

4. Selectional restrictions of covert tenses

In the last section, we pointed out that there exist a large amount of sentences in Mandarin Chinese which use covert tenses to express temporal reference. For some of these sentences, the meaning of a covert tense is similar to that of English past tense marker—ed; for some other sentences, the meaning of a covert tense is very close to that of the English present tense marker—e(s). Given that a covert tense may be interpreted as past tense sometimes and as present tense some other times, the question arises as to when a covert tense should get which interpretation. Notice that bare sentences are generally not ambiguous. This indicates that the interpretation of a covert tense must be subject to some rules. The question is what the rules are.

To begin with, let us look at the bare sentences in (3)–(8) again. These examples all get a covert present tense meaning. What property do these sentences have in common? To answer this question, let us first explore some analyses of progressive and generic/habitual sentences in the literature. Many scholars have analyzed both types of sentences as stative sentences. For progressive sentences, we have at least Vlach (1981, 1993), Mufwene (1984), Saurer (1984), Dowty (1986), Langacker (1987), Mittwoch (1988), Parsons (1990); for generic/habitual sentences, we have at least Leech (1971), Mufwene (1984), Partee (1984), Chung and Timberlake (1985), Rot (1987), Smith (1991). If both progressive and generic/habitual sentences are stative sentences, the common property among (3)–(8) should be stativity. Is this conclusion correct? Unfortunately, not every linguist accepts the criteria of treating progressive and generic/habitual sentences as stative sentences. For example, Bertinetto (1994) has argued against analyzing progressive sentences as stative sentences and against treating all generic/habitual sentences as stative sentences. Glasbey (1998) also opposes analyzing progressive sentences as stative sentences. Bertinetto has carefully reviewed all arguments for treating progressive and generic/habitual sentences as stative sentences that are available in the literature and counter-argued against them. According to his discussions, among all pieces of evidence, there is probably only one piece of them that is more cogent. This piece of evidence is provided by Vlach (1981). He pointed out that in sentences like (33), there is one common property that progressive and typical stative sentences share but event sentences lack; namely, both (33a) and (33b) imply that the state has already obtained before my arrival, but (33c) does not have this implication.

(33) a. Max was here when I arrived.
   b. Max was running when I arrived.
   c. Max ran when I arrived.
Despite the above similarity between progressive and stative sentences, Bertinetto points out that there are also divergences between them. One of the four divergences discussed by him has to do with adverbs of “temporal graduality” such as little by little. According to him, while progressives are compatible with such adverbs, true statives are not, hence the contrast between (34a) and (34b) (Bertinetto, 1994: 404).

(34) a. Little by little, the snow was covering the land.
    b. *Little by little, John was hungry.

Bertinetto takes the above contrast to indicate that progressives are dynamic development of situations and thus admit of adverbs indicating the gradual becoming of a telic event, whereas states are truly stative and hence do not admit of such adverbs.

We agree with Bertinetto that there is no adequate linguistic evidence in treating progressives as stative sentences. In fact, even in Mandarin Chinese, there exist significant divergences between progressives and true states. For example, the negation marker for true stative sentences is 但, but progressives use 未 as the negation marker. Compare (35) and (36).

(35) Ta bu xiangxin wo-de hua.
    he not believe my word
    ‘He does not believe me.’
(36) Ta mei zai du shu
    he not PROG study book
    ‘He is not studying.’

Wang (1965) has proposed that 未 is the negation counterpart of the perfective aspect marker 了, because 未 and 了 are in complementary distribution. This analysis, together with the fact that 了 can only appear with a dynamic situation leads to the conclusion that progressives must be dynamic rather than stative situations.\(^2\)

As for generic or habitual sentences, Bertinetto has argued that only a small set of them can be regarded as truly statives—the set which he calls “attitudinals”. The other habitual sentences should not be treated as such. On his analysis, when a habitual predicate characterizes an individual’s permanent attribute, that habitual predicate is like an individual-level predicate and hence is a permanent stative. For

\(^2\) When 了 appears in a stative situation as in (i) below, the focus is on the change of state. Since a change of state can be regarded as an achievement, 了 in (i) still occurs with a dynamic situation.

(i) Ta pang-le
    he fat-PERF
    ‘He has become fat.’
example, when the sentence *John sings* is understood as referring to John’s profession as a singer, the sentence counts as a true stative sentence. But pure habituals are eventive in character and therefore should be kept apart from true statives. He provides many arguments for doing so. First, while habitual sentences are compatible with adverbs of agientive control, true stative sentences are not. Second, it is possible to anchor a state of affairs to a single point, but this is impossible for habituals. Third, only habituals, but not statives, can serve as the complement of a perceptual verb. These divergences between habituals and true statives are illustrated below (Bertinetto, 1994: 408–409).

(37) a. Whenever he comes, John willingly/deliberately washes the dishes, in order to appear cooperative [= habitual].
   b. *John willingly/deliberately understand the matter [= stative].

(38) a. *At the precise moment when John broke his leg, they used to eat dinner [= habitual].
   b. At the precise moment when John broke his leg, Ann was at work [= stative].

(39) a. The witness saw the accused bring a present every day to the victim [= habitual].
   b. *The witness saw the accused hate the victim [= stative].

In view of the above evidence, it seems not conclusive to say that habitual sentences are all stative sentences.

