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Chapter 3   Bare predicates in Mandarin

This chapter is primarily concerned with bare predicates (that is, predicates with no morphological aspect, neither verbal aspectual markers nor sentence final markers) in root clauses in Mandarin. We investigate in detail the temporal interpretations of sentences with a bare (stative or eventive) predicate with or without an adverb. We put forth the following generalizations:

G1. Root clauses with no overt aspect describe states or report regularities; (Yong 1997, Klein et al. 2000 among others) (It follows from this that all episodic uses of eventive predicates in root clauses require overt aspect.)

G2. All stative predicates can appear without aspect;

G3. Eventive predicates that appear without overt aspect cannot have their temporal reference fixed by an adverb alone. (Tang & Lee 2000, Tsai 2008 among others)

We claim that these generalizations follow from the hypotheses below:

H1. States and eventives have different argument structures: states are properties of times while eventive predicates are properties of events (Katz 2003, Kratzer 1998);

H2. Aspect must be overtly marked in Mandarin.

We further address the question of whether Mandarin has a syntactic T projection or not. The above assumptions above lead us to conclude that there should be a T projection in the syntax in Mandarin, introducing a time argument required in the semantic derivation.

This chapter is organized as follows:

In Section 3.1, we discuss temporal construals of sentences containing a bare stative/eventive predicate with or without explicit temporal adverbials. We show that while bare stative predicates do not require aspect and allow stative readings (describing *stage-level* or *individual-level* properties), eventive predicates (*activities*, *accomplishments* and *achievements*) require overt aspect to allow episodic readings. Section 3.2 examines in detail sentences with a bare

eventive predicate that are grammatical. We show that these sentences with or without a modifying adverbial (eg. a quantification adverb, a locative prepositional phrase or an other adverbial) are felicitous, but only on a generic reading. Section 3.3 recapitulates our generalizations concerning the interpretation of bare predicates in Mandarin. In particular, we claim that sentences without any morphological aspect yield either stative or generic readings in Mandarin.

Section 3.4 is dedicated to an analysis of the temporal interpretations of bare predicates in Mandarin. We adopt Katz's (2003) hypothesis, which attributes a different argument structure to stative and to eventive predicates. We moreover follow Katz (2003) in giving aspect the role of relating event time to reference time (see also Klein (1994)). Together with a referential analysis for tense and the proposal that aspect must be overtly realized in Mandarin, this proposal correctly captures the temporal interpretation of sentences with bare stative/eventive predicates in Mandarin.

In Section 3.5, we argue against the default viewpoint aspect account, adopted by both Lin (2006) and Smith & Erbaugh (2005) in their analysis of the temporal construal of bare predicates in Mandarin. We discuss the predictions of their analyses and Mandarin data that challenge their proposals.

Finally Section 3.6 discusses some apparent counter-examples.

3.1   Temporal construal of bare predicates

In their studies of the expression of temporal relations in Mandarin, scholars have traditionally devoted attention to the distribution of aspect, that is, lexical aspect (aktionsart) and grammatical aspect (aspectual particles). This is expected in so far as the Mandarin grammatical system does not contain any items equivalent to the tense morphemes in Indo-European languages such as English and French.

This thesis takes a new and different approach to these issues: we will look at interpretations of sentences containing a predicate that is modified, neither by an aspect, nor by any other type of particle that might alter the interpretation or even the grammaticality of a sentence.

The current section investigates the temporal interpretations of bare stative/eventive predicates with no explicit temporal adverbials. The data presented below is organized according to Vendler's (1967) four-way classification of predicates: *states*, *activities*, *accomplishments* and *achievements* (see Chapter 2).

Unless otherwise specified, the reader should imagine that the sentences discussed in this section are uttered in an out-of-the-blue context, that is, without any contextually set up reference time (henceforth RT) that excludes the utterance time (UT).

3.1.1 States

As has been observed before, in Mandarin, bare predicates of states are well-formed without aspectual marking. They describe states that hold at a contextually salient time.

In the absence of an adverb indicating a time interval excluding the speech time, the state described by the predicate *hěn cōngmíng* 'very smart' in (1a), *hěn jǔsàng* 'very frustrated' in (1b) or *xǐhuān lǚxíng* 'like travelling' in (1c) holds at the moment of the utterance. Thus, bare states yield present state readings in an out-of-the-blue context.

(1) a. Yīchén hěn   cōngmíng.
    Yichen very   smart
    'Yichen is very smart.'

   b. Lùlu   hěn   jǔsàng.
    Lulu   very   frustrated
    'Lulu is very frustrated.'

   c. Yīchén xǐhuān   lǚxíng.
    Yichen like   travel
    'Yichen likes travelling.'

The reader may have noticed that the adjectival predicates in both (1a) and (1b) are modified by *hěn* 'very', which is a "positive marker" according to Grano (2011). He points out that Mandarin gradable adjectives, such as *cōngmíng* 'smart' and *jǔsàng* 'frustrated' in our examples (1a-b), must co-occur with overt degree morphology for positive interpretation; otherwise, it is infelicitous in isolation. Accordingly, (2b) below is infelicitous in an out-of-the-blue context.

With a proper context, (2b) is acceptable, but only with a comparative reading.

(2) a. A: -Zhāngsān hé   Lǐsì   shéi   gāo?
           Zhangsan and   Lisi   who   tall
        'Who is taller between Zhangsan and Lisi?'

   b. B: -Zhāngsān gāo.
          Zhangsan   tall
        'Zhangsan is taller.'

The adverb *hěn* is, among the degree morphemes, the most neutral one, although it is mostly interpreted as "very". The adjectival predicates modified by *hěn* are considered as bare predicates in this thesis, because *hěn* is not an aspectual marker, and therefore does not bring any extra aspectual information to the sentence.

Some states can co-occur with present time adverbials (adverbials referring to time intervals that include the UT). In cases where the sentence with a bare state is accompanied by a present time adverb, we have a present reading, as shown in (3a) and (3b):

(3) a. **Jīntiān**   Lùlu   hěn   jǔsàng.
       today   Lulu   very   frustrated
     'Today, Lulu is very frustrated.'

   b. **Zuìjìn** Yīchén   tèbié   xǐhuān   lǚxíng.
      recently Yichen   special like   travel
     'Nowadays, Yichen likes travelling very much.'

(3a) conveys that *Lùlu*'s frustration lasts throughout the time denoted by *jīntiān* 'today'. Since *jīntiān*, being an indexical temporal adverb, refers to the day that includes the UT, (3a) receives a present reading. In a similar way, (3b) is used to report *Yīchén*'s recent hobby of travelling. The time duration indicated by the adverb *zuìjìn* 'recently' starts at a past time that is relatively close to the UT and lasts at least up to the UT. Consequently, (3b) has a present reading.

Sentences with a bare state receive past readings in the presence of an appropriate past time adverb (an adverb referring to a time interval that precedes the UT), such as *zuótiān* 'yesterday' in (4a) and *nèishíshòu* 'that time' in (4b):

(4) a. **Zuótiān**   Lùlu hěn   jǔsàng.
      yesterday   Lulu very   frustrated
      'Yesterday, Lulu was very frustrated.'

    b. **Nèi-shíshòu**   Yīchén tèbié xǐhuān   lǔxíng.
      that-time   Yichen special like   travel
      'At that time, Yichen liked travelling very much.

(4a) says that *Lùlu*'s frustration lasts (at least) for the duration of the day before the day of the utterance, and (4b) conveys that *Yīchén* has a hobby of travelling at a contextually determined past time *nèi-shíshòu* 'at that time'.

    There are also cases where the co-occurrence of a frame setting temporal adverbial and a bare state gives rise to an infelicitous sentence, like (5a) and (5b) below.

(5) a. #**Zuótiān**   Yīchén hěn   cōngmíng.
      yesterday   Yichen very   smart
      #'Yesterday, Yichen was very smart.'

    b. #**Gāngcái**   Èrmáo hěn   gāo.
      just.now   Ermao very   tall
      #'Just now, Ermao was very tall.'

The oddness of these sentences is due to the incompatibility of the temporal adverb and the lexical property of the predicate. Predicates like *cōngmíng* 'smart' in (5a) and *gāo* 'tall' in (5b) are referred to in the literature as *individual-level* predicates (Carlson 1977, Kratzer 1995): they describe relatively stable properties that do not vary from one time to another. Consequently, modifying an individual-level predicate with a time adverb denoting a comparatively "short" time interval, such as *zuótiān* 'yesterday' or *gāngcái* 'just-now', suggests that the individual no longer has the relevant property, which is a surprising suggestion.

    To sum up, root clauses with a bare state are well-formed in Mandarin and they allow stative readings. In the absence of any temporal adverbials, sentences with a bare state receive present readings. In principle, present and past time adverbials can appear in root clauses with a bare state as long as they are compatible with the lexical meaning of the predicate they modify. Present or past time adverbs can fix the temporal reference of a sentence with a bare state,

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yielding either present or past stative readings. See Chapter 5 (Section 5.1) for the discussion of interavtion of time adverbs and bare predicates.

3.1.2 Achievements

Root clauses with a bare achievement such as *yíng* 'win', *sǐ* 'die' or *dào* 'arrive' are ungrammatical, as shown in (6a), (7a) and (8a) below:

(6) (*Context: -Who won the game last night?*)

    a. *Lǐsì   yíng.
       Lisi   win

    b. Lǐsì   yíng   ***(le)**.
      Lisi   win   PERF
      'Lisi won.'

(7) a. *Yú   sǐ.
      fish   die

    b. Yú   sǐ   ***(le)**.
      fish   die   PERF
      'The fish died.'

(8) a.*Kèrén dào.
      visitor arrive

    b. Kèrén dào   ***(le)**.
      visitor arrive PERF
      'The visitor arrived.'

To license an episodic past reading for the achievement *yíng* 'win', *sǐ* 'die' or *dào* 'arrive', an overt aspect marker (the perfective maker *le* for instance) is required, as shown in (6b), (7b) and (8b). The "b" examples above are all interpreted as past events.

A question arises whether a temporal adverb can play the same role as the perfective aspect in the "b" examples in (6)-(8). In other words, can a temporal adverb alone rescue a sentence with a bare eventive predicate from ill-formedness by fixing the temporal reference of the event described by the predicate?

Consider the sentences below.

(9) a. **Jīntiān** Lǐsì   yíng   *(le).
    today   Lisi   win   PERF
    'Lisi won today.'

  b. **Zuótiān**   nèi-tiáo   yú   sǐ   *(le).
    yesterday   that-CL   fish   die   PERF
    'That fish died yesterday.'

  c. Kèrén **gāngcái**   dào   *(le).
    visitor just.now   arrive   PERF
    'The visitor arrived just now.'

As shown in (9), despite the explicit temporal adverbs, the sentences are all ungrammatical without the perfective aspect marker *le*. This suggests that neither present time adverbs like *jīntiān* 'today' in (9a), nor past time adverbs like *zuótiān* 'yesterday' in (9b) or *gāngcái* 'just-now' in (9c), can by themselves license episodic readings for sentences with a bare achievement. The overt aspect is required to license episodic readings.

We conclude that, in Mandarin, achievements must be overtly marked for aspect to be interpreted as episodic events. This will be discussed in Chapter 3.

3.1.3 Activities

As has been observed before, by Tang & Lee (2002) and Tsai (2008), independent root clauses like (10) with a bare activity sound incomplete. such as *xiào* 'smile' in (11a) and *tuī tā de xiǎochē* 'push her stroller' in (12a) are ill-formed.

(10) *Akiu   na   shu.
    Akiu   take   book

                        (Tsai 2008: 678)

(11) a. *Mǎlì   xiào.
     Mary   smile

  b. Mǎlì xiào **le**.
    Mary smile   PERF
    'Mary smiled'.

   c. Mǎlì **zài** xiào.
     Mary PROG smile
     'Mary is smiling.'

(12) a. ??Yīchén tuī tā de xiǎochē.
      Yiche push 3SG *de* stroller

   b. Yīchén tuī **zhe** tā de xiǎochē.
      Yichen push DUR 3SG *de* stroller
    'Yichen is pushing her stroller.'

Modified by the overt perfective marker *le*, the activity *xiào* in (11b) yields an episodic past reading. In the presence of the progressive marker *zài* or the durative marker *zhe*, (11c) and (12b) report that the events described by the verb *xiào* and *tuī* are ongoing.

(13a) and (13b) below illustrate cases where present or past time adverbs modify a sentence with an activity.

(13) a. **Zhèi-huǐr** Yīchén tuī *(**zhe**) tā de xiǎochē.
      this-instant Yichen push DUR 3SG *de* stroller
    'Yichen is pushing her stroller right now.'

   b. **Gāngcái** Mǎlì xiào *(**le**).
     just.now Mary smile PERF
    'Mary smiled just now'.

Both (13a) and (13b) require overt aspectual marking (the durative *zhe* or the perfective *le*) to be well-formed, suggesting that neither a present time adverb like *zhèi-huǐr* 'this instant', nor a past time adverb like *gāngcái* 'just now', can by itself fix the temporal reference of a sentence with a bare activity. An aspect marker must be present for an activity to receive an episodic present or past reading.

3.1.4 Accomplishments

With a bare accomplishment *kàn Sān Guó Yǎnyì* 'read *Romance of the Three Kingdoms*' or *chī yíkuài dàngāo* 'eat a piece of cake', (14a) and (15a) are not felicitous as independent sentences.[19]

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[19]   The reader should keep in mind that the grammaticality judgments reported here are based on sentences uttered out of the blue as

(14) a. ?? Mòyán   kàn   "Sān Guó   Yǎnyì".
       Moyan   read   three kingdom   romance

    b. Mòyán   kàn   **le**   "Sān Guó   Yǎnyì".
       Moyan   read   PERF three kingdom   romance
       'Moyan (has) read *Romance of the Three Kingdoms*.'

    c. Mòyán   **zài** kàn   "Sān Guó   Yǎnyì".
       Moyan   PROG read   three kingdom   romance
       'Moyan is reading *Romance of the Three Kingdoms*.'

(15) a. ?? Lǐsì   chī   yí-kuài dàngāo.
       Lisi   eat   one-CL cake

    b. Lǐsì   chī   **le**   yí-kuài dàngāo.
       Lisi   eat   PERF one-CL cake
       'Lisi ate a piece of cake.'

    b. Lǐsì   **zài** chī   yí-kuài dàngāo.
       Lisi   PROG eat   one-CL cake
       'Lisi is eating a piece of cake.'

