Aspect and the Postverbal *Zài* Phrase in Mandarin Chinese[*]

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The postverbal locative *zài* phrase in Mandarin Chinese occurs with a wide range of verb classes and it carries a variety of meanings. These meanings are best described in an aspectual perspective, by making reference to two aspectual properties: stativity and telicity. With dynamic verbs, the locative phrase specifies or adds a locative boundary to an event, whereas with stative verbs, it makes no aspectual contribution to an event. There are also two environments that the *zài* phrase is excluded from: verbs of directed motion that are not downward denoting, and most of the resultative compound verbs. The two restrictions are explained by historical changes; one has to do with a division of labor between the directional *dào* and the locative *zài*, while the other concerns prohibition of doubly marking the end point of an event.

1. Introduction

The locative phrase in Chinese is headed by the preposition *zài*, and it can occur in three positions in a sentence: before the subject, after the subject but before the verb, and after the verb, as illustrated in (1).

(1) a. 在這兒你可以買到各式各樣的東西
         zài zhèr nǐ   kěyǐ mǎidào gèshìgèyàng de   dōngxī
         at here you can buy   all-kinds   NOM things[1]
         'You can buy all sorts of things here.'

   b. 我在外頭等他等了他半天
       Wǒ   zài wàitou děng tā   děng-le   bàntiān
       I   at outside wait him wait-PERF long-time
       'I waited for him outside for a long time.'

   c. 雨水打在窗戶上
       Yǔshuǐ dǎ zài chuānghùshang

rain   hit at window-on
'The raindrops hit the window.'

In this study, I will examine the postverbal *zài* phrase, as in (1c). Descriptively, postverbal *zài*

phrases pose a challenge for a number of reasons. First, their syntactic behavior is not uniform.

While some of them have the option of occurring before the verb, as in (2), others do not, as in

(3).

(2) a. 他放了一本書在桌上
     Tā fàng-le yīběn shū   zài zhuōshang
     he put-PERF one-CL book   at table-on
     'He put a book on the table.'

     b. 他在桌上放了一本書
     Tā zài zhuōshang fàng-le   yīběn   shū
     he at table-on   put-PERF one-CL book
     'He put a book on the table.'

(3) a. 這件事他看在眼裏
     Zhèjiànshì, tā kàn   zài yǎnlǐ
     this-matter   he watch at eye-in
     'This matter, he watched it in his eyes.'

     b.*這件事他在眼裏看著
     * Zhèjiànshì,tā zài yǎnlǐ   kàn -zhe
      this-matter he at eye-in watch-IMPERF
     'This matter, he watched it in his eyes.'

Semantically, postverbal *zài* phrases also do not behave uniformly. Some are required by the

verb, some are not required, but are compatible with the verb; still others aren't associated with

the meaning of the verb at all. This can be seen in (2a), (4) and (3a) respectively:

(4)   他生長在一個快樂的家庭
     Tā shēngzhǎng zài yīge   kuàilè de   jiātíng
     he grow-up   at one-CL happy NOM family
     'He grew up in a happy family.'

In addition, even though verbs that take a postverbal *zài* phrase go beyond ones that require a locative phrase, as (3a) shows, not all verbs take a postverbal *zài* phrase. (5) gives some examples:

(5) a.*李四來在門口
    * Lǐsì lái   zài ménkǒu
    Lisi come at   doorway
    'Lisi came to the door.'

   b. *圓圓的月亮升在頭頂上
    *Yuányuán de   yuèliàng shēng zài tóudǐngshang
    round   NOM moon   rise   at head-to-on
    'The round moon rose above my head.'

   c. *張三把書拿出在桌上
    *Zhāngsān bǎ shū náchū   zài zhuōshang
    Zhangsan OBJ book take-out at table-on
    'Zhangsan took out the book (and put it) on the table.'

There are thus a number of descriptive questions that we need to answer: Which verbs can be followed by a postverbal *zài* phrase? In what environment can they occur and what functions do they serve?