If syntactic and semantic evidence is not reliable in picking out states, progressives and habituals as a natural class, is there any other concept that may accomplish this? Fortunately, Herweg’s (1991) article provides such a clue. He has proposed to distinguish the conceptual categories of events and states in terms of their logical properties. He has argued that though their minimum duration can be specified by measure phrases, the eventualities falling under the conceptual category of states—including true states, progressives and generics/habituals, may not be counted and treated as individuals from a logical point of view, because they have a “uniform internal part structure” and form “a continuous collection of overlapping entities”. He calls predicates in such eventualities homogeneous predicates. Homogeneous predicates exhibit the properties of distributivity and cumulativity. Distributivity means that if a predicate applies to an entity, it applies to the parts which form the entity as well. Cumulativity means that two neighboring entities satisfying the same predicate can be combined into a more complex entity which may satisfy the predicate again. Take the sentence Peter stood on the beach or Peter was walking along the shore, for example. If the eventuality in question lasts two hours, then all segments of the two-hour period are also times at which the eventuality holds. Conversely, if any two segments of that two-hour period satisfy the eventuality and are next to each other in time axis, then the combination of those two segments should satisfy the eventuality as well.

In contrast to states, events can be counted and hence are individuals from the logical point of view. He calls predicates in such eventuality descriptions heterogeneous
predicates. Such predicates have the property that when an entity satisfies them, any proper part of that entity may not satisfy them again. Take the sentence Peter built a house for example. The event of building a house consists of many constituent subevents such as laying bricks, roofing, and so on. But none of those constituent subevents is the same event referred to by Peter built a house.

In more formal terms, Herweg (1991: 983, 988) proposes that homogeneity is captured by homogeneous properties of times as stated in the two axioms in (40) and heterogeneity is captured by event-types as the axiom in (41) shows.

\[(40) \text{Homogeneity} \]
\[
\text{For all state predicates } S: \\
\text{a. distributivity: } \\
\forall t_1 t_2 (S(t_1) \land t_2 \subseteq t_1 \rightarrow S(t_2)) \\
\text{b. cumulativity: } \\
\forall t_1 t_2 (S(t_1) \land S(t_2) \rightarrow S(t_1 \oplus t_2)), \text{ in case } t_1 \oplus t_2 \text{ exists.}
\]

\[(41) \text{Heterogeneity} \]
\[
\text{For all event-type predicates } E: \\
\neg \exists e_1 e_2 (E(e_1) \land E(e_2) \land e_1 \subset e_2)
\]

Herweg’s conceptual classification of eventualities in terms of logical properties of mereological structure avoids the problems of uncertainty that the previous approaches face. Also using mereological structures, de Swart (1998) has made a similar classification of eventuality descriptions, though he uses the term “quantized” instead of “heterogeneous”. We will adopt their arguments for classifying states, progressives (process) and habituals as falling under the same conceptual category of eventuality.

After having discussed Herweg’s conceptual distinction between states and events, we can now return to our original question regarding what property the examples in (3)–(8) have in common. If Herweg’s analysis is correct, the answer should be obvious now. All the bare sentences with a present covert tense in (3)–(8) describe homogeneous situations. On the other hand, we also find that the bare sentences with a covert past tense in (14)–(22) all describe heterogeneous situations. On the basis of this, we propose the following selectional restrictions for covert tenses in Mandarin Chinese.

\[(42) \text{a. Covert present tense must select a homogeneous situation as its complement.} \]
\[
\text{b. Covert past tense must select a heterogeneous (quantized) situation as its complement.}
\]

More precisely, we hypothesize that like English phrase structure, Chinese phrase structure also contains a tense phrase (TP) headed by tense, the difference being that
the former does not allow projections of covert tenses, whereas the latter does. Moreover, Chinese covert tenses have two kinds: covert present tense and covert past tense. These two different covert tenses impose a different requirement upon their complement as to situation types. To illustrate with two concrete examples, consider (43):

\[ a. \quad TP \; (= \text{a present tense sentence}) \]

\[ \quad T' \]

\[ \quad T \quad IP \; [+\text{homogeneous}] \]

\[ \quad [+\text{present}] \quad \text{Ta hen congming} \]

he very clever

\[ b. \quad TP \; (= \text{a past tense sentence}) \]

\[ \quad T' \]

\[ \quad T \quad IP \; [+\text{heterogeneous}] \]

\[ \quad [+\text{past}] \quad \text{Ta dapuo yi-ge wan} \]

he break one-CL bowl

This explains why bare homogeneous sentences always get a present tense interpretation and bare heterogeneous sentences always get a past tense interpretation. On the other hand, if the selectional restriction of a covert tense is not met as in the configuration \[ TP[t' [+\text{present}] [ip ta dapuo yige wan]] \], the sentence will get no interpretation due to a feature clash.

It is worth pointing out here that selectional restrictions of tenses are not unique to Mandarin Chinese or the Chinese dialects but are a cross-linguistic phenomenon. For example, de Swart (1998) has shown that there are two past tenses in French, Passé Simple and Imparfait. The former selects an event as its complement, whereas
the latter selects a homogeneous state as its complement. In a similar vein, Schmitt (2001) has shown that English and Portuguese present tenses must select homogeneous situations as their complements, though with some minor parametric variation.