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independent clauses. We assigned question marks to (14a) and (15a), because they sound incomplete or even odd in out-of-the-blue context. However, a complex sentence (that is, a sentence with more than one verb, or occurrence of a verb) with (14a) or (15a) as its part can be felicitous. This is the case in (i) and (ii) below. These sentences are grammatical with the perfective marker *le* or the negation for perfective sentences *méi* modifying the second occurrence of the verb *kàn*. (See also Tsai 2008 for discussion.)

i) Mòyán kàn   "Sān Guó   Yǎnyì"
   Moyan read   three kingdom   romance
   kàn   le   yí-bàn.
   read   PERF   one-half
   'Moyan read a half of *Romance of the Three Kingdoms*.'

ii) Mòyán kàn   "Sān Guó   Yǎnyì"
   Moyan read   three kingdom   romance
   méi   kàn   wán.
   NEG.PERF read   finish
   'Moyan didn't finish reading *Romance of the Three Kingdoms*.'

The presence of the perfective aspect marker *le* licenses a past reading for (14a) and (15a), while the progressive aspect *zài* allows an on-going reading for (14b) and (15b).

Temporal adverbials like *1967 nián* 'the year of 1967' in (16a), *shàng-gè-yuè* 'last month' in (16b), and *cǐshícǐkè* 'this very moment' in (16c) cannot rescue a sentence with a bare accomplishment from illformedness. To license an episodic past or ongoing reading, an overt aspect is obligatory.

(16) a. **1967 nián**, Mòyán kàn *(**le**) "Sān Guó
   1967 year   Moyan read   PERF   three   kingdom

   Yǎnyì".
   romance

   'Moyan read *Romance of the Three Kingdoms* in 1967.'

 b. **Shàng-gè-yuè**,   Mòyán kàn *(**le**) "Sān Guó
   up-CL-month   Moyan read   PERF   three   kingdom

   Yǎnyì".
   romance

   'Moyan read Romance of the Three Kingdoms last month.'

 c. **Cǐ-shí-cǐ-kè**   Lǐsì *(**zài**) chī   yí-kuài
   this-time-this-moment   Lisi   PROG   eat   one-CL

   dàngāo.
   cake

   'Right now, Lisi is eating a piece of cake.'

In Mandarin, sentences with an accomplishment must be overtly marked for aspect to license episodic readings.

To summarize, the data that we have seen from Section 3.1.1 to Section 3.1.4 show that:

(17) Sentences with a bare state are well-formed and yield stative readings. Present or past time adverbials can fix the reference time of a sentence with a bare state, yielding a present or past stative reading;

(18) Sentences with an eventive predicate - that is, an achievement, an activity or an accomplishment - must be overtly marked for aspect to yield episodic past or on-going readings.

3.2 Well-formed bare eventives and genericity

The data that we discussed in the previous section concerning root clauses with a bare predicate suggest that sentences with a bare stative predicate are well-formed, while sentences with a bare eventive are not. However, where eventive predicates are concerned, the situation is more complicated than this. While an eventive predicate must be overtly marked for aspect (the perfective *le* or the progressive *zài*, for instance) to license episodic readings, bare eventives are sometimes grammatical. As we shall see, this is the case in sentences containing a quantificational adverb, a locative prepositional phrase (PP), or other adverbial modifiers. Moreover, some sentences with an activity are well-formed with neither aspect nor even a modifying adverbial. We will see that, when a sentence with a bare eventive predicate is grammatical, it necessarily yields a generic reading.

3.2.1 Quantificational adverbs

The sentences in (19) below are sentences with eventive bare predicates. Each of them contains a quantificational adverb, namely, *zǒng* 'always', *jīngcháng* 'often', *hěnshǎo* 'rarely' or *měinián* 'every year'. They convey that the event described by the predicate happens with a certain *frequency* or *regularity*.

(19) a. Zhōngguó   duì   **zǒng**   shū.
China   team   always   lose
'The Chinese team loses all the time.'

b. Èrmáo   **jīngcháng**   tīng   zhèi-shǒu   gē.
Ermao   often   listen   this-CL   song
'Ermao often listens to this song.'

c. Mǎlì **hěnshǎo**   xiào.
Mary rarely   smile
'Mary rarely smiles.'

d. Gǔlóng **měinián** xiě hǎojǐběn xiǎoshuō.
Gulong every-year write several-CL novel
'Gulong writes several novels a year.'

These sentences are of the kind sometimes referred to in the literature as "*generic sentences*". They make generalizations or report regularities, as opposed to "*episodic sentences*", which describe specific events (see Carlson et al. 1995). More precisely, (19a-d) are of a subcategory of generic sentences: those labeled by many scholars as "*habitual sentences*", which contain eventive predicates and make generalizations over instances of events.[20]

3.2.2 Locative PPs

Another type of modifier that often appears in sentences with a bare eventive is a locative prepositional phrase (PP), such as *zài zhèi-jiā miànbāofáng* 'in this bakery' in (20a), or *zài wòshì-lǐ* 'in the bedroom' in (20b). These sentences are also *generic* sentences. They convey that the predicated event takes place generally in a specific location.

(20) a. Tā **zài** **zhèi-jiā** **miànbāofáng** mǎi tiándiǎn.
3SG at this-CL bakery buy dessert
'He buys his dessert in this bakery.'

b. Lùlu **zài** **wòshì-lǐ** tīng zhèi-shǒu gē.
Lulu at bedroom-inside listen this-CL song
'Lulu listens to this song in her bedroom.'

Notes that in some cases locative PPs seem to trigger a progressive reading for sentences with an eventive predicate, as shown in (21):

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[20] The other subcategory of "*generic sentences*" is known as "*lexical characterizing sentences*". They contain stative predicates and describe relatively stable properties of an individual or a kind. The sentences below are of this kind:
i)   Alice is blond.
ii) A cat has four legs.
Generic sentences are discussed in more detail in Chapter 4.

(21) Tā zài túshūguǎn chá zīliào.
  3SG ZAI library   consult document
  'He consults documents in the library.'
  'He is consulting documents in the library.'

(21) appears to allow not only a generic reading, but also an on-going episodic reading.[21] In Section 3.6, I discuss the reason why sentences containing a prepositional phrase headed by *zài* also allow progressive readings.

3.2.3 Other adverbial modifiers

Sentences with a bare eventive predicate, modified by adverbs like *róngyì* 'easily', *hěn wǎn* 'very late' or *hěn kuài* 'very fast', are well-formed and they yield generic readings, as shown in (22) below.

(22) a. Zhèi-jǐ-gè bōlibēi hěn **róngyì** suì.
   this-many-CL glass very easy break
   'These glasses break easily.'

  b. Zhè-jǐ-jiā diàn **hěn** **wǎn** guānmén.
   this-many-CL store very late close
   'These stores close late.'

  c. Shùyè luò de **hěn** **kuài**.
   leaf fall *de* very fast
   'Leaves fall fast.'

3.2.4 Well-formed bare activities

The sentences with a bare eventive that we have seen in Section 3.2.1 through 3.2.3 all contain an adverbial modifying the VP. There are also sentences with a bare activity that are well-formed without any adverb. Consider the sentences below:

(23) a. Lǐsì dǎ wǎngqiú.
   Lisi play tennis
   'Lisi plays tennis.'/*'Lisi is playing tennis'.

            (Example adapted from Lin 2006)

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[21] Thanks to Rint Sybesma and Waltraud Paul for bringing this ambiguity to my attention.

    b. Gǔlóng   chōu-yān.
       Gulong   smoke-cigarette
       'Gulong smokes.'/ *'Gulong is smoking.'

Containing the bare activity *dǎ wǎngqiú* 'play tennis', (23a) can only be used to convey that *Lisi* (regularly) plays tennis. To communicate that a particular event of *Lisi* playing tennis is going on, the progressive marker *zài* is needed, as shown in (24a) below. Similarly, (23b), with the bare activity *chōuyān* 'smoke', describes a property of *Gulong* as a smoker, as opposed to (24b), where the progressive marker *zài* gives rise to an ongoing episodic reading.

(24) a. Lǐsì **zài**   dǎ   wǎngqiú.
      Lisi PROG play   tennis
      'Lisi is playing tennis.'

    b. Gǔlóng   **zài**   chōuyān.
       Gulong   PROG smoke
       'Gulong is smoking.'

Taking together the sentences with bare activities that we discussed in (11) and (12) in Section 3.1.3 and sentences in (23) above, it seems that if a sentence with a **bare activity is well-formed, it necessarily yields a generic construal.** This will be handled in Chapter 4.

3.3 Bare Predicate Generalizations

In Section 3.2, we went through cases with bare eventives (activities, accomplishments, achievements) that allow generic readings. Bare eventive predicates yield generic readings in the presence of overt Quanrificational Adverbs (Section 3.2.1), locative PPs (Section 3.2.2), or other adverbial modifiers (Section 3.2.3). Moreover, sentences with a bare activity allow generic readings with no modifiers (Sections 3.2.4).

To sum up, on the basis of the Mandarin data discussed in the previous sections, we put forward the following three Bare Predicate Generalizations (BPGs):

BPG 1.   Sentences with a bare state are well-formed and yield stative readings.

BPG 2. **Sentences with a bare eventive only allow generic readings.**

BPG 3. **To license an episodic reading for a sentence with an eventive predicate, an overt aspect is required.**

How do we account for these generalizations? An appropriate analysis should be able to capture not only the contrast between bare states and bare eventives - that is, that bare states are well-formed, while eventives require an overt aspect in order to license an episodic reading - but also more generally the generalization established in this chapter that bare predicates are grammatical, but only with stative or generic readings.

The following section presents our analyses of the temporal interpretations of bare predicates in Mandarin. We will show how they correctly capture the generalizations made in this section.

3.4 Our proposal

This section presents our analysis of the temporal construal of sentences with bare predicates. This analysis rests on the two following claims:

(25) Argument structure: states are properties of intervals (type $<i,t>$), true or false for a time interval, while bare eventives are properties of events (type $<v,t>$)[22] (Katz 1995; Kratzer 1998).

(26) Overt aspect: Aspect must be overtly marked in Mandarin.

Notice that the first claim is not language specific, but a universal generalization, while the second claim is language specific.

To show how these two claims derive the above generalizations, we adopt a referential approach for the analysis of tense (cf. Chapter 2, Section 2.1.2). Concretely for the demonstration, we assume that syntactically there is a TP projection with a T°. This T node has a time interval as its semantic value, which serves as reference time for anchoring the eventuality described by the sentence. As far as this chapter is concerned, what we mean by "T projection" is a projection

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[22] Recall that we use the following notations for types: "*i*" stands for "interval", "*t*" for "truth value" and "*v*" for "event".

introducing *times*, but not necessarily the projection of *tense* – that is, this projection could in principle host whatever category that would be responsible for introducing time in the representation. The question of whether Mandarin has Tense or not will be treated in Chapter 5.

That a sentence with neither overt temporal/aspectual marking, nor an overt temporal adverbial, can still be temporally interpreted in Mandarin suggests that something must be responsible for temporal anchoring, even if it is not overtly realized. In the following sections, the tree structures representing Mandarin sentences contain a T projection introducing a time variable t_i, which could be bound by the utterance time or another previously mentioned time interval.

3.4.1 Davidsonian theories and the state/event contrast

3.4.1.1 *Event semantics and argument structure analysis*

The argument structure analysis that we are assuming in (25) is based on the *event semantics*, originally formulated in Davidson (1967). He points out that the pronoun *it* in a sentence like (27) refers to an event, and not an individual, and the adverbs *slowly* and *deliberately* describe that event.

(27) John did it slowly, deliberately…

He proposes that eventive predicates like *kiss* are three-place predicates (that is, a patient, an agent and an event). As shown in (28) below, there is a variable *e* ranging over events in the lexical entry of *kiss*, which is existentially bound.

(28) $[\![kiss]\!]^{g,c} = \lambda x.\lambda y.\exists e$: KISS (e, y, x)

Davidson's idea led to new proposals as to how to distinguish stative predicates from eventive predicates. Dowty (1979) argues that states are true or false for a time (an interval or a moment), while events are not true or false, they "take place" (Dowty 1979:74). Katz (1995, 2003) argues that stative predicates are properties of times, and as such do not have the event argument that eventive predicates have. A stative verb like *love* does not take an *e* argument, but instead, a *t* argument, representing a time, as shown in (29), where we intend 'LOVE (t, y, x)' to express that y loves x for the duration of t.

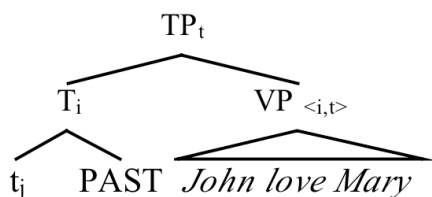(29) $[\![love]\!]^{g,c} = \lambda x.\lambda y.\lambda t.$ LOVE (t, y, x)

We refer to Katz's proposal in this thesis as the **"Argument structure analysis"**. His idea can be illustrated by considering the two sentences in (30) and (34) below.

The sentence *John loved Mary* in (30) contains a stative verb, "love". Its syntactic structure is illustrated in (31b), where the stative bare VP *John love Mary*, being a property of times (cf. (31a)), combines directly with the time introduced by the T node, t_j, a time variable with index j.

(30) John loved Mary.

(31) a. $[\![_{VP}$ John love Mary$]\!]^{g,c} = \lambda t.$ LOVE (t, J, M)

b. Stative VP $_{<i,t>}$ combines directly with a time.

$$
\begin{array}{c}
TP_t \\
\diagup \quad \diagdown \\
T_i \qquad VP_{<i,t>} \\
\diagup \diagdown \qquad \diagup \diagdown \\
t_j \quad PAST \quad \textit{John love Mary}
\end{array}
$$

Note that on a referential approach for tense, the possible value assigned to t_j bears a restriction on its temporal location with respect to the utterance time (UT). The role of the semantic tense PAST in (31b) is to impose that restriction, namely, PAST gives rise to the condition that the time assigned to the index j must precede the UT, as shown by the semantic value of PAST given in (32). Thus the sentence *John loved Mary* is true if and only if John loves Mary for the duration of that time, $g(j)$, as shown in (33).

(32) $[\![PAST]\!]^{g,c} = \lambda t: t < t_c.\ t$
(In general, sentences are evaluated with respect to a c such that $t_c = $ UT.)

(33) $[\![TP]\!]^{g,c}$ is defined only if $g(j) < t_c$; where defined, $[\![TP]\!]^{g,c} = 1$ iff J loves M for the duration of $g(j)$.

In contrast, a sentence with an eventive VP like (34) *John kissed Mary* has a syntactic structure like (35b), where the VP combines first with the perfective aspect "PERF" and gives a property of times at the

AspP level. The AspP, which is of type $<i,t>$ can then combine with a time.

(34) John kissed Mary.