In previous literature, there have been a few proposals concerning the function of the postverbal *zài* phrase. The postverbal *zài* phrase is said to denote the location of participants affected by the actions (Tai 1975), termination of an action (Chen 1978), location of a person or an object as a result of the action (Wang 1980), and the location where an activity reaches or a state manifests itself (Fan 1982). There is much similarity among the proposals, and they account for a large portion of the data. However, these proposals also leave certain data unaccounted for. In this paper, I would like to take another look at the phenomenon and suggest a description that covers the full range of verbs that occur with *zài*. I will take an aspectual approach to *zài*'s distribution and functions.

2. Verbs and the postverbal *zài*

The postverbal *zài* has often been considered to have a limited distribution. Li and Thompson (1981), for example, state that the postverbal *zài* occurs with four types of verbs: displacement, posture, (dis)appearance and placement; in contrast, all verbs can occur with the preverbal *zài*. However, a cursory look at natural data reveals that the postverbal *zài*'s distribution is much wider than these four types of verbs, including, but not limited to, the following verb classes:

(6) Verbs that take postverbal *zài*

    A. Telic

        a.   directional:

                directed motion: 降落 *jiàngluò* 'land', 倒 *dǎo* 'fall', 掉 *diào* 'drop'

                cause directed motion: 丢 *diū* 'throw', 摔 *shuāi* 'throw',

                    噴灑 *pēnsǎ* 'spray'

        b.   (dis)appearance: 出現 *chūxiàn* 'appear', 消失 *xiāoshī* 'disappear',

                    發生 *fāshēng* 'happen'

        c.   placement:

                putting: 架 *jià* 'shelve', 種 *zhòng* 'plant', 放 *fàng* 'put', 插 *chā* 'insert',

                containment: 關 *guān* 'lock', 鎖 *suǒ* 'lock', 困 *kùn* 'cornered',

                image creation: 寫 *xiě* 'write', 印 *yìn* 'print', 刻 *kē* 'carve', 畫 *huà* 'draw',

                arrangement: 佈署 *bùshǔ* 'line up', 排列 *páiliè* 'line up'

                wear: 穿 *chuān* 'wear', 戴 *dài* 'wear', 帶 *dài* 'carry', 拿 *ná* 'carry'

d. combining

attachment: 貼 *tiē* 'paste', 黏 *nián* 'glue', 附 *fù* 'attach'

combining: 合 *hé* 'combine', 聚 *jù* 'get together', 混 *hùn* 'mix',

集中 *jízhōng* 'centralize'

e. change of state: 爛 *làn* 'rot', 破 *pò* 'break', 開 *kāi* 'open', 溶化 *rónghuà* 'melt'

f. other accomplishments[2]: 吃(那個蛋糕) *chī (nàge dàngāo)* 'eat (that cake)', 看(那件

事) *kàn (nàjiànshì)* 'watch (that matter)', 算(他們) *suàn (tāmen)* 'include (them)', 打

(一下) *dǎ (yíxià)* 'hit (one hit)'

B. Atelic dynamic

g. process – motion: 走 *zǒu* 'walk', 奔馳 *bēnchí* 'run', 踏 *tà* 'step', 漂 *piāo* 'float',

吹 *chuī* 'blow', 划 *huá* 'row', 徘徊 *páihuái* 'meander', 流浪 *liúlàng* 'wander'

h. process – non-motion: 工作 *gōngzuò* 'work', 玩 *wán* 'play', 笑 *xiào* 'laugh',

鬧 *nào* 'be rambunctious'