5. Temporal reference of bare sentences with a de-complement

5.1. Three types of predicative de-complements

In this section, we will discuss one more sentence type that makes use of covert tenses, i.e., constructions with the so-called predicative de-complement. We begin with a brief discussion of verb-predicative complement constructions. Traditionally, Chinese verb-predicative complement constructions are classified into two categories, depending upon whether the verb is immediately followed by the predicative complement as in (44a) or the verb is separated from the predicative complement by the marker de as in (44b).

\[(44) \begin{align*}
\text{a. } & \text{Zhe jian jiaoshi dasao ganjing le} \\
& \text{this CL classroom sweep clean PERF} \\
& \text{‘This classroom has been swept clean.’} \\
\text{b. } & \text{Zhe jian jiaoshi dasao de hengan ganjing} \\
& \text{this CL classroom sweep DE very clean} \\
& \text{‘This classroom was swept to the extent that it is very clean.’}
\end{align*}\]

Constructions with a predicative de-complement are further subdivided into several types. The first type is called potential de-complements, which are illustrated by (45). In such constructions, the marker de functions like an infix inserted to a verb–verb or verb–adjective compound and its meaning is very close to that of the English modal auxiliary can indicating ability. An important characteristic of potential de-complements is that their negative counterparts are formed by directly replacing the infix de with the negation marker bu as is shown by (45b).

\[(45) \begin{align*}
\text{a. } & \text{Ta kan-de-dong zhe ben shu} \\
& \text{he read-DE-understand this CL book} \\
& \text{‘He can understand this book.’} \\
\text{b. } & \text{Ta kan-bu-dong zhe ben shu} \\
& \text{he read-DE-understand this CL book} \\
& \text{‘He can not understand this book.’}
\end{align*}\]

Bare sentences with a potential de-complement always get a present tense interpretation.
A second type of de-complement is often referred to as resultative (and/or extent) de-complements, which are illustrated in (46). In this type of construction, the de-complement describes a resultative state ensuing from the action or state denoted by the main verb, i.e., the verb preceding de. Resultative de-complements do not always take the form of VP or AP but can be a full clause as is shown by (46f).

(46) a. Ta na dong fangzi gai de hen piaoliang
   he that CL house build DE very beautiful
   ‘He built that house such that it is very beautiful.’

b. Ta zhe jian yifu zuo de tai da (le)
   he this CL dress do DE too big PERF
   ‘He made this dress such that it is too big.’

c. Xiaoming bian de hen tiaopi
   Xiaoming change DE very naughty
   ‘Xiaoming has become very naughty.’

d. Ta gaoxing de shuo-bu-chu hua
   he happy DE say-not-out word
   ‘He is so happy that he cannot say a word.’

e. Ta mang de lian chi fan shijian dou mei you
   he busy DE even eat-meal time all no not have
   He is so busy that he even does not have time to eat
   his meal.’

f. Yu xia de wo fang-si le
   rain fall DE I bored-death PERF
   ‘The rain keeps falling so that I am bored to death.’

g. Ta ku de wo hao xinteng
   he cry DE I very heartbroken
   ‘He is crying to such an extent that I feel heartbroken.

Very interestingly, temporal reference of constructions with a resultative de-complement is closely related to the predicate type of the matrix VP. When the matrix VP is an accomplishment or achievement predicate, it gets a past tense interpretation as in (46a)–(46c). When the matrix predicate is a stative predicate, it obtains a present tense interpretation as in (46d) and (46e). Likewise, when the matrix predicate is an activity predicate, the sentence obtains a present tense interpretation as in (46f) and (46g). Some people may also get a past tense reading for (46f) and (46g).

A third type of de-complement is often referred to as descriptive de-complements, which are functionally very close to manner adjuncts. Temporal reference of constructions with a descriptive de-complement also exhibits very interesting properties. First consider (47a), in which a transitive verb is followed by a common noun. This sentence is three-way ambiguous between the generic, present progressive and past
tense readings. The first reading corresponds to the bare plural translation of the bare noun object gaozi ‘manuscript’. In the other two readings, the bare noun object is construed as a definite NP equivalent to English noun phrase the manuscript. If a bare noun object does not have a definite reading as in (47b), the sentence gets only the generic reading. When the predicate is intransitive and denotes an activity as in (47c), the sentence gets a present (progressive) tense reading. But when the intransitive predicate denotes an achievement as in (47d), the sentence gets a past tense reading. Transitive achievement verbs are like intransitive achievement verbs. Therefore (47e) has a past tense reading. Finally, (47f) shows that when the verb of the sentence is an accomplishment verb, the sentence may get a present progressive tense reading, in addition to the past tense reading.

(47) a. Ta gaozi jiao de hen man
   he manuscript proofread DE very slowly
   (i) ‘He proofreads manuscripts very slowly.’
   (ii) ‘He is proofreading the manuscript and the speed is very slow.’
   (iii) ‘He proofread the manuscript and the speech was very slow.’

b. Ta hanyu shuo de hen liuli
   he Chinese speak DE very fluently
   ‘He speaks Chinese very fluently.’

c. Ta ku de hen shangxin
   he cry DE very sad
   ‘He is crying very sadly.’

d. Ta shu de hen can
   he lose DE very miserably
   ‘He lost miserably.’

e. Ta zhe fu fua wancheng de hen kuai
   he this CL painting complete DE very fast
   He finished this painting very fast.’

f. Ta zhe fu fua hua de hen tai man
   he this CL picture paint DE very/too slow
   (i) ‘He is painting this picture and the speed is very slow.’
   (ii) ‘He painted the picture too slowly.’