(35) a. $[\![_{VP} \text{John kiss Mary}]\!]^{g,c} = \lambda e.$ KISS (e, J, M)

　　b. Eventive VP $_{<v,t>}$ combines with a time via Asp.
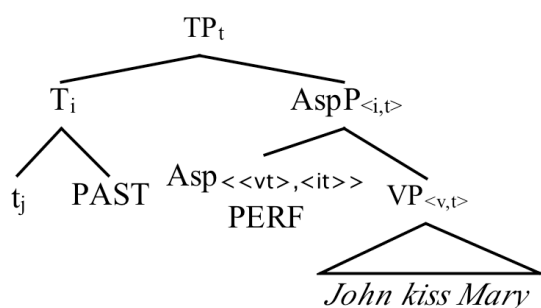
(See Kratzer 1998)

Analyzing aspect as an element establishing the temporal order between the event time and another time (*topic time / reference time*) is generally considered to be the contribution of Klein (1994).[23] Kratzer (1998) gives a precise account of the semantics of aspect (*perfective*, *imperfective* and *perfect*) based on Klein's proposal. The structure in (35b) above is based on her proposal. Out of a property of events, the perfective aspect PERF creates a property of time intervals that holds of all intervals within which an event bearing the original property takes place. The lexical entry of PERF given in (36a) is based on Kratzer (1998) and the truth value of the sentence *John kissed Mary* is given in (36b).

Aspect relates the event time to the reference time.

---

[23]　See also Chapter 2 (Section 2.2.3) for discussion of Reichenbach (1947) and Klein (1994)'s theory of tense and aspect.

(36) a. ⟦PERF⟧^{g,c} = λP.λt. ∃e [P(e)=1 & τ(e) ⊆ t]

      where τ is a "temporal trace" function from an event to
      its running time (Krifka 1989a)

  b. ⟦TP⟧^{g,c} is defined only if g(j) < t$_c$; where defined,
      ⟦TP⟧^{g,c} = 1 iff there is an event of *J* kissing *M*,
      such that its running time is included in g(j).

The contrast between the structure in (31b) and that in (35b) shows that sentences describing states differ syntactically from sentences describing particular events on the part in-between the TP and the VP, namely, the aspect. A stative VP combines directly with the time introduced by the T node; while an eventive VP combines first with an aspect that situates the running time of the event described by the VP with respect to a RT. The source of this syntactic difference lies in the different argument structures of predicates: stative predicates are properties of times, while eventive predicates are properties of events.

3.4.1.2 *Argument structure analysis and Mandarin*

The argument structure hypothesis developed by Katz (1995, 2003) that distinguishes stative predicates from eventive predicates is based on English data. To make it work, Katz needs to assume covert aspect for English. As we shall see, Mandarin is a perfect example to illustrate his theory, since aspect is obligatorily marked overtly. We extend the argument structure hypothesis to Mandarin and show how Mandarin provides evidence for this analysis.

Recall that the fundamental difference between stative predicates and eventive predicates according to Katz lies in their argument structure: stative predicates are predicates of times while eventive predicates are predicates of events. One argument for making this distinction is that it leads to a straightforward account of the contrast between (37) and (38).

(37) John is happy.

(38) a. ?? Max eats the cake.
    b. Max is eating the cake.

With a state *be happy*, (37) is grammatical and is construed as a current state with respect to the moment of the utterance. In contrast, a

sentence with an eventive predicate *eat the cake*, like in (38), requires an aspect (the progressive in (38b)) to be felicitous. The syntactic structures of (37) and (38b) differ in the presence of an Asp node: (38b), but not (37), needs an Asp projection under which the progressive aspect maps the predicate of events to a predicate of times.

Bearing this contrast in mind, consider now the past-tensed sentences in (39) and (40) below:

(39) John was happy.

(40) a. Max ate the cake.
    b. Max was eating the cake.

Apparently, the sentences in (39) and (40) differ from sentences in (37) and (38) only in their tense: (39) is the past-tensed counterpart of (37), and (40) the past-tensed counterpart of (38). Consequently, the temporal construal of (39) and (40) should in principle follow the same reasoning that we used above for (37) and (38). However, the question arises as to why (40a) but not (38a) is grammatical. Recall that eventive predicates, being properties of events, require an aspect to be able to combine with a time, predicting the ill-formedness of (38a), but it should also predict (40a) to be ungrammatical, contrary to fact.

In order to explain why sentences like (40a) are grammatical, Katz postulated a *covert perfective aspect*, which turns the event predicate into a predicate of times.

Reconsider English sentences (30) and (34) discussed in Section 3.4.1.1, repeated below as (41a) and (41b). It's not obvious that the structure of (41b) contains a perfective aspect "PERF", as shown in (42b), since it is not morphologically realized in English.

(41) a. John loved Mary.

    b. John kissed Mary.

(42) a. [$_{TP}$ [$_T$ t$_i$ PAST] [$_{VP}$ John love Mary]]

    b. [$_{TP}$ [$_T$ t$_i$ PAST] [$_{AspP}$ **PERF** [$_{VP}$ John kiss Mary]]]

In Mandarin, however, the contrast predicted by Katz's analysis is straightforward. Consider (43a) and (43b) below, the Mandarin counterparts of the English sentences in (41) above.

(43) a. Nèi-shíhou   Lăomóuzi   xǐhuān Gŏng Lì
      that-time   Laomouzi   love   Gong Li
      'At that time, Laomouzi loved Gong Li.'

    b. Lăomóuzi   qīn   *(le)   Gŏng Lì
      Laomouzi   kiss   PERF   Gong Li
      'Laomozi kissed Gong Li.'

(44) a. [$_{TP}$ that-time$_i$ [$_{TP}$ t$_j$ [$_{VP}$ L love G]]]

    b. [$_{TP}$ t$_j$ [$_{AspP}$ **le** [$_{VP}$ L kiss G]]]

Besides the part under the T node, the fundamental difference between the English examples and the Mandarin examples is that *the perfective aspect is overt in Mandarin*: the presence of the perfective *le* is obligatory in (43b). As we stated earlier in this chapter, episodic readings are only licensed by overt aspect in Mandarin.

The overtly marked aspect makes Mandarin a perfect illustration of Katz's hypothesis. Mandarin data, as we have seen, provide evidence for Katz's argument structure analysis of stative and eventive predicates: states are predicates of time intervals while eventives are predicates of events; aspect maps an event predicate to a time predicate.

Notice that the English examples are represented with a semantic tense PAST in (42), while the Mandarin counterparts in (44) contain no semantic tense. The issue of whether Mandarin has a semantic tense will be addressed in Chapter 5. We will show that there are constraints on the possible values assigned to the time variable under the T node, and this suggests that Mandarin has a covert tense.

Bare states and time adverbials

Recall our discussion in Section 3.1.1 concerning the temporal construal of sentences with a stative predicate: they are well-formed without being overtly marked for aspect. This is so because, under the current analysis, a stative predicate, being a property of times, can combine directly with a time and gives a truth value at the sentence level. This section demonstrates in detail how to derive the temporal readings of sentences with stative BPs (with or without time adverbs) on the argument structure analysis.

In the presence of a **present time adverbial** like *jīntiān* 'today', a sentence with a bare state like (3) repeated here as (45) yields a present state reading.

(45) **Jīntiān** Lùlu hěn jǔsàng.
today Lulu very frustrated
'Today, Lulu is very frustrated.'

The structure of (45) is illustrated in (46), where the AP (of type *<i,t>*) combines with a time (of type *i*) under T. In this case, the time variable t_i under T is bound by the time interval described by the overt adverb *jīntiān* 'today', namely, the day of the utterance. Thus the sentence is true if and only if *Lulu* is frustrated throughout the day of the utterance, as shown in (48c). Thus the present reading of (45) is correctly predicted.

(46) [φ Today$_j$ [$_{TP}$ t$_j$ [$_{AP}$ Lùlu very frustrated]]
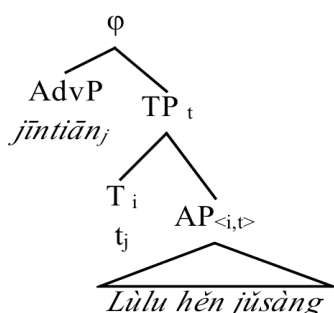
(47) a. $[\![$hěn jǔsàng$]\!]^{g,c}$ = λx.λt. x is frustrated for the duration of t
b. $[\![$Lùlu$]\!]^{g,c}$ = *L*
c. $[\![$t$_j]\!]^{g,c}$ = g(j)
d. $[\![$Jīntiān$]\!]^{g,c}$ = the day that contains t$_c$,
where t$_c$ corresponds to the utterance time for a root clause.

(48) a. $[\![_{AP}$ Lùlu hěn jǔsàng$]\!]^{g,c}$ = λt. *L* is frustrated throughout t

b. $[\![$TP$]\!]^{g,c}$ =1 iff *L* is frustrated throughout g(j)

c. $[\![$φ$]\!]^{g,c}$ =1 iff *L* is frustrated throughout the day of t$_c$;
0 otherwise

In the presence of a **past time adverb** like *zuótiān* 'yesterday', a sentence with a bare state receives a past reading, as shown in (49):

(49) **Zuótiān**   Lùlu   hěn   jǔsàng.
yesterday   Lulu   very   frustrated
'Yesterday, Lulu was very frustrated.'

(50) below illustrates the structure of (49) and it is very similar to (46): they only differ in the value of the time under the Adv node. In (50), the state described by the predicate is evaluated with respect to the time denoted by the past time adverb *zuótiān*, namely, the day before the day of the utterance. Thus, the sentence is true only if *Lùlu*'s frustration holds throughout the day before the day of the utterance, as shown in (52). That's how we derive the past reading for (49).

(50) [φ Yesterday_j [TP t_j [AP [Lulu very frustrated]]
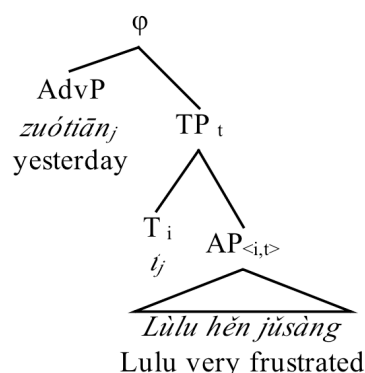
(51) a. $\llbracket$hěn jǔsàng$\rrbracket^{g,c}$ = λx.λt. x is frustrated for the duration of t
b. $\llbracket$Lùlu$\rrbracket^{g,c}$ = L
c. $\llbracket t_j \rrbracket^{g,c}$ = g(j)
d. $\llbracket$zuótiān$\rrbracket^{g,c}$ = the day before the day that contains t_c

(52) $\llbracket$φ$\rrbracket^{g,c}$ =1 iff L is frustrated throughout the day before the day containing t_c; 0 otherwise

In the **absence of any overt temporal adverbial**, a sentence with a bare state usually receives a present interpretation when uttered out of the blue, as shown in (53):

(53) Lùlu   hěn   jǔsàng.
    Lulu   very   frustrated
    'Lulu is very frustrated.'

Why do we get a present reading for (53)? Under our analysis, (53) has a structure like in (54) below, where t_j is a free time variable, which gets its value by the assignment function. Thus the sentence is true only if *Lulu*'s frustration holds throughout the interval assigned to t_j, *g(j)*, as shown by the semantic value given in (55).

(54) [t_j [Lulu very frustrated]]
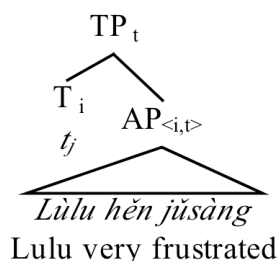
(55) $⟦TP⟧^{g,c}$ =1 iff *L* is frustrated throughout g(j); 0 otherwise

Note that (55) says nothing about how we get the value for t_j, and whether there are any constraints on the temporal location of *g(j)*. The question then is why (53) yields a present reading. The explanation given here is rather pragmatic: when a root clause is uttered out of the blue, the most salient time is the UT, and since sentences are evaluated with respect to assignments with salient objects in their range, *g(j)* generally coincides with UT. That's why (53) gets a present reading.

To summarize, sentences with stative BPs yield stative readings, and they convey that the state described by the predicate is true at a time. With a past time adverb, the described state is interpreted as being situated in the past; with a present time adverb, the described state has a present reading. In the absence of (overt / covert) temporal adverbials, a sentence with a bare state receives a present reading when it is uttered out-of-the-blue. We can account for these readings by assuming that states are predicates of times. A stative BP combines with a time introduced by the T node and gives a truth value. The

sentence is true if and only if the described state holds for the duration of the time under the T node. Thus, our proposal correctly accounts for the present and the past readings of stative BPs.

The reader might notice that nothing has been said concerning the interaction of bare states with *future* time adverbs. We deal with future cases in Chapter 5, and we show that there is an asymmetry in the behavior of future time adverbs and past time adverbs as to their interaction with sentences with bare predicates. Future time adverbs fail to temporally anchor bare sentences by themselves: a modal is required to license future readings. From this point of view, future is less "accessible" than past.

We will see in the following section how our analysis captures the temporal readings of sentences with a bare eventive predicate.

Bare eventive predicates

Recall the "Bare Predicate Generalizations" in Section 3.3: we have shown that sentences with a bare eventive predicate (*accomplishment*, *achievement*, *activity*) only allow generic readings, and that the episodic readings are licensed for eventive predicates only in the presence of an overt aspect (cf. BPG 2).

How do we account for these two generalizations above? In other words, how do we derive the generic readings for sentences containing eventive BPs (cf. BPG 2) and what is the source of the lack of episodic readings for aspectually unmarked sentences with eventive predicates? The first question will be discussed in Chapter 4, in which we propose an analysis of the generic readings of sentences containing eventive BPs. The section that follows attempts to answer the second question by the *argument structure* analysis of the semantics of eventive predicates.

Consider first (56) below, a root clause with a bare accomplishment *dú Sān Guó Yǎnyì* 'read *Romance of the Three Kingdoms*', without any modifying adverbial:

(56) ??Mòyán   dú   "Sān Guó   Yǎnyì".
     Moyan   read   three kingdom   romance
    ??'Moyan reads *Romance of the Three Kingdoms*.'

(56) sounds odd for most Mandarin speakers consulted, and it cannot be used to describe an episodic (present / past) event of *Moyan* reading the *Romance of the Three Kingdoms*.

Why is the root clause with a bare accomplishment unable to be used in this way? Recall that bare eventives are properties of events (of type $<v,t>$) according to the argument structure hypothesis. Therefore, they cannot combine directly with a time, which is of type i, rendering the structure in (57) below uninterpretable.