C. Stative

i. posture: 靠 *kào* 'lean on', 坐 *zuò* 'sit', 躺 *tǎng* 'lie', 爬 *pá* 'crawl', 蹲 *dūn* 'squat'

j. existence:

existence: 活 *huó* 'live', 住 *zhù* 'live',

concealment: 躲藏 *duǒcáng* 'hide', 暗藏 *àncàng* 'hide', 潛伏 *qiánfú* 'hide'

contiguous location: 圍 *wéi* 'surround', 跟 *gēn* 'follow', 蓋 *gài* 'cover'

k. continuation of an existing state: 保留 *bǎoliú* 'keep', 存 *cún* 'keep',

保持 *bǎochí* 'maintain'

l.　adjectival: 好 *hǎo* 'be good', 錯 *cuò* 'be wrong', 壞 *huài* 'be bad',

難 *nán* 'be difficult', 貴 *guì* 'be expensive'

This list is by no means exhaustive; for an extensive list of verbs that occur with the postverbal *zài* see Fan (1982).[3] Nonetheless, (6) demonstrates the wide variety of verbs that occur with the postverbal *zài* . These classes of verbs are difficult to characterize. They include three-place verbs, e.g. *jià* 'shelve', two-place verbs, e.g. *kào* 'lean on', and one-place verbs, e.g. *hǎo* 'be good'. A question naturally arises as to whether these verbs have anything in common. One possibility is that all of these verbs take a locative argument. In fact, many scholars (Chao 1968, J. Huang 1982, Li 1990, Mulder and Sybesma 1992, Sybesma 1999, Feng 2003) take the postverbal PP, including the *zài* phrase, as a complement. This is equivalent to saying that the locative phrase is an argument. Some of these verbs clearly have something to do with location, including verbs of placement, e.g. *jià* 'shelve' and *zhòng* 'plant', verbs of existence, e.g. *huó* 'be alive', *zhù* 'live', and directional verbs, e.g. *diū* 'throw', *luò* 'fall'. In addition, (a) through (e), (i), (j), (k) and some of the verbs in (f), (g) and (h) occur in locative inversion. I will not illustrate all of the verb types, but (a), (f), (h), and (j) are illustrated below:

(7) a. 地上丟了許多果皮紙屑
Dìshang diū -le   xǔduō guǒpí zhǐxiè
ground-on throw-PERF many peel   paper
'On the ground had been thrown many peels and paper.'

b. 頭上戴了一頂紅帽子
Tóushang dài -le   yīdǐng hóng   màozi
head-on   wear-PERF one-CL red   hat
'On her head she wore a red hat.'

c. 天上閃著星星
Tiānshang shǎn -zhe   xīngxīng

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sky-on   twinkle-IMPERF stars
'In the sky are twinkling some stars.'

  d. 街上圍了一群人
   Jiēshang wéi   -le yìqún rén
   street-on gather-around-PERF one-CL people
   'On the street people are gathered.'

If the possibility of occurring in locative inversion indicates that the locative phrase is an

argument, then the inability to occur in locative inversion suggests just the opposite. Of the verbs

in (6), stative verbs (6l) and some of the verbs in (6f), (6g) and (6h) are excluded from the

construction, as illustrated in (8):

(8) a. *這裡壞著一件事
   *Zhèlǐ huài -zhe yíjiàn shì
   here be-bad -IMPERF one-CL matter
  * 'Here is a bad matter.'

  b. *水池裏洗著衣服
   *Shuǐchílǐ xǐ -zhe yīfú
   sink-in wash-IMPERF clothes
  * 'In the sink is washing some clothes.'

  c. *河裏游著一個人
   * Hélǐ yǒu -zhe yíge rén
   river-in swim-IMPERF one-CL person
   'In the river swims a person.'

  d. *公園裏玩著許多小孩
   *Gōngyuánlǐ wán-zhe xǔduō xiǎohái
   park-in play-IMPERF many children
   'In the park are playing many children.'

These verbs don't include location as part of their meaning. Therefore, it is not the case that all

of the verbs in (6) require a locative argument.