3 The past tense reading might not be obvious for some speakers, but it is readily available in the following sentence.

(i) Ni gaozi zenme jiao de zheme man? Jintian cai na gei wo you manuscript how-come proofread DE this slow today until bring to me
   ‘How come you proofread the manuscript so slowly that you did not give it to me until today?’
5.2. An account for tense variability of constructions with a de-complement

We have seen that bare sentences with a de-complement show variability with regard to their temporal reference. In this section, we will argue that such variability can be accounted for by selectional restrictions of covert tenses as proposed in (42).

First, consider potential de-complements. We assume that a resultative compound verb with the infix de or bu is specified with the feature [+ stative] and hence bare sentences with a potential de-complement describe homogeneous situations. Consequently, they obtain a present tense interpretation by the selectional restriction of covert present tense stated in (42a).

Next, consider bare sentences with a resultative de-complement. When the matrix predicate, i.e., the predicate preceding the de-complement, is an accomplishment or achievement predicate, the dynamic event denoted by it must first culminate before the state denoted by the resultative de-complement obtains. Therefore the whole sentence must denote a heterogeneous event. It follows from the selectional restriction of covert past tense in (42b) that the examples in (46a)–(46c) should obtain a past tense reading. On the other hand, when a state or activity has caused some other resultative state to obtain, this does not mean that the original state or activity has ceased to obtain or is terminated in order to obtain the resultative state. Instead, the original state or activity can coexist with the resultative state. Let us refer to a state or activity coexisting with another resultative state as a macro-state or macro-activity. Like a state or activity, a macro-state or macro-activity is homogeneous by de Swart’s criterion. Therefore, it is predicted by (42a) that the examples in (46d)–(46g) are construed as having a present tense.

As mentioned, some speakers said that they can get a past tense reading for (46d)–(46g). Our intuition is not very clear. For us, the most natural reading is the present tense reading. Suppose that (46d)–(46g) have a past tense reading. How can this reading be accommodated? Our idea is that the past tense reading arises because we are not looking at the macro-state or macro-activity but take the rise of the resultative state as a change from a simplex eventuality to a complex eventuality. Viewed this way, the sentences in (46d)–(46g) can be analyzed as heterogeneous as well. If this is correct, the two different tenses actually reflect different focuses on the eventuality on the part of the speaker.

The situation for bare sentences with a descriptive de-complement is somewhat similar to that for bare sentences with a resultative de-complement albeit with some more complexity. Consider (47b) and (47c) first. The predicates hanyu shuo de hen liuli ‘speak Chinese very fluently’ and ku de hen shangxin ‘cry very sadly’ are homogeneous predicates by de Swart’s criterion. Thus, it is correctly predicted that both (47b) and (47c) have a present tense reading. When a person speaks a language fluently, he speaks it fluently all the time. Therefore, (47b) must have a generic rather than a progressive reading. In contrast, it is quite impossible to ascribe the property of crying sadly, a stage-level property, to a person permanently. This explains why (47c) has a present progressive reading.

(47d) and (47e) involve an achievement verb and hence denote heterogeneous telic events. Thus, by the selectional restriction of (42b), the two sentences in question obtain a past tense reading, which is correct.
In contrast to (47b)–(47e), temporal reference of (47f) is somewhat puzzling. As mentioned, this sentence has both a present progressive and past tense reading. The past tense reading is expected, because the predicate *hua zhe fu fua* ‘paint the picture’ is traditionally analyzed as a heterogeneous accomplishment predicate. Thus, by (42b), (47f) should get a past tense reading. But the present tense reading is surprising. (47a) poses a similar problem on the definite reading of the bare noun object. On the definite reading of the bare noun object *gaozi* ‘manuscript’, the predicate *jiao gaozi* ‘proofread the manuscript’ in (47a) should count as a heterogeneous accomplishment predicate. Therefore, the selectional restriction of covert past tense predicts that (47a) has a past tense reading, but it does not predict that it also has a present tense reading. Where does the present tense reading of (47a) and (47f) come from? To answer this question, we would like to first make a detour to discussions of situation types in the literature, in particular the distinction between activity and accomplishment.

It is now a well known fact that direct object may influence the actionsart of a sentence. This is particularly true for accomplishment verbs, as Dowty has pointed out:

Accomplishment verbs which take direct objects unexpectedly behave like activities if an indefinite plural direct object or a mass-noun direct object is substituted for the definite (or indefinite singular) one. (Dowty, 1979: 62)

Activities and accomplishments are traditionally distinguished by the type of time adverbials they take according to Vendler (1967). Activities may occur with durative adverbials like *for an hour*, whereas accomplishments take durative time adverbials like *in an hour*. This is illustrated by the following examples, where the symbol “#” indicates ungrammaticality on the intended reading.

(48) a. John wrote letters for an hour.
   b. #John wrote letters in an hour.

(49) a. #John wrote a/the letter for an hour.
   b. John wrote a/the letter in an hour.

The above contrast shows that combination of a definite or indefinite singular object NP with an accomplishment verb constitutes an accomplishment predicate, in contrast to bare plurals, which when combined with an accomplishment verb form an activity predicate.