(57)


```
              *TP
             /    \
          T i      VP<v,t>
          tⱼ       /    \
              Mòyán      V'
                        /      \
                      dú        Sān Guó Yǎnyì
                    'read'   'Romance of the Three kingdoms'
```
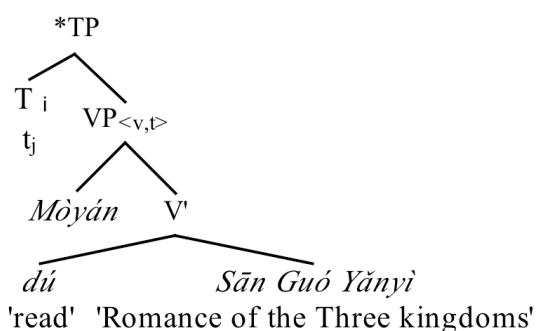
As we have seen in Section 3.1, some sentences with eventive BPs are ungrammatical even if there is an overt temporal adverb. Take (58) for example:

(58) **Shàng-ge-yuè**, Mòyán kàn *(**le**) "Sān-Guó   Yǎnyì".
     up-CL-month   Moyan read   PERF three-kingdom romance
     'Moyan read *Romance of the Three Kingdoms* last month.'

The adverb denoting a past time interval *shàng-gè-yuè* 'last month' in (58) does not license a past reading for the sentence. An overt aspect is required for the sentence to be felicitous. In other words, time adverbs cannot save sentences with an event BP from ill-formedness.

This observation can be carried over to follow from our analysis. Given the structure in (57), a sentence like (58) will have a structure like (59):

(59)

```
                        *φ
                     /      \
                 AdvP        TP
            Shàng-gè-yuèⱼ   /    \
             'last month'  Tᵢ    VP<v,t>
                           tⱼ    /    \
                             Mòyán    V'
                                     /    \
                                   kàn    Sān Guó Yǎnyì
                                  'read'  'Romance of the Three Kingdoms'
```
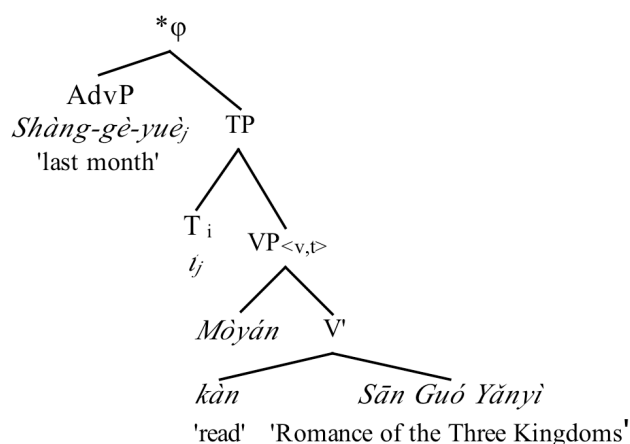
Since the mismatch between the eventive VP and the time under the T head remains unresolved in (59), the extra projection for the time adverb cannot save the structure from uninterpretability.

It's because the projection is there, the VP could yield the semantics

If TP is not there, we cannot rule out sentences like 57.

To conclude, our assumptions about the argument structure of the predicates predict that all sentences with eventive BPs are uninterpretable on episodic readings. The lack of episodic readings of sentences with eventive BPs (cf. BPG 2) is thus correctly captured. As noted above, how generic construals are arised will be discussed in Chapter 4.

In Section 3.4.2, we show that the argument structure hypothesis also correctly captures the readings of sentences with an overt aspect. The crucial point is that aspect, being of type $<<v,t>,<i,t>>$, matches properties of events to properties of times. In other words, aspect locates the running time of the event described by the predicate with respect to another time, yielding a temporally anchored particular event. As illustration, the distribution of the progressive aspect *zài* and perfective aspect *le* will be discussed.

68

3.4.2   Overt aspect

The data discussed earlier in this chapter (cf. Section 3.1) show that sentences with eventive BPs lack episodic readings. In order to license episodic readings, an overt aspect is required. This follows from the argument structure hypothesis, according to which eventive predicates are properties of events (of type $<v,t>$), and thus must combine with an aspect (of type $<<v,t>,<i,t>>$), that maps properties of events to properties of times, before they can combine with a time (of type i).

In this section, we discuss how our analysis captures the temporal readings of sentences with an overt aspect. In particular, we show the derivation of the semantic value for sentences with the progressive aspect marker *zài* or the perfective aspect marker *le*.

3.4.2.1   *Overt progressive aspect*

Consider (60) below, in comparison with (56) above:

(60) Mòyán **zài**   dú   "Sān   Guó   Yǎnyì".
     Moyan PROG du   three kingdom   romance
     'Moyan is reading *Romance of the Three Kingdoms*.'

With an overt progressive aspect *zài*, (60) is well formed and is interpreted as an ongoing present event of *Mòyán* reading *Romance of the Three Kingdoms*. (60) contrasts with (56), which is not grammatical.

Under our proposal, aspect is an operator of type $<<v,t>,<i,t>>$: it maps a property of events to a property of times. Since there is no zero aspect in Mandarin according to our hypothesis, an eventive VP must combine first with an overt aspect to be able to take a time as argument, as shown in (61):

(61)

$$\varphi_t$$

Tree structure:
- φ_t
  - T_i / t_j
  - AspP$_{<i,t>}$
    - Asp$_{<vt,\,it>}$ / *zài*
    - VP$_{<v,t>}$
      - *Mòyán*
      - V'
        - *dú*
        - "*Sān Guó Yǎnyì*"

'read' 'Romance of the Three kingdoms'

The overt progressive head *zài* takes a property of events described by *Mòyán dú Sān Guó Yǎnyì* [Moyan read *Romance of the Three Kingdoms*] and gives a property of times at the AspP level. The value of t_j, *g(j)*, saturates the time slot of the AspP and returns a truth value for the proposition.

At this stage, we are able to derive an on-going present reading for (60). I assume that *zài*, just like the progressive in English, requires a time to be included in the running time of the event described by the VP, as shown in the denotation given below:[24]

(62) $[\![zài]\!]^{g,c} = \lambda P_{<v,t>}.\ \lambda t.\ \exists e[P(e)=1\ \&\ t \subseteq \tau(e)]$

(62) says that *zài* takes a predicate of events P (of type $<v,t>$) and gives a predicate of times, true of a time t that is included within the running time of an event e that has the property P.

(63) below gives the semantics for the minimal constituents of (61), and the detailed derivation is given in (64):

---

[24] The progressive has been argued to involve modality. (Dowty 1977, Landman 1992, Ferreira 2004, a.o.) For reason of simplification, we do not include the modality in the semantics of Mandarin *zài*.

(63) a. $[\![\text{dú}]\!]^{g,c} = \lambda y.\lambda x.\lambda e.$ READ (e, x, y)

    b. $[\![\text{Sān Guó Yǎnyì}]\!]^{g,c} = SG$

    c. $[\![\text{Mòyán}]\!]^{g,c} = M$

    d. $[\![zài]\!]^{g,c} = \lambda P_{<v,t>}. \lambda t. \exists e[P(e)=1 \ \& \ t \subseteq \tau (e)]$

    e. $[\![t_j]\!]^{g,c} = g(j)$

(64) a. $[\![_{VP} \text{Mòyán dú } San \ Guó \ Yǎnyì]\!]^{g,c} = \lambda e.$ READ (e, M, SG)

    b. $[\![_{AspP} zài \ [\text{Mòyán dú } San \ Guó \ Yǎnyì] \ ]\!]^{g,c} = \lambda t. \exists e$ [READ $(e, M, SG) \ \& \ t \subseteq \tau(e)]$

    c. $[\![\varphi]\!]^{g,c} =1$ iff $\exists e$ [READ $(e, M, SG) \ \& \ g(j) \subseteq \tau(e)]$, 0 otherwise

According to the last line of (64), φ is true if and only if there is an event of *Mòyán* reading *Romance of the Three Kingdoms*, whose running time includes *g(j)*. When (64) is uttered out of the blue, the most salient time is the UT. Thus t_j gets the UT as its value. Consequently, the time of the reading event should include the UT, and the ongoing present reading of (64) is correctly predicted.

The question arises whether our analysis can also capture temporal readings of progressive **sentences with a time adverb**. Consider (65) below:

(65) 1967 nián, Mòyán   zài   dú   "Sān-Guó   Yǎnyì".
    1967-year Moyan   PROG du   three-kingdom romance
    'In 1967, Mòyán was reading *Romance of the Three Kingdoms*.'

In the presence of a past time adverbial *1967 nián* 'the year of 1967', (65) yields an ongoing past reading. How can we account for this past reading? Recall our analysis for bare states accompanied by a past time adverb: the variable t_j should be bound by the time interval denoted by the temporal adverb. Therefore, *1967 nián* in (65) provides a time interval that saturates the time slot of AspP and gives the truth value for the sentence, as shown in (66) below:

(66)

```
                         φ t
                    ╱         ╲
              AdvP            TP
          [1967 nián]ⱼ      ╱    ╲
          'year of 1967'  Tᵢ    AspP<i,t>
                          tⱼ    ╱    ╲
                        Asp <<vt,it>>  VP<v,t>
                        zài         ╱    ╲
                                 Mòyán    V'
                                      ╱      ╲
                                    dú      "Sān Guó Yányì"
                              'read' 'Romance of the Three Kingdoms'
```
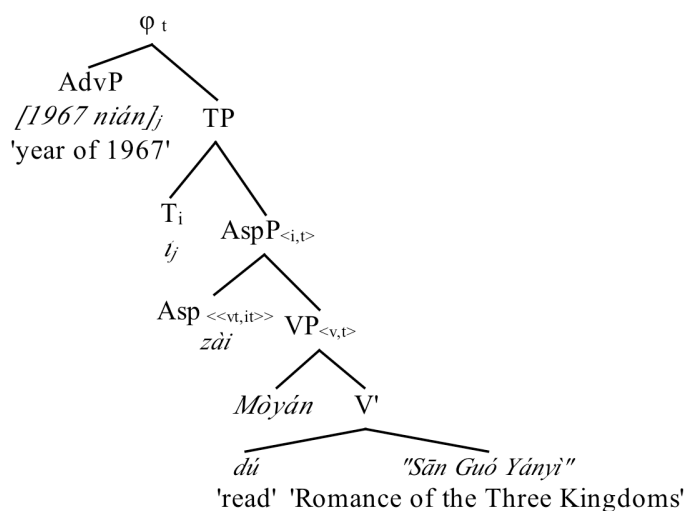
If *1967 nián* has the semantics as in (67), the truth conditions of (65) should be something like in (68):

(67) a. $[\![\text{dú}]\!]^{g,c} = \lambda y.\lambda x.\lambda e.$ READ (e, x, y)

b. $[\![\text{Sān Guó Yǎnyì}]\!]^{g,c} = SG$

c. $[\![\text{Mòyán}]\!]^{g,c}=M$

d. $[\![zài]\!]^{g,c} = \lambda P_{<v,t>}. \lambda t. \exists e[P(e)=1 \;\&\; t \subseteq \tau (e)]$

e. $[\![\text{1967 nián}]\!]^{g,c} = $ *the year of 1967*

f. $[\![t_j]\!]^{g,c}= g(j)$

(68) $[\![\varphi]\!]^{g,c} =1$ iff $\exists e$ [READ (e, M, SG) & *the year of 1967* $\subseteq \tau(e)$], 0 otherwise

(68) says that φ is true if and only if there is an event of *Mòyán* reading *Romance of the Three Kingdoms*, whose running time includes the year of 1967. Notice that (65) does not mean that *Moyan* spent every moment of the year reading the book, which seems to be an implausible scenario in the real world. Since the progressive can not only give rise to an ongoing perspective of a "single" continuous event ((69a)), but also an ongoing perspective of a sequence of episodes of a discontinuous event ((69b)), the "running time" function τ in the semantics of progressive *zài* ((67d)) returns not necessarily the

set of moments at which the described event is true, but rather the interval composed by all moments between the moment where the event starts and the moment where it finishes.

(69) a. Max was drawing a circle when I saw him.

    b. Max is building a house.

The event of *Mòyán* reading *Romance of the Three Kingdoms* during the year of 1967 described by (65) is probably a discontinuous event with several episodes for some pragmatic reasons. Therefore, (68) means that (65) is true if and only if the interval beginning at the moment where *Mòyán* starts reading *Romance of the Three Kingdoms*, and ending at the moment where he finishes it includes the year of 1967.

3.4.2.2 *Overt perfective aspect*

We have shown that root clauses with a bare eventive do not allow episodic readings. An overt aspect is required to license a past or ongoing reading for a bare eventive. In this section, we look into the semantics of sentences with a perfective aspect to see how our analysis captures their temporal readings.

Compare (70a) and (70b) below, two sentences with the same eventive predicate *fābiǎo Hóng Gāoliáng Jiāzú* 'publish *Red Sorghum Clan*':

(70) a. ??1987 nián, Mòyán fābiǎo   *Hóng Gāoliáng Jiāzú.*
         1987 year   Moyan publish   Red Sorghum Clan

    b. 1987 nián,   Mòyán fābiǎo **le**   *Hóng Gāoliáng Jiāzú.*
       1987 year   Moyan publish PERF   Red Sorghum Clan
       'In 1987, Moyan published *Red Sorghum Clan*.'

(70a) is ill-formed with a bare achievement while (70b) is fine with a perfective marker *le*. According to our analysis, the overt perfective aspect takes a property of events denoted by the VP *Mòyán fābiǎo Hóng Gāoliáng Jiāzú* [Mòyán publish *Red Sorghum Clan*] and gives a property of times, which then can combine with a time under T, as shown in (71) below:

(71)

```
                    φ
                  /   \
                 /     \
               T i      AdvP<i,t>
               tⱼ      /    \
                      /      \
                   Adv i      PerfP<i,<it>>
                 1987 nián    /    \
                             /      \
                          Perf      VP<v,t>
                           le      /      \
                                  /_____\
                          Mòyán fābiǎo Hóng Gāoliáng
```
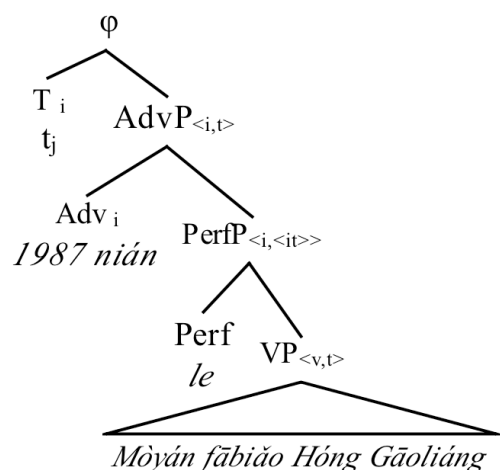
More precisely, the temporal order that directs our understanding of the sentence in (70b) comes from the perfective aspect *le*. We assume that *le* has the lexical entry given in (72):

(72) $[\![le]\!]^{g,c} = \lambda P_{<v,t>}.\ \lambda t'.\lambda t.\ t' < t\ \&\ \exists e\ [P(e)=1\ \&\ t' \supseteq \tau(e)]$

(72) says that *le* takes a predicate of events *P* (type $<v, t>$) and gives a relation between times that holds between a time *t'* and a time *t* when *t'* precedes *t* and includes the running time of an event with property *P*. The semantics of *le* given in (72) is a preliminary analysis. We will redefine it later in (77).