  Could it be that even though the verbs in (6) don't all require a locative argument, they

optionally take a locative argument? On this view, *shǎn* 'twinkle' would take an optional

locative argument, as in (7c). However, proponents of this view would have to explain why the

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optionality does not apply to all verbs, e.g. *lái* 'come' and *shēng* 'rise' in (5), but only to certain classes of verbs. Such data pose a challenge to the view that the postverbal *zài* phrase can serve as an optional argument, freely attached to verbs. Rather, the data suggest that not all postverbal *zài* phrases are arguments. While some locative phrases may be arguments, others are not.

Aside from the issue of which verbs can be followed by a locative phrase, the types of location that can be expressed are also restricted. (9-10) illustrate sentences containing dynamic verbs:

(9) a. 別把那髒東西吃在嘴裏/肚裏
     Bié   bǎ nà   zāng dōngxī chī zài   zuǐlǐ   /dùlǐ
     don't OBJ that filthy thing eat at   mouth-in/stomach-in
     'Don't eat that filthy thing in the mouth/in the stomach.'

     b. *別把那髒東西吃在餐廳/桌上
       * Bié   bǎ nà   zāng dōngxī chī   zài cāntīng   /zhuōshang
       don't OBJ that filthy thing   eat at cafeteria/table-on
       'Don't eat that filthy thing in the cafeteria/ on the table.'

(10) a. 這件事他看在眼裏/心裏
     Zhèjiàn shì,   tā   kàn   zài yǎnlǐ / xīnlǐ
     this-CL matter he watch at eye-in /mind-in
     'This matter, he watched (and took) in the eye/ in the mind.'

     b. *這件事他看在家裏/學校
       * Zhèjiàn   shì,   tā kàn zài jiālǐ /xuéxiào
       this-CL   matter he look at home/school
       'This matter, he watched at home/ at school.'

The verb *chī* 'eat' only takes a locative phrase that refers to either the mouth or the stomach, as in (9a), and the verb *kàn* 'look' only takes a locative phrase that refers to the eye or the mind, as in (10a). It might be suggested that *chī* 'eat' can take other location phrases, as shown by the famous saying *Chī zài Guǎngzhōu* 'Eat in Guanzhou'; however, on close examination, the phrase is actually not a predicate: the following example shows that it cannot function as one:

(11) * 我們昨天吃在廣州
      * Wǒmen zuótiān   chī zài Guǎngzhōu
        we   yesterday   eat at Guangzhou
        'We ate in Guangzhou yesterday.'

Rather, *Chī zài Guǎngzhōu* has a topic-comment structure, meaning when it comes to eating, it is Guangzhou that is the best. The saying therefore cannot be taken as evidence that *chī* takes a locative phrase that denotes where an eating event takes place, such as *Guǎngzhōu*.

   The restrictions observed in (9-10) are obviously tied to the functions of the locative phrase, and this is an issue addressed in a number of previous studies. Past analyses fall in two groups. Tai (1975) and Wang (1980) invoke the concept of result, while Chen (1978) and Fan (1982) make reference to the activity. According to the latter group, the postverbal *zài* denotes the location where an activity terminates (Chen) or where an activity reaches (Fan). All of these analyses are able to accommodate a majority of the *zài* instances; for example, the contrast between (a) and (b) in (9-10) follows from any of these analyses. In (9), the affected participant is the food, and it ends up in the mouth as a result of the activity of eating, following Tai (1975) and Wang (1980); at the same time, the activity of eating reaches the mouth and terminates in the mouth, following Fan (1982) and Chen (1978). However, sentences such as (12), from Fan (1982), pose a challenge to Tai (1975) and Wang (1980):

(12)a. 糖溶化在水裏了
       Táng   rōnghuà zài shuǐlǐ   le
       sugar melt   at water-in PRT
       'The sugar melted in the water.'

   b. 我一下打在窗戶上了
      Wǒ yíxià   dǎ zài chuānghù shang le
      I   one-CL hit at window   on   PRT
      'I made a hit and it got the window.'