Very interestingly, He (1992) has observed that the behavior of definite object NPs in Chinese seems to be different from that of English definite object NPs in that Chinese definite object NPs pattern with bare or mass nouns instead of with indefinite object NPs with a specified quantity. To show this, let us first see how time adverbials like *in an hour* and for *an hour* in English are expressed in Chinese and their interaction with different situation types. According to Tai (1984), He (1992)
and Kang (1999), completive time adverbials appear in a preverbal position in accomplishment situations and they are not used in activity situations, whereas durative time expressions indicating the duration of an activity appear in a post-verbal position. This is illustrated by the following examples adapted from He (1992).

(50) a. Ta yi ge zhongtou du-le liang ben shu  
   he one CL hour read-PERF two CL book  
   ‘He read two books in an hour.’
   
   b. *Ta du-le yi ge zhongtou liang ben shu  
      he read-PERF one CL hour two CL book

(51) a. *Ta yi ge zhongtou du-(le) shu  
      he one CL hour read-PERF book  
      b. Ta du-le yi ge zhongtou (de) shu  
         he read-PERF one CL hour DE picture  
         ‘He read books for an hour.’

(52) a. *Ta yi ge zhongtou du-le zhe ben shu  
      he one CL hour read-PERF that CL book
   b. Ta du-le yi ge zhongtou zhe ben shu  
      he read-PERF one CL hour this CL book  
      ‘He read that book for an hour.’

As we can see from (52), an accomplishment verb with a definite direct object behaves like activities rather than accomplishments. From the above examples, He (1992) argues that quantified direct objects are goal-oriented, whereas definite direct objects may not be. This conclusion is further supported by the following sentences with frequency adverbs.

(53) a. Ta changchang du shu  
      he often read book  
      ‘He reads often.’
   
   b. Ta changchang du nei (san) ben shu  
      he often read that three CL book  
      ‘He reads that/those book(s) often.’
   
   c. *Ta changchang du yi/san ben shu  
      he often read one/three book  (He, 1992: 181)

According to He, for goal-oriented situations, once the goals have been attained, they cannot be repeated; but for non-goal-oriented activities, they can be repeated. The fact that (53b) is grammatical thus supports the position that an accomplishment verb with a definite direct object NP can be an activity.
Still, another piece of evidence for He’s position is provided by Kang (1999). He has observed that while the perfective form of an accomplishment verb with a definite object NP allows a non-culminated reading, this cannot be the case for an indefinite object NP. Hence the contrast between (54) and (55).

(54) a. Wo xie-le na feng xin
   I write-PERF that CL letter
   ‘I wrote that letter.’

b. ?Wo xie-le na feng xin, keshi mei xie-wan
   I write-PERF that CL letter but not write-finish
   ‘I wrote that letter, but did not finish it.’

c. Na feng xin, wo xie-le, keshi mei xie-wan
   that CL letter I write-PERF but not write-finish
   ‘I wrote that letter, but did not finish it.’

(55) a. Wo xie-le yi feng xin
   I write-PERF one CL letter ‘I wrote that letter.’

b. *Wo xie-le yi feng xin, keshi mei xie-wan
   I write-PERF one CL letter but not write-finish
   ‘I wrote a letter, but did not finish it.’ (Kang, 1999: 45)

A similar conclusion can be reached from the examples below, which show that an accomplishment verb with a definite object NP can in fact be ambiguous between a culmination reading and an activity reading.

(56) a. Na feng xin, wo xie-le yi-ge xiaoshi, keshi hai mei xie-wan
   that CL letter I write-PERF one-CL hour but not write-finish
   ‘I wrote that letter for an hour, but I have not finished it yet.’

b. Na feng xin, wo xie-le yi-ge xiaoshi, cai xie-wan
   that CL letter I write-PERF one-CL hour then write-finish
   ‘It took me an hour to finish writing that letter.’

Again, (56) supports He’s view that an accomplishment verb with a definite object NP need not be goal-oriented even with a perfective aspect.

Returning to the question of why (47f) and (47a) have a present tense reading, we now have a possible answer to it. In (47f), the (preposed) object NP is a definite object NP rather than an indefinite object NP. Therefore, the sentence can be understood as an activity just like the sentences in (54c) and (56a). Consequently, by the selectional restriction of covert present tense, (47f) may get a present tense reading. (47a) is similar to (47f) except that the (preposed) object NP is a bare noun. As noted, bare nouns in Chinese can be understood as a
definite NP. Therefore, (47a) can be understood as an activity and gets a present tense reading.

5.3. Descriptive complements with a reduplicated adjective

We have seen above that the tense interpretation of a VP containing a descriptive complement may get a past, present or generic reading when the object NP is a bare noun. However, a referee has pointed out that the present and generic readings seem to disappear when the descriptive complement is made up of a reduplicated adjective, as the following examples indicate.

(57) a. Ta shuo de mingmingbaibaide
    he say DE clearly
    ‘He said it/expressed himself very clearly.’

b. Ta ba hua shuo de qingqingchuchude
    he BA word say DE clear
    ‘He said/put it very clearly.’

On the other hand, both a past and present tense interpretation seem possible for (58), even though the complement also contains a reduplicated adjective.

(58) Ta ba beizi ju de gaogaode
    he BA glass raise DE high
    ‘He holds/held the glass high up.’

How are these facts to be accounted for?

To begin with, let us note that it is not true that verbs of saying with a reduplicated adjective always preclude a present and generic tense reading. For example, (59a) does have a generic tense reading and (59b) a present progressive reading.