To explain (72) in terms of Reichenbach (1947) and Klein (1994), *t'* is the reference time (RT) and *t* is the UT (or another evaluation time). Recall that in Reichenbach and Klein's tense-aspect system, tense orders the RT to UT, and aspect relates the event time (ET) to the RT. Since the semantics of *le* in (72) contains at the same time information about the ordering of RT and UT (*t' < t*) and the inclusion

relation between RT and ET ($t' \supseteq \tau(e)$), we can conclude that *le* is not a pure aspectual marker, but a mixture of tense-aspect marking.[25]

The lexical entries and the detailed derivation of the semantic values in (70b) are given below:

(73) a. $[\![\text{fābiǎo}]\!]^{g,c} = \lambda y.\lambda x.\lambda e.\ \text{PUBLISH}\ (e, x, y)$

   b. $[\![\textit{Hóng Gāoliáng Jiāzú}]\!]^{g,c} = HGL$

   c. $[\![\text{Mòyán}]\!]^{g,c} = M$

   d. $[\![\textit{le}]\!]^{g,c} = \lambda P_{<v,t>}.\ \lambda t'.\lambda t.\ t' < t\ \&\ \exists e\ [P(e)=1\ \&\ t' \supseteq \tau(e)]$

   e. $[\![\text{1987 nián}]\!]^{g,c} = \textit{the year of 1987}$

   f. $[\![t_j]\!]^{g,c} = g(j)$

(74) $[\![\text{VP}]\!]^{g,c} = \lambda e.\ \text{PUBLISH}\ (e, M, HGL)$

   $[\![\text{AspP}]\!]^{g,c} = \lambda t'.\ \lambda t.\ t' < t\ \&\ \exists e\ [\text{PUBLISH}\ (e, M, HGL)\ \&\ t' \supseteq \tau(e)]$

   $[\![\text{AdvP}]\!]^{g,c} = \lambda t.\ \textit{the year of 1987} < t\ \&\ \exists e\ [\text{PUBLISH}\ (e, M, HGL)\ \&\ \textit{the year of 1987} \supseteq \tau(e)]$

---

[25] This is not the whole story about *le*. Note that *le* can also combine with some bare states, such as *zhīdào* 'know' in (i) and *bing* 'sick' in (ii) below, yielding an inchoative state.

   (i). Xiǎomǐ   zhīdào le   bèi   táotài de zhēnzhèng yuányīn.
        Xiaomi   know   PERF PASSIV   eliminate *de* real   reason
        'Xiaomi has known the real reason for her elimination.'

   (ii). Xiǎomǐ   bìng   le.
         Xiaomi   sick   PERF
         'Xiaomi has got sick / is sick.'

   It has been argued that there are two different *le*: the verbal suffix *le* and the sentence final *le*. Both behave like clitics that form a unit with the preceding word (Chao 1968:246, Teng 1973, Chan 1980, Li & Thompson 1981:296, Sybesma 1999:65, Paul 2015:14). The verbal *le* is analyzed as a perfective aspect under Asp°, while the sentence final *le* gives rise to "currently relevant state" (Li and Thompson 1981:238, Paul 2015). There are also proposals for unifying the semantics of *le*, but these proposals are problematic since the verbal *le* and the sentence final *le* can co-exist in one sentence, as pointed out by Paul (2015), thus contribute differently to the interpretation.

$[\![\varphi]\!]^{g,c} = 1$ iff *the year of 1987* $<$ g(j) & $\exists$e [PUBLISH (e, *M*, *HGL*) & *the year of 1987* $\supseteq \tau$(e)], 0 otherwise

The last line in (74) states that the proposition φ is true if and only if there is an event of *Mòyán* publishing *HGL* whose running time is included within the year of 1987, which precedes the interval assigned to t_i, *g(j)*. When (70b) is uttered out of the blue, the most salient time is the moment of utterance t_c, and thus *g(j)* gets as its value the moment of the utterance. Therefore, the event time of *Mòyán* publishing *HGL* must be included in the year of 1987, which precedes t_c, the moment of utterance. In other words, (70b) yields a past reading.

The problem with this analysis is that it makes wrong predictions about perfective sentences with a deictic adverb denoting an interval including the utterance time, such as (75):

(75) Jīnnián, Mòyán   fābiǎo **le**   *Hóng Gāoliáng Jiāzú.*
     this-year Moyan   publish PERF   Red   Sorghum Clan
     'This year, Moyan published *Red Sorghum Clan*.'

Following the analysis proposed above, (75) should have the logical form and the truth conditions as in (76):

(76) a. [t$_j$ [Jīnnián [le [Mòyán fābiǎo *Hóng Gāoliáng Jiāzú*]]]]

b. $[\![\varphi]\!]^{g,c} = 1$ iff *the year including* $t_c <$ g(j) & $\exists$e [PUBLISH (e, *M*, *HGL*) & *the year including* $t_c \supseteq \tau$(e)], 0 otherwise

Since *g(j)* coincides with t_c when (75) is uttered out of the blue, (76b) requires that the year including UT precede UT, a condition that will rule out (75). However, (75) is perfectly fine and conveys that *Mòyán* has published the novel *Red Sorghum Clan* at the moment of the utterance and the time of the publication is included in the year containing the moment of the utterance. Therefore, some parts in our analysis should be revised to capture the reading of sentences like (75).

We redefine the semantics of the perfective marker *le* as follows:

(77) $[\![le]\!]^{g,c} = \lambda P_{<v,t>}. \lambda t'.\lambda t. \exists e [P(e)=1$ & $t' \supseteq \tau(e)$ & $\boldsymbol{\tau(e) < t}]$

What differentiates (77) from our first definition in (72) repeated below as (78) is that in (77), *le* requires the event time ($\tau(e)$), but not the reference time (*t'*) to precede a contextually determined time *t*.

(78) $[\![le]\!]^{g,c} = \lambda P_{<v,t>}.\ \lambda t'.\lambda t.\ \mathbf{t'} < \mathbf{t}\ \&\ \exists e\ [P(e)=1\ \&\ t' \supseteq \tau(e)]$

Note that (75) has the anteriority in the definition. This is generally assumed in the literature. Given (77), the sentence in (75) has the truth conditions in (79):

(79) $[\![\phi]\!]^{g,c} = 1$ iff $\exists e$ [PUBLISH (e, *M*, *HGL*) & *the year including* $t_c \supseteq$ $\tau(e)$ & $\tau(e) < g(j)$], 0 otherwise

This time, ϕ is true if and only if there is an event of *Mòyán* publishing *HGL* such that its running time is included within the year of the utterance and precedes the interval assigned to t_j, *g(j)*.

Thus, our assumption about the mapping of properties of events to the properties of times together with the assumption about the semantics of the progressive *zài* and the perfective *le*, correctly captures the readings of aspectually marked sentences: sentences with an eventive predicate allow ongoing present readings when they are overtly marked by the progressive aspect *zài*, and they only allow past-shifted episodic readings when they are marked by perfective aspect *le*.

3.4.3 Time variables and the T projection

On an argument structure analysis, there is an element that realizes the temporal argument of the verb or the aspect marker, namely, a variable under T, which is provided with a value by the assignment function.

As we have seen from the previous sections, our analysis with the assumption of a T projection correctly captures the temporal interpretation of sentences with or without an overt aspect: sentences with eventive BPs cannot describe episodic events because they are simply uninterpretable, due to the type mismatch between an eventive VP (of type $<v,t>$) and the time under T (of type i); sentences with stative BPs are well-formed and interpretable, because stative VPs (of type $<i,t>$) are compatible with the time (of type i) introduced by T, and this time then serves as a reference for anchoring the state, yielding a past or present reading.

Another question closely related to our current discussion about the T projection is whether Mandarin, which lacks morphological

tense, has semantic tense. Chapter 5 is dedicated to this issue. We argue that the time intervals assigned to the variable under T do bear restrictions, supporting the hypothesis of a semantic covert tense in Mandarin.

3.5 Alternative analyses

In this section, we present alternative analyses of the temporal construal of bare predicates in Mandarin. We show that these treatments cannot go through for Mandarin and that our analysis better captures the data discussed so far.

3.5.1 The default viewpoint aspect hypothesis/ Telicity-dependent approach (Lin 2006)

A classic hypothesis often adopted for deriving temporal readings of "tenseless" VPs is the "Default Viewpoint Aspect" (DVA) analysis (Bohnemeyer & Swift 2004 (B&S 2004), Lin 2006, Smith & Erbaugh 2005 (S&E 2005), Smith 2008).

Recall our discussion about aspect in Chapter 2 (Dahl 1981, Smith 1991, Olsen 1997 a.o.): situation aspect is distinguished from viewpoint aspect. Situation aspect is associated with properties of the bare predicate, while viewpoint aspect (perfective vs. imperfective) concerns perspectives on a situation or an event. In general, situation aspect is not overtly marked, but this is not the case for viewpoint aspect. Most languages possess perfective and imperfective morphemes (includin Mandarin). There are also languages, like Finnish and Icelandic, which do not have perfective or imperfective aspectual markers.

When the predicate is unmarked for aspect, either there is a "default viewpoint aspect", namely, imperfective or perfective (B&S 2004), or the viewpoint aspect is neutral in the sense that it allows either a bounded or an unbounded interpretation for the situation (Smith 1991)[26].

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[26] The neutral viewpoint focuses on the initial point and at least one inner stage of a situation. A sentence with neutral viewpoint allows either bounded or unbounded interpretations. See Smith (1991) for details.

B&S (2004) argue that in German, Inuktitut and Russian, there are correlations between the telicity of event predicates and their aspectual reference. Based on the notion o 'event realization', aspectually unmarked sentences with *telic* predicates have default *perfective* viewpoint aspect and those with *atelic* predicates have default *imperfective* aspect. Following Klein (1994)'s proposal that aspect relates the event time to the topic time (the time about which something is asserted), B&S (2004) define the perfective aspect (PRV) and the imperfective aspect (IMPF) as follows:

(80) a. PRV : = $\lambda P \lambda t_{TOP} \exists e [\ P(e) \wedge \tau(e) \subseteq t_{TOP}]$
     b. IMPF : = $\lambda P \lambda_{TOP} \exists e [\ P(e) \wedge t_{TOP} \subset \tau(e)]^{27}$

$$\text{(Bohnemeyer \& Swift 2004:280)}$$

where the perfective aspect (80a) encodes inclusion of the running time of the event $\tau(e)$ in the topic time t_{TOP}, and the imperfective aspect (80b) encodes the proper inclusion of t_{TOP} in $\tau(e)$. In terms of 'event realization', perfective gives rise to the realization of the whole event, while imperfective only entails partial realization of the event.

B&S (2004) inspired Lin's (2006) *tenseless* treatment of Mandarin. Lin claims that there is no tense node in Mandarin and we obtain the temporal interpretation of a sentence from default aspect, aspectual particles, and pragmatic reasoning. In particular, when there are neither temporal adverbs nor aspectual markers in a sentence, the temporal construal can be derived from the "Default Viewpoint Aspect" of the predicate.

In his derivation of temporal relation, Lin also adopts the three time spans in Klein (1994): Speech Time, Topic Time (TT) and Event Time (ET). In order to be consistent in the terminology, we will use "Utterance Time (UT)" to refer to "Speech Time".

An *atelic* predicate denoting a state or an activity (e.g. *máng* 'be busy' or *dǎ lánqiú* 'play basketball') has imperfective viewpoint aspect by default, the topic time should be included in the event time (TT ⊆ ET). If the default topic time is the utterance time (TT=UT),

---

[27] Recall that "τ" is the temporal trace function that gives the run time of an event (See Krifka 1989a).

the utterance time should be included within the event time (UT ⊆ ET), and the sentence has a present reading, as illustrated in (81) below:

(81) Imperfective

----[$_{ET}$---[$_{TT}$---]---]--->
   TT=UT(default)   ⇒   ----[$_{ET}$---[$_{UT}$---]---]--->

In contrast, a *telic* predicate, that is, an achievement or an accomplishment (eg. *dǎpò yígè huāpíng* 'break a vase') has perfective aspect by default. The event time should therefore be included in the topic time (ET⊆TT). Since the default topic time is the utterance time (TT=UT), the running time of the event denoted by a telic predicate should be included in the UT (ET⊆UT), as shown in (82) below:

(82) Perfective

----[$_{TT}$---[$_{ET}$---]---]--->
   TT=UT(default)   ⇒   ----[$_{UT}$---[$_{ET}$---]---]--->

This derivation leads to a prediction that a zero-marked telic predicate yields a *present* reading, that is, the time of the event denoted by the predicate is included within the utterance time, which is normally very short. Being aware that the result of the derivation is not right, Lin revises the definition of perfective aspect given in B&S (2004) by stipulating a precedence relation between a topic time variable t_{Top} and the evaluation time variable t_0 in the lexical meaning of perfective, as shown in (83). The perfective aspect thus contains not only aspectual information ($t \subseteq t_{Top}$) but also temporal relation ($t_{Top} < t_0$). Consequently, a telic predicate gets a past reading via the default perfective aspect.

(83) Perfective aspect = $\lambda P_{<i,t>} \lambda t_{Top} \lambda t_0 \exists t[t \subseteq t_{Top} \wedge P(t) \wedge t_{Top} < t_0]$

(Lin 2006)

(84) below recapitulates the derivation of the temporal readings for bare predicates on a *Default Viewpoint Aspect* approach à la Lin (2006).

(84) *Default Viewpoint Aspect*
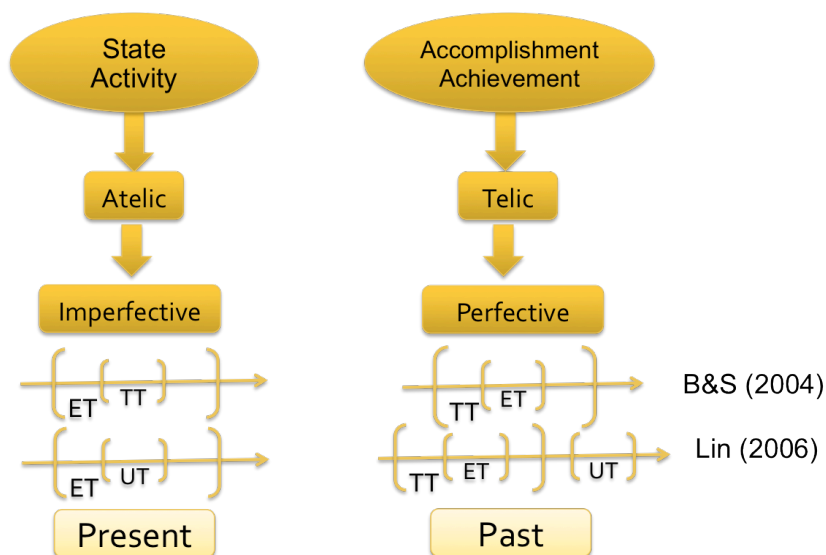
Note that B&S predict the grammatical aspect from the lexical aspect. Lin adds in the definition of perfective a precedence relation, thus predicts past readings for perfective predicates and present readings for imperfective predicates. Bare states and bare activities are predicted to yield present readings by the DVA analysis. Lin's analysis aims to capture the temporal interpretations of the sentences below: (85a) contains a bare state *hěn máng* 'very busy', and (85b) a bare activity *dǎ lánqiú* "play basketball".