The locative phrase is not resultative in (12). In (12a), the sugar is already in the water before the melting takes place, and the *zài* phrase does not denote the location of sugar as a result of melting. In (12b), the location does not concern the location of the participants; rather, it is the location where the activity of hitting reaches. These sentences cannot be accounted for by Tai (1975) and Wang (1980). On the other hand, not all postverbal *zài* phrases denote the location where an activity reaches. Consider (13):

(13) 連你算在裏面，一共有二十個客人
　　 Lián　　　nǐ　 suàn　zài lǐmiàn, yígòng　　yǒu　　èrshí　ge　kèrén
　　 including you　 count　at inside altogether there-is twenty CL guest
　　 'Including you, there are altogether twenty guests.'

The locative phrase *zài lǐmiàn* 'inside' is used metaphorically to refer to the location of the addressee; the addressee is included (counted in) and metaphorically speaking, he is inside the understood domain at the end of the counting. The locative phrase does not denote the location where the counting activity reaches; rather, it denotes the location of the participant. Thus (13) is a problem for Chen (1978) and Fan (1982).

　　　In short, to date the proposed analyses of *zài* when it follows dynamic verbs have made reference to either the participants of an activity or the activity itself; all of them assume the existence of movement, involving the participants or the activity. These analyses are able to account for most, but not all, of the data observed. While some postverbal *zài* phrases carry the resultative meaning, not all do; similarly, while some *zài* phrases indicate where an activity reaches, not all do. Below I will propose an analysis that does not rely on result or termination; rather, it looks at the aspectual properties of a sentence in which *zài* occurs.

3. An aspectual analysis

To account for *zài*'s distribution and function, I will take an aspectual approach. I suggest that the postverbal *zài* does not have a uniform function. Rather, it performs different functions depending on the aspectual properties of the verb it is attached to. In particular, it is sensitive to the dynamic vs. stative and the telic vs. atelic distinctions. If a verb describes a dynamic event, *zài* specifies or adds an event boundary; if a verb describes a state, on the other hand, *zài* does not specify an event boundary. In the case of a telic (dynamic) event, (3.1), the locative phrase specifies an event boundary, and it makes explicit the boundary of an event that has an inherent but unexpressed temporal boundary. For atelic dynamic verbs, (3.2), on the other hand, the *zài* phrase adds a boundary to an otherwise open-ended event. In general, then, when a dynamic verb combines with the *zài* phrase, the resulting predicate describes a bounded event. In this view, the postverbal *zài* phrase can be freely attached to a verb as long as its aspectual contribution yields a well-formed sentence. We will see below that some of the verb + *zài* phrase combinations are ruled out because aspectually they give rise to interpretations that are unacceptable in the context. The aspectual analysis covers a wider range of data than the analyses that invoke result or termination; an event with a result or termination implies an event boundary, but an event boundary, in particular one that is imposed arbitrarily, does not necessarily imply a resultative state. This will be further discussed in the following sections.

The verbs that occur with the postverbal *zài*, given in (6), fall into three types: telic, atelic dynamic, and stative. Below I will consider how *zài* affects each type of verb aspectually.

3.1 Telic verbs

Consider telic verbs first. They include (6a) directional verbs, (6b) verbs of (dis)appearance, (6c) verbs of placement, (6d) verbs of combining, (6e) verbs of change of state and (6f) other accomplishments. For verbs in (6a-6d), the locative phrase has a resultative

function; it provides an event boundary by denoting the location of the participants as a result of the change. For example, in (14a), the *zài* phrase denotes the location of Zhangsan as he appears:

(14) a. 張三出現在眼前
   Zhāngsān chūxiàn zài yǎnqián
   Zhangsan appear at in-front
   'Zhangsan appeared in front of me.'

  b. 風一吹，許多葉子落在地上
   Fēng yī chuī, xǔduō yèzi luò zài dìshang
   wind once blow many leaves fall at ground-on
   'When the wind blows, many leaves fall to the ground.'