(59) a. Ta hua jiang de jiejiebabade, ni bu yao gen ta tan
    he word speak DE jabbering you with him talk
    ‘He speaks jabberingly. You don’t talk with him.’

b. Ni hua ganma jiang de jiejiebabade? haohaode jiang
    you word why speak DE jabbering well speak
    ‘Why are you speaking jabberingly? Speak it well.’

In fact, even for the verb shuo ‘say’, it is possible to get a generic reading when the descriptive complement is a reduplicated adjective. (60) is such an example.
Tade yingwenshuode puopuolanlande, jingran ye xiang qu
he DE English speak DE poorly to one’s surprise also want go
canjia bisai
attend contest
‘He speaks English very poorly; yet he also wants to attend the contest.’

One more example with a generic reading is given below which contains a
descriptive complement with a reduplicated adjective.

(61) Ta shu dou du de zizixixide
he book all read DE careful
‘He reads all books very carefully.’

So there is in fact no problem for a descriptive complement with a reduplicated
adjective to get a present or generic tense reading. It must be something else that
forces the referee’s examples in (57) to only get a past tense reading. The problem is
what that something is.

Honestly, we do not know exactly the answer but we speculate that the answer lies
in the semantics of the reduplicated adjective mingmingbaibaide ‘clear’ and qing-
qingchuchude ‘clear’. Although these two reduplicated adjectives have been taken to
be descriptive complements by the referee, it seems also possible to say that they
have a resultative meaning (possibly simultaneously). Thus, (57) can be understood
as ‘He said it in a very clear way and as a result what he said is very clear.’ In fact,
qingchu ‘clear’ has been said to have both a resultative and descriptive meaning (e.g.
Liu, 1992). Another point worth noting about (57) is that (57b) uses the BA-con-
struction. This type of construction always get a past tense reading (when no overt
time expression appears) whether or not the sentence contains a de-complement.
The reason for this may be related to Liu’s (1997) recent analysis of such construc-
tions. She has suggested that a BA-construction is licensed only if the BA-sentence
denotes a bounded situation. Because a BA-sentence is bounded, by the selectional
restriction of covert past tense, (57b) must have a past tense reading. Perhaps the
same account can be extended to (57a) if one assumes that this sentence contains an
implicit BA–NP.

As for sentences like (58), which involve a positional verb, they can be explained
as follows. For positional verbs like ju ‘raise’, zuo ‘sit’, tang ‘lay’, their semantics all
involve an action and a resultative state and both are referred to by the same pho-
netic form. Thus, in a sense such verbs may be said to be ambiguous. If one un-
derstands the verb as a dynamic verb involving a change of state, then (58) represents
a bounded heterogeneous situation and hence can be understood as a past tense
sentence. On the other hand, if one understands the sentence as the resultative
state, then (58) is a homogeneous situation and hence may obtain a present tense
reading.
6. Future tense

In our above discussion, we have shown that covert tenses can be either present tense or past tense and have provided a theory for them. A question that remains unanswered is why a covert tense is never interpreted as a future tense.\(^4\) This is because future tense in Mandarin Chinese must contain an expression indicating a future time as has already been pointed out by Zhang (1998a, b). The expression can be a modal auxiliary such as hui ‘will’, jiang ‘will’ or time adverbs such as kuai ‘soon’, mingtian ‘tomorrow’. This is illustrated by the following examples.

(62) a. Ta hui bang ni
    he will help you
    ‘He will help you.’
  b. Ta jiang shengrenyuanzhang
    he be-going-to promote dean
    ‘He is going to be promoted as the dean.’

(63) a. Ta kuai si le
    he soon die PERF
    ‘He is going to die.’
  b. Wo mingtian qu Taipeii
    I tomorrow go Taipei
    ‘I will go to Taipei tomorrow.’

We analyze modal auxiliaries such as hui ‘will’ and jiang ‘will’ as the head of Tense, though this claim is not absolutely necessary for us. As for time adverbs, we propose that they are specifiers of TP. Time adverbs bear a specific relation to the head of TP. Namely, they must agree with Tense in terms of time features. Therefore, if a sentence contains only time adverbs but no overt tense, we assume that an empty tense is in the structure. We will refer to the (empty) tense that agrees with a time adverb as (empty) agreement tense. Notice that the treatment of time adverbs as the specifier of TP is not novel. Alexiadou (1997, 2000) has already provided arguments for this analysis in other languages. She has offered data which have clearly shown that time adverbs in [SPEC,TP] agree with the head Tense.

Three questions with regard to the above discussion have been raised by one referee of this paper. He/she has pointed out that in some cases as in a conditional, an overt expression is not necessary in order to express a future tense as (64) illustrates.

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\(^4\) By this claim, we are restricting ourselves to declarative clauses. Imperative sentences may be analyzed as having a future tense but this can be explained by the speech act. In this article, we will not discuss imperative sentences.
Examples like (64) are not too serious a problem. It has been suggested in many places that when a conditional sentence does not contain an overt modal expression, it must contain an implicit one (Heim, 1982; von Fintel, 1994; among many others). Thus, sentences like (64) do contain a modal expression, though implicit, whose meaning explains why the sentence is understood as referring to a future time. From this example, we can conclude that for a Chinese sentence to express a future time reference, the sentence must contain something, be it overt or covert, that may indicate future time reference.