(85) a. Zhāngsān hěn máng.
   Zhangsan very busy
   'Zhangsan is very busy.'

 b. Nǐ dǎ lánqiú ma?
   2SG play basketball Q
   'Do you play basketball?'

(Lin 2006:3)

The sentence in (85a) with a bare state *hěn máng* 'very busy' has a present state reading, which is correctly predicted by the DVA hypothesis: a stative predicate has default imperfective viewpoint aspect which requires the topic time (which coincides with the UT) to

be included in the time of the eventuality described by the predicate, that is, the period during which Zhangsan is busy. Accordingly, (85a) conveys that the UT is within the time during which *Zhangsan* is busy, in other words, a sentence with a bare state like (85a) allows a present reading.

Although the DVA hypothesis captures the present readings of bare states, it fails to capture the temporal readings of sentences with bare activities. The sentence in (85b) above contains a bare activity *dǎ lánqiú* 'play basketball', and it only allows a generic reading, as also pointed out by Lin. Recall that under the DVA approach, an activity, being an atelic predicate, has default imperfective aspect and thus the UT should be included within the running time of the event described by that activity predicate. In other words, a sentence with a bare activity is predicted by the DVA hypothesis to yield an *on-going* event. However, the truth-value of a generic sentence like (85b) does not depend on whether there is an on-going event at the speech time. More precisely, a sentence like (86) below is true if *Lisi* is a basketball player. The speaker can truthfully utter (86) being aware that *Lisi* is not playing basketball at the moment of his speech.

(86) Lǐsì   dǎ   lánqiú.
     Lisi   play   basketball
     'Lisi plays basketball.'

The DVA hypothesis thus fails to account for the obligatorily generic readings of sentences like (86). Lin (2006) does not distinguish the generic (present) reading from the on-going (present) reading, and thus there is no explanation for how to derive the generic readings for sentences with bare activities. We will present our analysis of generic construals of sentences with bare activities or other eventive predicates in Chapter 4.

Another problem with Lin's DVA analysis is that bare telic predicates (accomplishments / achievements) are predicted to yield past episodic readings. However, as we will see, his account ignores a large amount of data. His analysis is motivated by the temporal readings of sentences like (87) and (88).

(87) Tā   dài   wǒ   qù   táiběi.
     3SG   take   1SG   go   Taipei
     'He took me to Taipei.'

(88) Zhāngsān   dǎpò yí-gè huāpíng.
     Zhangsan   break one-CL vase
     'Zhangsan broke a vase.'

(Lin 2006:3)

According to Lin, (87) has a past reading 'he *took* me to Taipei', while the Mandarin speakers that we consulted had a different judgment: this sentence receives a future-oriented reading, that is, "he *will take* me to Taipei". The past episodic reading can only be obtained by adding an aspectual marker *le* or *guo*.

(89) Tā   dài   wǒ   qù   le/guo   táiběi.
     3SG   take   1SG   go   PERF/EXP   Taipei
     'He took me to Taipei.'

The future-oriented reading of (87) is not very surprising. In many other languages, we find similar sentences with the verb "go" that encode future eventualities. In French for instance, the present tensed sentences with the verb *vont* 'go.3PL.PRES' in (90) below receive future readings. In English, the verb *go* is also associated with future in cases like (91). The Mandarin sentences in (92) below receive future-oriented readings. This is so probably because of the semantic property of the bare verb *qù* 'go', which intuitively gives future orientation. A form explicit account is beyond the scope of the study.

(90) a. Où   vont-ils?
       where go.3PL.PRES-3PL
       'Where will they go?'

     b. Ils   vont   à   Shenyang.
       3PL   go.3PL.PRES   to   Shenyang
       'They will go to Shenyang.'

(91) a. Where are they going?

     b. They are going to Shenyang.

(92) a. Tāmen   qù   nǎr?
       3PL   go   where
       'Where will they go?'

b. Tāmen   qù   Shěnyáng.
3PL   go   Shenyang
'They will go to Shenyang.'

Concerning the temporal interpretation of bare achievements, Lin gives (88) as example. With the achievement predicate *dǎpò yí-gè huāpíng* 'break a vase', (88) receives a past reading "Zhangsan broke a vase" according to Lin. Mandarin speakers that we consulted have different judgment for (88): some of them accept, but others reject (88) as a grammatical sentence. Those who accept (88) also prefer a sentence containing the perfective marker *le* shown in (93) below:

(93) Zhāngsān   dǎpò   **le**   yí-gè   huāpíng.
Zhangsan   break   PERF   one-CL vase
'Zhangsan broke a vase.'

Lin's analysis for telic bare predicates is based on the judgment on sentences in (87) and (88), which is somewhat controversial. Even if we set aside the disagreement on the grammaticality judgment of these two sentences, there is a large amount of data that cannot be captured by the DVA approach.

Firstly, the sentences in (94a), (94b) and (94c) below are closely related to the sentence in (87) above:

(94) a. Zhāngsān   dǎpò   *(**le**)   nèi-gè huāpíng.
Zhangsan   break   PERF   that-CL vase
'Zhangsan broke that vase.'

b. Zhāngsān   dǎpò   *(**le**)   tā-de   huāpíng.
  Zhangsan   break   PERF   3SG-DE vase
'Zhangsan broke his vase.'

c. Zhāngsān   dǎpò   *(**le**)   huāpíng.
  Zhangsan   break   PERF   vase
'Zhangsan broke a vase / vases.'

These sentences differ from Lin's example in (88) only for the object part: the object in (88) is a numeral or an indefinite *yí-gè huāpíng* 'a vase', while the sentences in (94) contain either a demonstrative *nèi-gè*, a possessive pronoun *tā-de* 'his' or a bare noun. (88) is felicitous without *le*, while (94a-c) are all ungrammatical without *le*. This contrast will challenge Lin's analysis. (94c), for example, contains a

bare noun *huāpíng*, which can have an indefinite interpretation. Thus it should in principle have a similar semantic value as (88), which itself contains an indefinite *yí-gè huāpíng* 'a vase'. Lin derives the following interpretation for (88):

(95) $\exists t_{Top} \exists t \exists x [t \subseteq t_{Top} \wedge t_{Top} < s* \wedge$ break' (x)(Zhangsan')(t) $\wedge$ vase (x)]

(Lin 2006:6)

(95) says that (88) is true iff there is a topic time t_{Top} such that t_{Top} precedes the speech time $s*$ and such that t_{Top} includes a time t, at which *Zhangsan* breaks a vase.

Given the similarity between (94c) and (88), (94c) should also allow a past reading under this analysis. However, as we have seen, (94c) is not felicitous in the absence of an overt marker *le*.

The puzzle of how different types of object influence the grammaticality judgment for a bare sentence is beyond the scope of this thesis, but in designing an analysis of the temporal interpretation of bare predicates, we should at least be sensitive to the existence of facts like (94a-c).

There are other data that are problematic for Lin's analysis: sentences with a *bǎ* construction require overt aspect to allow a past episodic reading. The *bǎ* construction is a very productive process of placing the object before the verb in Mandarin. In the sentences with a *ba* construction below, the particle *le* is always required to license the episodic reading, no matter what type of object the verb takes:

(96) a. Zhāngsān   bǎ   yí-gè huāpíng   dǎpò   *(**le**).
     Zhangsan   BA[28]   one-CL vase   break   PERF
     'Zhangsan broke a vase.'

    b. Zhāngsān   bǎ   nèi-gè huāpíng   dǎpò   *(**le**).
     Zhangsan   BA   that-CL vase   break   PERF
     'Zhangsan broke that vase.'

---

[28]   "*Bǎ*" is a particle marking the so-called *bǎ*-construction in Subject-Object-Verb order sentences.

c. Zhāngsān   bǎ   tā-de   huāpíng   dǎpò   *(**le**).
   Zhangsan   BA   3SG-DE vase   break   PERF
   'Zhangsan broke his vase.'

d. Zhāngsān   bǎ   huāpíng   dǎpò   *(**le**).
   Zhangsan   BA   vase   break   PERF
   'Zhangsan broke the vase / the vases.'

If the default aspect of a telic predicate gives rise to the past reading, as Lin claims, it is a huge challenge to explain why all the sentences above are ill-formed in their bare form.

Moreover, as we have seen earlier in this chapter (Section 3.1), bare activities never allow on-going present readings in root clauses and bare achievements / accomplishments do not have past episodic readings, contra to Lin's prediction.

All the data that we have just discussed seem to show that the DVA approach cannot be carried over to derive temporal interpretations for Mandarin bare predicates. Lin's analysis ignores a huge amount of data.

To summarize, Lin's (2006) analysis based on the DVA of the predicate predicts present readings for bare states / activities and past readings for bare accomplishments / achievements. It correctly captures the temporal interpretation of bare states, that is, they yield present readings when there is no temporal adverb excluding the utterance time. However, it cannot go through for temporal construals of bare eventive predicates, namely, bare activities, achievements and accomplishments: they only allow generic readings, but not episodic readings as claimed by Lin. To license episodic readings for a sentence with an eventive predicate in Mandarin, an overt aspect is required.

3.5.2   Boundedness analyses: Smith & Erbaugh (2005), Smith (2008)

Smith & Erbaugh (2005) (henceforth "S&E") also defend a tenseless analysis for Mandarin. The term "tense" that they use corresponds to morphological tense but not semantic tense. They claim that there is neither syntactic tense nor a finite-nonfinite distinction in Mandarin.

The temporal readings of bare predicates are derived from **aspectual viewpoint** and **situation type** (boundedness).

"Boundedness" refers to "a property of the situations expressed in sentences". To quote,

> *"Bounded situations are temporally closed, by implicit or explicit bounds (ran, broke); unbounded situations are ongoing, temporally open (running, breaking). Boundedness depends on both aspectual viewpoint and situation type."*
>
> Smith & Erbaugh (2005:715)

S&E claim that bare (zero-marked) sentences have *neutral* viewpoint aspect. That is, they can be either interpreted as bounded or unbounded situations. However, sentences with bare predicates have a consistent *default* interpretation: states and activities are unbounded, while telic and/or instantaneous events are taken to be bounded. When interpreting a sentence, we refer to the "temporal schema of its situation type", unless there is explicit information to the contrary. They put forworth the *"Temporal Schema Principle"*, stating that:

> *"In a zero-marked clause, interpret a verb constellation according to the temporal schema of its situation type, unless there is explicit or contextual information to the contrary."*

Moreover, they stipulate a "deictic pattern", which makes the connection between the situation type of the predicate and its temporal location:

(97) *Deictic pattern*:
  Unbounded situations are located in the Present.
  Bounded events are located in the Past.

Thus, Smith & Erbaugh (2005) predict that bare states and activities, which denote unbounded situations by default, have present readings; and bare achievements, semelfactives and accomplishments, which denote bounded events by default, have past readings.

Although the "Boundedness analysis" of Smith & Erbaugh (2005) and the "Default Viewpoint Aspect" analysis adopted by Lin (2006) may differ in their specifics, the predictions they make are very similar, as illustrated in Table 6 below:

Bare predicates	Lin	Smith & Erbaugh
States / activities	On-going Present	On-going Present
Accomplishments / Achievements	Past	Past
Semelfactives	--	Past

Table 6 Temporal readings of bare predicates predicted by Lin and Smith & Erbaugh

Both Lin and S&E predict that bare states and activities yield on-going present readings, and bare accomplishments and bare achievements allow episodic past readings. The only divergence of their predictions lies in the "extra" verb class in Smith's framework, namely, the semelfactives.

Semelfactives denote single-stage events and each single stage is, according to Smith, a bounded situation. Consequently, they are interpreted as past events. There is no discussion of semelfactives in Lin (2006).

While there is this minor difference between the two accounts, neither Lin nor S&E makes right predictions about eventive predicates. Bare achievements and accomplishments are predicted to yield past readings by both Lin (2006) and S&E (2005). However, we have shown that they are ill-formed as episodic events and only overt aspectual markers license episodic past/on-going readings. Bare activities do not allow on-going readings as they predict. They are either ill-formed or yield generic readings.

3.5.3　Observations by Klein, Li & Hendriks (2000)

Klein, Li & Hendriks (2000) make some insightful remarks that are in line with our generalizations: sentences with no aspectual markers, referred to as 'zero marking' sentences, either "sound incomplete or odd, especially when uttered in isolation", or "be interpreted as a kind of imperative", or "indicate a habitual meaning" (Klein et al.

2000:765). In particular, they point out that (98), an example from Yong (1997:7), makes no assertion "with respect to any particular interval" in the absence of the perfective marker *le*, which is a "temporal assertion marker".

(98) Tā   (xīngqītiān)   xǐ   yīfu.
     he   (Sunday)   wash   clothes
     'He washes clothes (on Sundays).'

Recall that in the system of Klein (1994), aspect relates the ET to Topic Time (TT) and tense relates the TT to the UT.[29] Both Klein (1994) and Klein et al. (2000) defend a "tenseless" treatment of Mandarin and argue that adverbials and the context play the role of tense. That zero marking sentences like (98) are not assertions about a temporally anchored specific event because there is no aspect that temporally anchors the event described by the predicate to the TT. We share this point of view about the absence of aspect. However, they do not explain why zero marking sentences have habitual readings.

Another remark of Klein et al. (2000) concerns the "neutral aspect" proposed by Smith (1991). (99), an example given by Smith, is supposed to have "neutral aspect". That is, the sentence can have either perfective or imperfective aspect in the absence of aspect marking.

(99) Zhāngsān   dào   jiā   de   shíhou,   Mǎlì
     Zhangsan   arrive home   de   time   Mali

     xiě   gōngzuò   bàogào.
     write work   report

     'When Zhangsan arrived at home, Mali wrote the work report.'
     'When Zhangsan arrived at home, Mali was writing the work report.'

Smith (1991:79)

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[29]   The Topic Time (TT) in Klein (1994) corresponds approximately to the Reference Time (RT) in Reichenbach (1947). In this thesis, we do not make difference between these two terms. The reader can refer to Chapter 2 for detailed discussion.