Similarly, in (14b) the event of leaves falling reaches its end when the leaves are on the ground.

  For (6e), change of state verbs, the *zài* phrase specifies an event boundary in a different way. It adds information to the resultative state that is specified by indicating the location where the state holds. (12a) is such a case, as is (15) below:

(15) 許多稻子爛在田裏
   Xǔduō dàozi làn zài tiánlǐ
   many rice rot at fields
   'Many rice plants rotted in the fields.'

Since the rice is already in the fields before becoming rotten, the locative phrase is not resultative, but only provides additional information about the event boundary--the state of being rotten.

  Turning to (6f), other accomplishment verbs, these verbs do not inherently imply change, and the locative phrase performs a yet different function: it makes specific the boundary of an event which has an inherent but unspecified temporal boundary. (12b) falls into this category, as in this case the location where an event ends is also "the location where an activity reaches" (Fan 1982). (13) is also in this category; in this case the location where an event ends happens to be the location of the participant. Consider also (9-10) again, repeated here:

(16) = (9) a. 別把那髒東西吃在嘴裏/肚裏
        Bié   bǎ nà   zāng dōngxī chī zài zuǐlǐ   /dùlǐ
        don't OBJ that filthy thing   eat   at   mouth-in/stomach-in
        'Don't eat that filthy thing in the mouth/in the stomach.'

        b.*別把那髒東西吃在餐廳/桌上
       * Bié   bǎ nà   zāng dōngxī chī   zài cāntīng /zhuōshang
        don't OBJ that filthy thing   eat   at cafeteria /table-on
        'Don't eat that filthy thing in the cafeteria/ on the table.'

(17) = (10) a. 這件事他看在眼裏/心裏
        Zhèjiàn shì, tā kàn   zài yǎnlǐ / xīnlǐ
        This-CL matter he watch at eye-in /mind-in
        'This matter he watched (and took) in the eye/ in the mind.'

        b. * 這件事他看在家裏/學校
       *Zhèjiàn   shì, tā kàn   zài jiālǐ /xuéxiào
        This-CL matter he look at home/school
        'This matter he watched at home/ at school.'

First note that *chī nà zāngdōngxi* 'eat that filthy thing' and *kàn zhèjiànshì* 'watch that matter' are telic predicates that describe an event with an inherent end point, which is not specified. The presence of the locative phrase, however, provides an overt boundary for the event. Aspectually, there is a difference between the two predicates: the latter occurs in the *ba*-construction, as in (18a-b), but the former does so only when it is perfective, as in (19b):

(18) a.   他不會把那髒東西吃在嘴裏吧
        Tā búhuì   bǎ nà   zāng dōngxī chī zài zuǐlǐ   ba
        he not-will OBJ that filthy thing   eat at mouth-in PRT
        '(I hope) He won't eat that filthy thing into his mouth.'

    b.   他把那髒東西吃在嘴裏了
        Tā bǎ nà   zāng dōngxī chī zài zuǐlǐ   le
        he OBJ that filthy thing   eat at mouth-in PRT
        'He (actually) ate that filthy thing (into his mouth).'

(19) a. * 他要把那髒東西吃
      * Tā yào bǎ nà   zāng dōngxī   chī
      he will OBJ that filthy thing   eat
      'He will eat that filthy thing.'

b.　他把那髒東西吃了
　　Tā bǎ nà　zāng dōngxī chī le
　　he OBJ that filthything　eat PERF
　　'He ate that filthy thing.'