A second question raised by the referee is that time adverbs in Chinese have a very free distribution and this may pose a problem with the proposed spec-head agreement analysis. Consider (65), provided by the referee.

(65) (Mingtian) ta (mingtian) yao (mingtian) qu Taipeí
tomorrow he tomorrow want/will tomorrow go Taipei
‘He will go to Taipei tomorrow.’

We do not think that the free distribution of time adverbs is a real problem with the proposed spec-head agreement analysis. Let us assume that the second position for minhtian ‘tomorrow’ in (65) is the specifier position of TP (with AgrsP higher than TP). Then the first position of minhtian ‘tomorrow’ can be derived by topicalization. As for the third position of minhtian ‘tomorrow’, it can be explained away by assuming that modal verbs in Chinese are matrix verbs as Lin and Tang (1995) have argued. On this analysis, the third position of minhtian ‘tomorrow’ is in the specifier position of TP of the embedded clause.

Finally, the referee wonders why a future-oriented time adverb is not enough to make a sentence grammatical without a modal auxiliary in a focusing shi...de constructions, as (66) indicates.

(66) Wo shi *(hui) mingtian lai ni jia de
I SHI will tomorrow come you home DE
‘I will for sure come to your place tomorrow.’

However, we do not think that the observation is correct. A future-oriented time adverb alone may make a shi...de construction grammatical. For example, the following sentences provided to me by my student Yaqi Zhang, are perfectly acceptable.
(67) a. Baoming riqi shixia zhousan jiezhi de
    enrollment date be next Wednesday end
    ‘The deadline for enrollment will end on next Wednesday.’
b. Xuenke shixia ge yue kaishi de
    class-selection be next month begin
    ‘Class selection will for sure begin next month.’

In fact, even (66) becomes much improved when lai ‘come’ is replaced with qu ‘go’ and is perfect when there is a contrast as is shown by (68).

(68) Wo shi mingtian qu ni jia de, bu shi houtian
    I SHI tomorrow go you home DE not SHI the-day-after-tomorrow
    ‘I will for sure go to your place tomorrow, not the day after tomorrow.’

7. Differences between covert tenses and agreement tenses

We have hypothesized that if a time adverb appears in a sentence, that time adverb occupies the specifier position of TP and the head Tense agreeing with it is an agreement tense. Although an agreement tense can also be phonologically empty as a covert tense, there are reasons to believe that empty agreement tenses are not the same as covert tenses, because the former do not display properties of selectional restrictions. Consider the following sentences, which contain a time adverb but no overt modal or aspectual marker.

(69) a. Ta congqian hen tiaopi
    he before very naughtly
    ‘He was very naughty before.’
b. Wo mingtian qu taipei
    I tomorrow go Taipei
    ‘I will go to Taipei tomorrow.’

If the tense in (69a) were a covert tense, that covert tense would be construed as a present tense, because (69a) is a typical stative sentence. But then the temporal reference of this tense would conflict with the time denoted by the time adverb, making the sentence uninterpretable. On the other hand, we cannot assume that the empty tense in (69a) is a covert past tense, either, because a covert past tense selects a heterogeneous situation, not a homogeneous situation, as its complement.

A similar remark applies to (69b). No matter whether we assume that the tense is a covert present or past tense, a contradiction between the time adverb and the tense...
is unavoidable. Examples like (69a) and (69b) indicate that agreement tenses are not the same as covert tenses and are not subject to selectional restrictions.

The view that agreement tenses do not have selectional restrictions gains further support from the following examples:

(70) a. Ta zuotian hen mang
   he yesterday very busy
   ‘He was very busy yesterday.’

b. Ta xianzai hen mang
   he now very busy
   ‘He is very busy now.’

c. Wo mingtian hen mang
   I tomorrow very busy
   ‘I will be very busy tomorrow.’

(71) a. Wo ganggang qu ji xin
   I just-now go send letter
   ‘I went to send the letter just now.’

b. Wo xianzai qu ji xin
   I now go send letter
   ‘I now go to send the letter.’

c. Wo shi fenzhong hou qu ji xin
   I ten minute after go send letter
   ‘I will go to send the letter in ten minutes.’

The predicates of the three examples in (70) are the same stative predicate hen mang ‘very busy’; and the predicates of the three examples in (71) are the same eventive predicate qu ji xin ‘go to send the letter’. However, rather than having a fixed temporal reference, the temporal reference of each of the above two sets of examples varies with the time adverb that the sentence contains. This clearly indicates that agreement tenses are compatible with both homogeneous and heterogeneous situations and their temporal meanings are determined by the time adverbs with which they agree.

8. Smith and Erbaugh’s (2001) analysis

It is very interesting to point out that our two hypotheses about temporal reference of Chinese bare sentences are strikingly similar to Smith and Erbaugh’s (2001) recent proposal about temporal information in Chinese sentences, though the data we have examined are different and they do not particularly focus on bare sentences.5 According to them, there is a generalized deictic pattern of tense interpretation across languages, which is stated as follows:

5 Smith and Erbaugh’s paper is not known to us until the paper is finished. We thank them for sending their paper to us.
(72) Generalized deictic pattern of temporal interpretation
   a. Unbounded eventualities are located at Speech time.
   b. Bounded events are located before Speech time.
   c. Explicit temporal information overrides a and b.