However, as Klein et al. (2000) point out, the main clause in (99) is not felicitous without an aspect marker, and aspectual particles are obligatory most of the time in Mandarin.

We agree with Klein et al. (2000)'s the empirical judgment that (97) is ill-formed. We go further assuming that there is no "neutral aspect" in Mandarin root clauses; they are either perfective or imperfective. Moreover, aspect must be overtly marked in root clauses with eventive BPs.

The existing analyses of aspect in Mandarin either make wrong predictions or do not cover the temporal readings of sentences with BPs.

3.6   Apparent counterexamples

Recall our claim concerning eventive predicates in Mandarin: sentences with eventive predicates must be overtly marked for aspect to allow episodic readings; and well-formed eventive bare predicates only allow generic readings.

As we have mentioned in the previous sections, some sentences can actually be interpreted episodically even when there is no overt aspect. This section deals with these apparent counterexamples to our generalizations.

3.6.1   *Zài* locative Prepositional Phrases (PPs)

Recall that in Section 3.2.2 above, we pointed out that bare sentences containing a locative prepositional phrase headed by *zài* allow either generic or progressive readings. This is the case in (21) which is repeated here as (100).

(100) Tā   zài   túshūguǎn   chá   zīliào.
       3SG   ZAI   library   consult document
       'He consults documents in the library.'
       'He is consulting documents in the library.'

Since under our analysis, sentences with bare eventive predicates only allow generic readings, and never episodic readings, (100) appears to be a counterexample.

In the following sections, we show how the progressive readings can be derived from bare sentences containing a *zài*-phrase.

3.6.1.1 PPs and progressive

The availability of progressive readings for sentences containing a locative PP has been discussed in the literature. In particular, Chen (1977, 1978) points out that the sentence in (101) below yields an on-going reading.

(101) Tā   **zài**   kètīng-lǐ   dǎ   diànhuà.
    3SG   ZAI   living-room   make   phone
    'He's making a phone call in the living room.'

(Chen 1977:236)

Chen (1977) focuses on the derivation of the progressive reading for (101) and he doesn't mention whether the sentence has other readings. According to our investigations among Mandarin native speakers, (101) also allows a habitual reading, that is, 'he (usually) makes phone calls in the living room'. The derivation of the habitual construal will be discussed later. This section focuses particularly on the progressive readings of sentences with a PP.

Chen imputes the progressive reading of (101) to what he called *distant haplology*. The term "haplology" is defined in the *The (online) Oxford Dictionary* as:

(102) The omission of one occurrence of a sound or syllable which is repeated within a word (e.g. *probly* for *probably*)

In particular in Mandarin, the progressive marker $zài_{prog}$ is homophonous with the preposition $zài_{loc}$ 'at'. (101) above only contains one occurrence of *zài*, but its literal meaning seems to involve both a progressive $zài_{prog}$ and a preposition $zài_{loc}$. Chen proposes that the underlying structure of (101) contains two occurrences of the morpheme *zài*: the preposition head $zài_{loc}$, which corresponds to the surface morpheme and a progressive $zài_{prog}$ that immediately precedes the verb phrase *dǎ diànhuà* 'make a phone call', as shown in (103).

(103) Tā   **zài_{loc}**   kètīng-lǐ   **zài_{prog}**   dǎ   diànhuà.
    3SG   at   living-room   PROG   make   phone

The preverbal progressive $zài_{prog}$ is then deleted because of the "*distant haplology*" effect (Chen 1977), giving rise to the structure illustrated in (105) below.

(104) Tā   **zài**$_{loc}$ kètīng-lǐ   ~~**zài**~~$_{prog}$ dǎ   diànhuà.
     3SG   at   living-room   PROG   make   phone

(105) *Distant haplology* (Chen 1977)
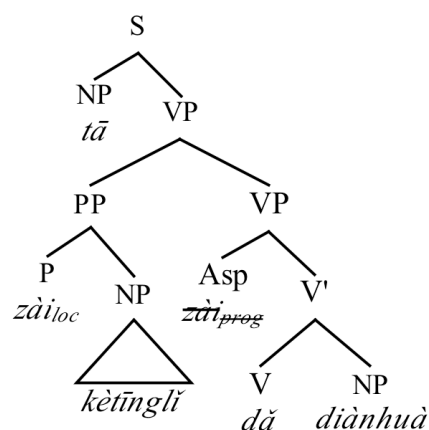
The term "haplology" originally refers to the deletion of one of two *adjacent* identical syllables. Since the two occurrences of *zài* in (104) are not adjacent, Chen stipulates that the haplology effect can also be applied to "distant" homophonous morphemes, explaining why the progressive marker *zài*$_{prog}$ in (104) is not pronounced. In other words, the progressive reading of (101) comes from a preverbal null progressive marker *zài*$_{prog}$.

Chen's intuition of explaining the progressive reading of sentences containing a *zài*-phrase by a deletion is basically right, although the underlying assumptions of his approach are not accurate.

The first assumption concerns the syntactic position of the progressive marker, that is,

    Chen 1. *The progressive marker immediately precedes the verb. It behaves like a prefix of the verb.*

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The second assumption is the so-called "*distant haplology*" effect:

> *Chen 2. One of the two homophonous morphemes in a sentence can be deleted.*[30]

In what follows, we show the problems with these assumptions and give our proposals, which are based on the idea of hyplology, just like Chen's, but unlike him, we don't allow *distant* haplology, and the syntactic structure we propose more accurately captures the facts about when the haplology happen.

Chen's analysis correctly predicts the progressive reading of sentences like (101). However, "distant haplology" fails to explain the following puzzle: why is the on-going reading not available for a sentence with a topicalized locative PP, as illustrated by the contrast between (106a) and (106b) below:[31]

(106) a. Lùlu **zài   túshūguǎn**   chá   zīliào.
         Lulu ZAI   library   consult document
         'Lulu is consulting documents in the library.'
         'Lulu consults documents in the library.'

    b. **Zài túshūguǎn**,   Lùlu   chá   zīliào.
       ZAI library   Lulu   consult document
       'Lulu consults documents in the library.'

With a locative PP *in-situ*, (106a) allows a progressive reading. However, when the locative PP *zài túshūguǎn* 'in the library' is topicalized, as the case in (106b), the progressive reading is no longer available. (106b) can only be used to report what *Lùlu* usually does in a specific place, that is, the library, but not an on-going event of *Lùlu* consulting documents in the library at the speech time. In other words when the locative PP is topicalized, the progressive reading is lost.

The contrast between (106a) and (106b) is problematic for "*distant haplology*" because if the "haplology" effect can be "distant",

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[30]   Chen's assumptions presented here are formulated in our terms. These ideas are abstracted from Chen (1977, 1978).

[31]   I would like to thank Waltraud Paul for bringing to my attention the contrast between topicalized and *in-situ* PPs and for her comments.

why is the distant deletion of $zài_{prog}$ possible for (106a) but not (106b), as shown in (107a) and (107b) below? (Paul Waltraud, p.c.)

(107) a. Lùlu **zài$_{loc}$** túshūguǎn   **z̶à̶i̶$_{prog}$** chá zīliào.
     Lulu at   library   PROG   consult document

   b. **Zài$_{lo}$** túshūguǎn,   Lùlu   ***z̶à̶i̶$_{prog}$** chá   zīliào.
      at   library   Lulu   PROG consult   document

Let's name this puzzle the "topicalized PP puzzle". The solution that we would like to suggest for this puzzle is based on two assumptions: one assumption concerning the syntactic position of the progressive morpheme in Mandarin (Hyp 1) and the other on the deletion rule (Hyp 2), as shown below:

Hyp 1.   Syntactic position of *PROG*:

In Mandarin, the progressive takes the whole VP as complement in the syntax. It can but need not immediately precede the verb in the surface structure.

Hyp 2.   "Haplology":

The deletion of a syllable or a morpheme is possible if it is homophonous with an adjacent morpheme. The "haplology" effect is only applied to the phonological form (PF), and it must be "local" but never "distant".

The *haplology* defined in Hyp 2 above is largely based on the original meaning of the term (cf. the definition given in (102)). What makes it different from Chen's haplology is that it requires the adjacency of the two identical morphemes.

The following section discusses in detail why the syntactic structure of the progressive assumed by Chen is not tenable and we provide evidence for our assumption about the basic syntactic structure of the progressive in Mandarin. In Section 3.6.1.3, we show how the deletion rule "haplology" described in Hyp 2 above captures more facts.

3.6.1.2 Syntactic position of *zài*

Our explanation for the progressive readings of bare sentences containing a PP will crucially rely on certains assumptions about the syntax, which we will justify in the section.

According to Chen, the underlying structure of a sentence with the progressive marker is as follows:

(108) Syntactic structure according to Chen (1977)
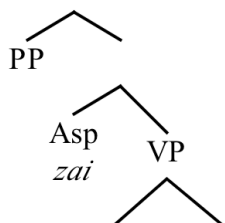
In (108), the progressive marker *zài* is generated in a preverbal position and behaves like a prefix of the verb, that is, the verb immediately follows the progressive marker and they form a constituent that excludes other modifying constituents such as PPs.

On our proposal, in contrast, the progressive marker modifies the whole VP and since Mandarin allows preverbal adverbials and PPs modifying a verb, the progressive marker can consequently be "separated" from the verb linearly. Therefore, for a sentence with a PP modifying the verb, the structure is as in (109):

(109) Syntactic structure under our assumption
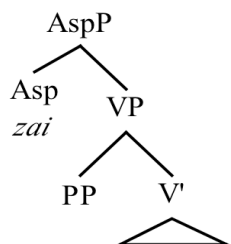
In the literature, we find proposals concerning the syntactic position of aspect in Mandarin. Cheng (1991) argues that aspect is base-generated in a position higher than VP. The progressive marker *zài*, which is not an affix, contrary to the perfective marker *le* and the experiential marker *guo*, does not "lower" to be attached to the verb in

the surface structure (Cheng 1991:12-13). Cheng's analysis is more appealing and we provide more evidence for her proposal.

Firstly, the syntactic position of *zhèngzài*, another progressive marker, suggests that the progressive in Mandarin is not necessarily in an immediate preverbal position. Note that the progressive marker *zhèngzài* is almost equivalent to *zài$_{prog}$* in Mandarin.[32] In most progressive sentences, these two morphemes are morphologically related and almost interchangeable, as illustrated in (110a) and (110b):

(110) a. Lùlu **zhèngzài / zài$_{prog}$** héduì zhàngdān.
      Lulu PROG check bill
      'Lulu is checking her bills carefully.'

    b. Zhāngsān **zhèngzài / zài$_{prog}$** tīng yīnyuè.
        Zhangsan PROG listen music
        'Zhangsan is listening to the music.'

Moreover, *zhèngzài* is not a preposition but a pure progressive marker: it cannot replace the preposition *zài$_{loc}$*, as shown by the contrast between (111a) and (111b):

(111) a. Lùlu **zài** jiā.
      Lulu at home
      'Lulu is at home.'

    b. *Lùlu **zhèngzài** jiā.
       Lulu PROG home

Since *zhèngzài* has the same distribution as *zài$_{prog}$*, but not *zài$_{loc}$*, its behavior will shed light on the syntactic environment of the progressive in Mandarin and thus help us identify *zài$_{prog}$* in a complex structure in order to verify assumptions about the syntactic properties of the progressive in general.

The first observation about *zhèngzài* is that it precedes but does not follow a full prepositional phrase modifying the verb, as shown in (112a) and (112b).

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[32]   The difference between *zhèngzài* and *zài*, if there is any, lies in the morpheme *zhèng* in *zhèngzài*, which means "at this point" and therefore reinforces the aspectual feature of *zhèngzài* as a progressive marker.

(112) a. Xiǎoxīn **zhèngzài** cháo dìdi
Xiaoxin PROG towards brother

  rēng dōngxī.
  throw thing
'Xiaoxin is throwing things at his brother.'

b. ?? Xiǎoxīn cháo dìdi **zhèngzài** rēng
Xiaoxin towards brother PROG throw

  dōngxī.
  thing
Intended: 'Xiaoxin is throwing things at his brother.'

When *zhèngzài* precedes the PP *cháo dìdi* 'towards his brother', the sentence in (112a) is felicitous and has a progressive reading. In contrast, when *zhèngzài* appears in-between the PP *cháo dìdi* and the verb *rēng* 'throw', as is the case in (112b), the sentence sounds odd.

The second observation about *zhèngzài* is that in the presence of a preverbal adverb modifying the main verb, such as *zǐxì* 'carefully' or *jījí* 'actively', *zhèngzài* must precede and can never follow the adverb, as illustrated in (113) below.

(113) a. Lùlu **zhèngzài** zǐxì héduì zhàngdān.
Lulu PROG careful check bill
'Lulu is checking her bill carefully.'

b. *Lùlu zǐxì **zhèngzài** héduì zhàngdān.
Lulu careful PROG check bill

c. Tāmen **zhèngzài** jījí chóubèi huìyì.
3PL PROG active prepare meeting
'They are actively preparing for the meeting.'

d. *Tāmen jījí **zhèngzài** chóubèi huìyì.
3PL active PROG prepare meeting

The impossibility of having *zhèngzài* in an immediately preverbal position when a locative PP or another adverbial is present in the sentence suggests that **the progressive is generated in a position that is external to the whole VP** in Mandarin.

The second argument supporting our hypothesis about the syntactic position of *zài* (cf. (109)) is that the simple form of the

progressive *zài* can also co-occur with a PP that is not headed by the preposition *zài*$_{loc}$, yielding a progressive reading for the sentence, as shown in (114a) and (114b):

(114) a. Lùlu   zài   wǎng   xuéxiào   zǒu.
           'Lulu   ZAI   to   school   walk
           'Lulu is walking to school.'

       b. Xiǎoxīn   zài   cháo   dìdi   rēng   dōngxī.
           Xiaoxin   ZAI   towards   brother   throw   thing
           'Xiaoxin is throwing things at his brother.'

In (114a), the preposition introducing the place *xuéxiào* 'school' is not *zài* but a directional *wǎng* 'to'. Thus it is reasonable to analyze *zài* as the progressive marker *zài*$_{prog}$, responsible for the on-going reading of the sentence. For the same reason, *zài* in (114b) is a progressive marker rather than a P head. Consequently, the syntactic representations of (114a) and (114b) should be as follows:

(115) a. [...[$_{AspP}$ *zài*$_{prog}$ [$_{VP}$ [$_{PP}$ to school] walk]]]

       b. [...[$_{AspP}$ *zài*$_{prog}$ [$_{VP}$ [$_{PP}$ towards brother] [$_{V'}$ throw thing]]]]

The progressive *zài*$_{prog}$ takes the whole VP as complement. In a similar way, the sentence discussed earlier in (101), repeated here as (116a), has the base structure in (116b).