Since the *bǎ* -predicate describes a bounded event (Liu 1997), the contrast between (18a) and (19a) suggests that while the predicate in (18a), with a specified end point, is bounded, the predicate in (19a), with an unspecified end point, is not; the latter is bounded only with the support of the perfective marker -*le*, as in (19b). This in turn supports the proposal that the *zài* phrase in (18) acts as an event boundary.[4]

According to the analysis proposed here, restrictions on type of locative phrase simply follow from the role of the locative phrase marking an event boundary. The reason why *chī* 'eat' only takes *zài zuǐlǐ* or *zài dùlǐ*, but not *zài cāntīng* or *zài zhuōshàng* is that only when the destination of food is specified is a bounded event of eating formed; specification of where the eating takes place does not lead to a bounded event. Similarly, in an event of watching, the eye or the mind can serve as a boundary for the event, while home or school only specifies where the watching takes place, but does not provide a boundary.

In short, for telic verbs the postverbal *zài* phrase provides an event boundary in three different ways: by specifying the location of a participant as a result of change, by giving additional information about the resultative state of a participant, and by making specific the end point of an event which is otherwise unspecified. In the last case, the locative phrase also contributes to the boundedness of a predicate, as in (18).

3.2 Atelic dynamic verbs

Next, let us consider atelic dynamic verbs. These verbs include both (6g) motion verbs, such as *zǒu* 'walk', and (6h) non-motion verbs such as *wán* 'play'. With motion verbs, two patterns

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are displayed: some verbs acquire a directional meaning through the locative phrase, while others remain non-directional. The former includes verbs such as *tiào* 'jump', *gǔn* 'roll', and *huá* 'slide', while the latter includes *zǒu* 'walk', *pǎo* 'run', *piāo* 'float' and *gēn* 'follow'. Some verbs allow both possibilities, e.g. *fēi* 'fly', as illustrated in (20a) and (20b) respectively:

(20)a. 導航雁飛在前面，其他的雁子在後面跟著
  Dǎoháng yàn   fēi zài qiánmiàn, qítā de yànzi   zài hòumiàn gēn -zhe
  guide   wild-goose fly at front   other NOM wild-goose at back follow-IMPERF
  'The guiding wild goose flew in front; other wild geese followed behind.'

 b. 一隻蝴蝶飛在他的肩膀上
  Yīzhī   húdié fēi zài tā de jiānbǎng shang
  one-CL butterfly fly at his NOM shoulder on
  'A butterfly flew to his shoulder.'

It is not clear why some verbs are turned into directional verbs, some verbs are not, and still others are allowed both possibilities in the context of the postverbal *zài* phrase. It may have to do with whether a motion event involves displacement. Walking, running and floating can happen without displacement (e.g. march in place), while rolling, sliding and jumping must involve displacement. Verbs that require displacement become directional when followed by the *zài* phrase; verbs that don't require displacement remain non-directional. As for flying, it can be viewed as either, and it shows both patterns.

  For both types of verbs, the locative phrase adds a boundary to the event, which otherwise would not have an ending. That is, the presence of the *zài* phrase turns an atelic predicate into a telic predicate. However, the two types of verbs carry different implications: in the former, directional movement has taken place, but in the latter the movement is non-directional. For example, in (21) the cat and the ball have both moved, to the table and the roadside respectively, but in (22), Wang Ming and *tā* 'he' are at the front, or on the road during the entire event:

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(21)a. 貓一跳跳在桌上
　　　 Māo yī　　tiào, tiào　zài zhuōshang
　　　 cat　one　jump jump at　table-on
　　　 'The cat (made one jump and) jumped to the table.'

　　b. 小明的球滾在路邊
　　　 Xiǎomíng de　　qiú　 gǔn zài lùbiān
　　　 Xiaoming NOM ball　roll　at　road-side
　　　 'Xiaoming's ball rolled to the roadside.'

(22)a. 王明跑在最前綫
　　　 Wáng Míng pǎo　zài zuì　 qiánxiàn
　　　 Wang Ming run　at　most front-line
　　　 'Wang Ming ran at the front.'

　　b. 他悠閒地走在路上，欣賞著路邊的風景
　　　 Tā yōuxiánde zǒu　zài lùshang, xīnshǎng-zhe lùbiān　　　de　　　fēngjǐng
　　　 he leisurely　walk on road　　enjoy　-ASP road-side NOM　scenery
　　　 'He took a leisurely walk on the road while enjoying the scenery by the roadside.'