(72a) is equivalent to our rule for covert present tense and (72b) to the rule for covert past tense. As for (72c), it plays almost the same role as our agreement tense and the relative past tense marker le and guo. Given this similarity between their proposal and our theory, it can be said that this paper further confirms Smith and Erbaugh’s analysis and corroborates an approach for temporal reference in Chinese in terms of aspectual information provided by the clause.

Despite the similarity between Smith and Erbaugh’s analysis and ours, the two approaches actually utilize different characterizations of aspectual information. While Smith and Erbaugh’s analysis is based on the distinction between boundedness and unboundedness, our theory is based on the distinction between homogeneity and non-homogeneity. The question then is whether boundedness vs. unboundedness is completely equivalent to homogeneity vs. non-homogeneity. If they are not equivalent, they should make different predictions. Indeed, we would like to show that though the predictions are mostly the same, it is possible to find examples which distinguish the two theories.

Smith and Erbaugh do not define what they mean by boundedness and unboundedness. However, from the discussions of Declerck (1989, 1991) and Depraetere (1996), we know that the notion of (un)boundedness should be kept apart from the notion of (a)telicity. Depraetere (1996) has provided the following definition for (un)boundedness, attributed to Declerck (1989: 277; 1991: 121):

(A) telicity has to do with whether or not a situation is described as having an inherent or intended endpoint; (un)boundedness relates to whether or not a situation is described as having reached a temporal boundary.

(I) + inherent/intended endpoint
   (a) + endpoint reached: + temporal boundary
   (b) −endpoint reached: −temporal boundary

(II) − inherent/intended endpoint
   (a) + temporal boundary
   (b) − temporal boundary (Depraetere, 1996: 7)

Here are some examples from Depraetere (1996: 9, 30) that illustrate the distinction between (a)telicity and (un)boundedness.

(73) a. John has already left. (telic bounded)
    b. He has pushed the cart into the barn. (telic bounded)
Among the above examples, we would like to particularly call the reader’s attention to those sentences in (77). (77a) and (77b) show that not all progressive sentences are unbounded. In fact, according to Depraetere (1996, 30–31), sentences with a present perfect tense are always bounded regardless of their (a)telicity. Although situations denoted by examples like (77) are likely to continue after the speech time, it is important to emphasize that “what matters is how the situations are represented in the sentence and not the actual duration of the situation itself” (Depraetere, 1996: 31). The situations denoted by these sentences are represented as having the speech time as right hand boundary.

Given Declerck’s and Depraetere’s arguments and definitions for (un)boundedness, let us now consider the following Chinese sentence, which corresponds to an English present perfect sentence.

(78) Ta yijing zai shuijiao (le), ni bu yao qu chao ta
    he already PROG sleep ASP you not want go wake-up him
    ‘He has already been sleeping. Don’t wake him up.’

Here we would like to pay special attention to the word yijing ‘already’, which requires that a state or event holds up to a reference time. Thus, although the word yijing ‘already’ does not directly determine the tense interpretation of the sentence, it provides a right-hand boundary for the eventuality description with which it

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6 It seems to us that this sentence should be bounded telic rather than bounded atelic. We don’t know if this is a typo of Depraetere’s.

7 Le in this sentence is optional. It is added here to show that the semantics of this sentence is indeed equivalent to English present perfect.
combines. For example, (78) is a claim about a situation which starts in the past and leads up to now. Given this, (78) should be as bounded as the sentences in (77) by Depraetere’s definition. Consequently, Smith and Erbaugh’s (2001) analysis predicts that (78) should be understood as a past tense sentence, which seems to be wrong. In contrast, our theory predicts that (78) has a present tense, because (78) is about a homogeneous situation despite the boundedness set up by the reference time provided by yijing ‘already’.

Another problem with Smith and Erbaugh’s analysis is a conceptual one. Smith and Erbaugh have suggested that the generalized deictic pattern of temporal interpretation applies to tense languages such as English as well as tenseless languages such as Chinese. Now suppose that Depraetere is correct that tense, in particular present tense and present perfect tense, influences (un)boundedness of a sentence. Then, it would be circular for Smith and Erbaugh to claim that (un)boundedness determines tense interpretations. In contrast, our theory is not subject to this criticism, because (non-)homogeneity determines tense interpretation, which in turn determines (un)boundedness.

9. Conclusions

In this paper, we have examined Chinese bare sentences without any aspectual marker or temporal adverbs and argued that their temporal reference can be resolved by postulating two empty tenses, which are referred to as covert present tense and covert past tense. These two covert tenses are subject to different selectional restrictions. Covert present tense must select a homogeneous situation as its complement, whereas covert past tense must select a heterogeneous situation as its complement. In addition, we have argued that covert tenses must be distinguished from empty agreement tenses, i.e., empty tenses which agree with time adverbs, because the latter do not have selectional restrictions. If the above conclusions are correct, they have a very important theoretical implication; namely, although Chinese does not have the same sort of morphological tenses as English or other Indo-European languages, it does not lack syntactic tenses. The syntactically null tenses in Chinese are semantically active and display some properties similar to those of other languages which have grammaticalized morphological tenses.

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8 Notice that the tense interpretation of (78) cannot be ascribed to the word yijing ‘already’, because this word is compatible with any tense as the following examples show.

(i) Wo dao de-shihou, ta yijing zou le
   ‘When I arrived, he had already left.’
(ii) Dao mingtian, ta jiu yijing zou le
   ‘He will have already left by tomorrow.’
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