(116) a. Tā **zài**   kètīng-lǐ   dǎ   diànhuà.
           3SG   ZAI   living-room   make   phone
           'He's making a phone call in the living room.'

       b. [$_{TP}$ he [$_{AspP}$ *zài*$_{prog}$ [$_{VP}$[$_{PP}$ *zài*$_{loc}$ living room][$_{V'}$ make a phone call]]]]

The derivation from (116b), which contains two occurrences of the morpheme *zài*, to the PF of the sentence, where only one *zài* is pronounced, necessarily involves the deletion of one morpheme. The following section presents our proposal concerning the deletion rule, which is different from Chen's "distant haplology": we keep the traditional definition of "haplology", namely, a morpheme can be null only if it is homophonous to an adjacent morpheme.

3.6.1.3 Haplology: local or distant?

Recall that the distant haplology, as defined by Chen (1977) for the purpose of explaining the deleted morpheme, is much less restrictive than the original meaning of "haplology". He stipulates that one of two (distant) homophonous morphemes in a sentence can be deleted.

This deletion rule is too strong as shown in Section 3.6.1.1 above, because if any homophonous morphemes in a sentence are subject to this deletion rule without any extra conditions, we would expect to find sentences that are apparently not attested, however generated by the rule.

Recall our proposal Hyp 2 in Section 3.6.1.1 concerning the deletion rule: the haplology effect must be *local* but never *distant*, that is, **the deletion of a morpheme is possible only if it is identical to the *adjacent* morpheme preceding it.** Besides, it applies to the phonological form (PF), but not any earlier stages of the derivation.

The base structure of the sentence in (116b) discussed in the previous section is repeated below as (117a). Since two morphemes *zài* are adjacent, they are subject to the (local) "haplology" rule. One of the two *zài* thus becomes null in the PF, as shown in (117b).

(117) a. [$_{TP}$ he [$_{AspP}$ *zài$_{prog}$* [$_{VP}$[$_{PP}$ *zài$_{loc}$* living room][$_{V'}$ make a phone call]]]]

    b. [$_{TP}$ he [$_{AspP}$ *zài$_{prog}$* [$_{VP}$[$_{PP}$ ~~*zài$_{loc}$*~~ living room][$_{V'}$ make a phone call]]]]

This is how sentences containing a PP headed by *zài* derive progressive readings under our proposal. Moreover, our analysis also straightforwardly captures the "topicalized PP puzzle". Reconsider sentences in (106a) and (106b), repeated below as (118a) and (118b):

(118) a. Lùlu zài   túshūguǎn   chá   zīliào.
       Lulu ZAI   library   consult document
       'Lulu is consulting documents in the library.'
       'Lulu consults documents in the library.'

    b. Zài túshūguǎn,   Lùlu   chá   zīliào.
       ZAI library   Lulu   consult document
       'In the library, Lulu consults documents.'

(118a) but not (118b) allows an on-going reading for the following reasons: when the locative PP is *in-situ*, the preposition *zài$_{loc}$* following the progressive *zài$_{prog}$* is deleted by the (local) haplology rule, and the ongoing reading is due to the overt progressive aspect *zài$_{prog}$*, as shown in (119a); when the PP is topicalized, the haplology rule can no longer apply given that no identical morphemes are adjacent, as shown in (119b). Thus the null morpheme *zài$_{prog}$* preceding the VP in (119b) is not felicitous, explaining the unavailability of the progressive reading for the sentence in (118b).

(119) a. [$_{TP}$ Lùlu [$_{AspP}$ *zài$_{prog}$* [$_{VP}$[$_{PP}$ ~~zài$_{loc}$~~ library][$_{V'}$ consult documents]]]]

   b. [$_{PP}$ *zài$_{loc}$* library]$_i$ [$_{TP}$ Lùlu [$_{AspP}$ *~~zài~~ [$_{VP}$ t$_i$ [$_{V'}$ consult documents]]]]

Our analysis, which is directly inspired by Chen's idea of dropping one of two identical syllables, not only solves the "topicalized PP puzzle" that Chen fails to account for with the possibility of "distant haplology", but also is consistent with our claim concerning overt aspect in Mandarin (see (18) in Section 3.1). We argued that episodic readings are licensed by overt aspect; in other words, aspect cannot be null in Mandarin. That's exactly what we find in the data discussed above: the overt morpheme *zài* in (118a) is the progressive marker *zài$_{prog}$* that gives rise to the ongoing reading; in contrast, the fronted *zài* in (118b) can only be the preposition *zài$_{loc}$* because of the syntactic position and consequently there is no overt progressive marker, explaining the absence of the episodic readings for (119b).

We will see later (in Chapter 4) how our analysis captures the habitual readings of sentences with an *in-situ* or topicalized locative PP.

3.6.2   Resultative Verb Compounds

Another challenge for our analysis comes from sentences with Resultative Verb Compound (RVC) that are well formed as past events.

Consider the sentence given in Lin (2006) repeated as (120) below:

(120) Zhāngsān   dǎpò   yí-gè   huāpíng.
       Zhangsan   break   one-CL vase
       'Zhangsan broke a vase.'

(Lin 2006:3)

Our hypothesis predicts (120) to be ill-formed or to yield a generic reading, since apparently the eventive verb *dǎpò* 'break' in (120) is not overtly marked for aspect. However, this is not the case: (120) is interpreted as a past event of *Zhangsan* breaking a vase.[33] Why is this sentence without overt aspect marking a well-formed report of a past event?

To answer this question, we first look into the event structure of the predicate *dǎpò*. Although translated as "break" in Lin's example in (120), *dǎpò* is literally composed of two morphemes: an activity verb *dǎ*, which means "hit", and another verb *pò*, which means "break". In the literature, verbs like *dǎpò* are referred to as "Resultative Verb Compounds". They are "a succession of verbs and their complements" (Collins 1997:462), and they encode complex events by expressing the result of an action (Li & Thompson 1981; Lin 2004; Nishiyama 1998; among others). Thus a more accurate translation of *dǎ-pò* is "hit-break", and it means something like "x hits y and as a result, y breaks".

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[33]   It must be emphasized that the most natural way to report a past event that "Zhangsan broke a vase" is the following:
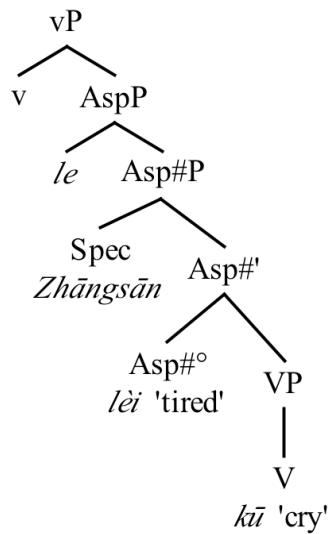   (i) Zhāngsān   dǎpò   **le**   yí-gè   huāpíng.
        Zhangsan   break   PERF   one-CL vase
        'Zhangsan broke a vase.'
     (ii) Zhāngsān   bǎ   yí-gè   huāpíng (gěi)   dǎpò   *(**le**).
        Zhangsan   BA   one-CL vase   GEI   break   PERF
        'Zhangsan broke a vase.'
     The version with the perfective particle *le* in (i) is preferred by our informants to the corresponding bare form in (120) even if the latter is acceptable, and *le* is obligatory in the *bǎ* constuction in (ii).

The event structure of RVCs is a hotly debated issue in the literature and we cannot give a detailed overview of different analyses on RVCs here. Following Sybesma (1999, 2013), Xuan (2008) and Travis (2010), we assume that RVCs have an extra aspectual layer, referred to as "inner aspect" in Travis (2010), and labelled as "Asp#P" in the syntax in Sybesma (2013). This projection is in-between the VP and the AspP (the projection for the grammatical aspect such as *le* and *guo*). If we use V1 to refer to the first activity verb and V2 to refer to the second resultative complement, the projection "Asp#" corresponds to V2 in a RVC, namely, the verb denoting the result. The structure in (122) below is from Sybesma (2013), adapted from Travis (2010) and Xuan (2008).

(121) Zhè-jiàn   shì   kū-lèi   le   Zhāngsān.
       this-CL   affair   cry-tired   PERF   Zhangsan
       'This affair got Zhangsan to cry himself tired'

(122)

```
                    vP
                   /  \
                  v    AspP
                      /  \
                    le    Asp#P
                         /  \
                      Spec   Asp#'
                    Zhāngsān  /  \
                          Asp#°   VP
                         lèi 'tired' |
                                     V
                                   kū 'cry'
```

The RVC *kū-lèi* 'cry-tired' in (121) is separated into V1 *kū* 'cry', the V head in the verbal domain, and V2 *lèi* 'tired', the inner aspect "Asp#".

Projecting V2 in a RVC as an aspectual layer in the syntax is very insightful. Resultative complements change the event structure of the described process (*telicity*, *boundedness*). Even if most V2s in RVCs are verbal in nature, they also contribute to the aspectual properties of the whole predicate. Moreover, some of them, such as *wán* 'finish', *diào* 'drop', *zhù* 'stay' and *chéng* 'become', became the so-called "Grammaticalized Resultative Complements" in modern Chinese, since their literal verbal meaning is weakened or lost in favor of a grammatical function of marking the completion of the process described by the activity verb (Xuan 2010). Take (123b) for instance. Here, the verb *diào* 'drop' in the compound *chī-diào* 'eat-drop' indicates the endpoint of the process "eating a plate of vegetables" and its original meaning "drop" as a main verb that we find in sentences like (123a) is no longer preserved in a RVC like (123b).

(123) a. Tā   diào   le   yì-kē   yá.
       3SG drop   PERF   one-CL tooth
       'He lost a tooth.'

      b. Tā   chī-diào   le   yì-pánzi   cài.
       3SG eat-drop   PERF   one-plate   vegetable
       'He ate (up) a plate of vegetables.'

Another argument for the aspectual contribution of V2 in a RVC comes from the aspectual particle *guo* 过. 过, as a verb, has a falling tone *guò*, which means "pass", but in modern Chinese, 过 is also a pure experiential marker that can be attached to most verbs as a suffix and in this case, it has a neutral (phonolgically reduced) tone *guo*. Consider (124a) and (124b) below:

(124) a. Tāmen   guò   le   yì-tiáo hé.
       3PL   pass   PERF   one-CL river
       'They crossed a river.'

      b. Lìli   kàn   guo   *Hóng yǔ Hēi*.
       Lili   read   EXP   red and black
       'Lili has read *The Red and the Black*.'

In (124a), *guò* has a verbal use, while *guo* in (124b) is a pure aspectual marker. (124b) reports Lili's experience of reading *The Red and the Black* in the past.

The correlation that we find in the discussion above is that candidates for resultative complements have different degrees of grammaticalization. If the process of grammaticalization is complete for the purely functional head *guo*, the small group of verbs mentioned earlier as "*Grammaticalized Resultative Complements*" (that is, *wán* 'finish', *diào* 'drop', *zhù* 'stay' and *chéng* 'become', etc.), are partially grammaticalized. And finally, even for resultative complements having limited use as to their compatibility with other verbs since they preserve their verbal meaning, there must be some aspectual ingredients anchored in these verbs as V2. The conclusion is that resultative complements (grammaticalized or not) convey aspectual information.

Let's now return to our starting point. The sentence containing the RVC *dǎ-pò* 'hit-break' in (120) has no overt aspectual marker such as *le* o *guo*. Surprisingly it is acceptable. We are not offering here an explicit solution for it. It is acceptable as reporting a past event, probably due to the aspectual information conveyed by the resultative complement *pò* 'break', which favors a resultative state interpretation, and thus licenses a past episodic reading.

This is however not the whole story. Past episodic readings are not systematically available when the predicate is a RVC. Recall examples (94a), (94b) and (94c) discussed in Section 3.5.1, repeated below as (125a), (125b) and (125c):

(125) a. Zhāngsān   dǎpò   *(**le**)   nèi-gè huāpíng.
       Zhangsan   break   PERF   that-CL vase
       'Zhangsan broke that vase.'

   b. Zhāngsān   dǎpò   *(**le**)   tā-de   huāpíng.
       Zhangsan   break   PERF   3SG-DE vase
       'Zhangsan broke his vase.'

   c. Zhāngsān   dǎpò   *(**le**)   huāpíng.
       Zhangsan   break   PERF   vase
       'Zhangsan broke a vase / vases.'

These sentences differ from (120) in the complements of the RVC *dǎ-pò*. If the past reading is derived directly from the RVC *dǎ-pò*, the ungrammaticality of the sentences in (125) in the absence of overt aspect *le* still requires explanation? To solve this puzzle, more

investigation should be done into the distribution of nominal phrases within the VP, and my attention to other aspects of this thesis has prevented me from exploring this to my satisfaction.

For more details concerning the syntactic and semantic properties of Resultative Verb Compounds, the reader is invited to consult Sybesma (1999, 2013), Xuan (2008) and Travis (2010).

In our data concerning the temporal interpretations of bare predicates, we have intentionally avoided examples formed with RVCs, which already contain aspectual information in the resultative complement. Since the goal of this thesis is to clarify the temporal construal of aspectually "bare" predicates, RVCs are, from this perspective, not the most primitive form that we can find as "bare" predicates. Though fully aware of the interesting issues concerning RVCs that might shed light on the lexical / semantic properties of Mandarin predicates without overt aspect, we leave this topic for future research.

To summarize, in this section we have discussed some apparent counterexamples to our claim that episodic readings are only licenced by overt aspect. We have argued that the progressive readings of sentences with a *zài*-phrase result from the overt progressive marker *zài*$_{prog}$, and the past readings of sentences with a Resultative Verb Compound are due to the aspectual information carried by the resultative complement. We continue to maintain the hypothesis that aspect must be overtly marked in Mandarin.

3.7   Conclusion

In this chapter, we have shown that: i) root clauses with stative Bare Predicates (BPs) (no morphological aspect or any other particles) are well-formed and denote states; ii) root clauses with eventive BPs are ill-formed as episodic events.

These generalizations can be captured if we make the following hypotheses: firstly, stative BPs are properties of times, and thus can combine directly with a time; secondly, eventive BPs are properties of events and as such require an aspect head to return a property of times; and finally, aspect must be overtly marked in Mandarin. Thus to license episodic readings for eventive BPs in Mandarin, an overt aspect is required.

We have shown that root clauses with eventive BPs can be well-formed, but they only allow generic readings. Chapter 4 is dedicated to this issue, in which we give an account for the generic readings of bare sentences.

The reader might have noticed that the referential treatment for tense adopted in our analysis requires a T projection introducing a time interval to anchor the eventuality denoted by the stative VP or the AspP, but until now we have not assumed that the element in T has any restriction on its temporal location. We will discuss in Chapter 5 the issue of whether Mandarin has an element that contributes semantically what tenses contribute in other languages. There we show that the value of the time variable under T does bear restrictions, suggesting that Mandarin has a covert semantic tense.