The sentences in (22) also represent cases where an arbitrary event boundary is imposed on an otherwise open-ended event. Such cases are seen with manner of motion verbs that remain non-directional when followed by a locative phrase.

The fact that *zou* 'walk' and *pao* 'run' are non-directional when followed by *zài* explains why (23a) and (23b) are unacceptable:

(23) a. * 我們走了十分鐘就走在公園了
　　　 * Wǒmen zǒu -le　　shífēnzhōng jiù　 zǒu　zài gōngyuán le
　　　　 we　　　walk-PERF ten-minute　then walk at　park　　　PRT
　　　　 'We walked to the park in ten minutes.'

　　b. * 李四從家裏跑在學校
　　　 * Lǐsǐ cóng　jiālǐ　 pǎo　zài xuéxiào
　　　　 Lisi from　home run　at　school
　　　　 'Lisi ran from home to school.'

Since *zǒu zài gōngyuán* 'walk in the park' and *pǎo zài xuéxiào* 'run at school' do not imply movement from another place to the park or school, they cannot be used in the contexts of (23).

The lack of direction therefore imposes a limit on the type of locative phrase that can follow *zǒu* 'walk', *pǎo* 'run' and other non-directional verbs . (24) gives some of the common locative phrases that follow *zǒu* 'walk', based on a search in the Sinica Corpus:

(24) 走在街上   zǒu zài jiēshang   'walk on the street'
     走在前面   zǒu zài qiánmiàn   'walk in front'
     走在路邊   zǒu zài lùbiān   'walk on the roadside'
     走在雪地   zǒu zài xuědī   'walk in the snow'
     走在無人的街上   zǒu zài wūrén de jiēshang   'walk on an empty street
,
All of these examples operate under the restriction that no direction is involved.

Among verbs that acquire directional meaning, it is obvious that the verb and locative phrase combinations are telic predicates; however, for verbs that remain non-directional, it is not clear whether there is a change in telicity. In fact, we have the unusual situation that a locative boundary is added and yet no directional goal is implied. Therefore, in what follows I will present two pieces of evidence in support of the telic status of predicates such as *zǒu zài lùshang* 'walk on the road'. The first evidence comes from the (im)possibility of taking the progressive marker *zài* . If a dynamic verb can occur with *zài* , it is either telic or atelic; however, if it doesn't occur with *zài* , then it is telic. This illustrated in (25-26):

(25) a. 他在打球
         Tā zài   dǎ   qiú
         he PROG   play ball
         'He is playing ball.'

     b. 他在看一本書
         Tā zài   kàn yīběn shū
         he PROG   read one-CL book
         'He is reading a book.'

(26)a. * 李四在出現
         * Lǐsì zài   chūxiàn
         Lisi PROG   appear
         'Lisi is appearing.'

b. * 李四在打破窗戶
  * Lǐsì zài   dǎpò   chuānghù
    Lisi PROG break window
    'Lisi is breaking a window.'

The predicates in (25) occur with the progressive marker; while (25a) is atelic, describing an

activity, (25b) is telic, describing an event that has an inherent ending. On the other hand, neither

predicates in (26) can occur with the progressive marker; both are telic predicates. Using this as a

diagnostic tool, we can observe that while *zǒu* 'walk' takes the progressive marker, *zǒu zài*

lùshang'walk on the road' does not, as in (27):

(27) a. 他在走
      Tā zài   zǒu
      he PROG   walk
      'He is walking.'

  b. * 他在走在路上
    * Tā zài   zǒu zài   lùshang
      he PROG   walk at   road-on
      'He is walking on the road.'

The contrast between (a) and (b) in (27) suggests that *zǒu zài lùshang* is telic.

The second piece of evidence comes from the way that the adverb *búduànde*

'continuously' is interpreted when it modifies atelic motion verbs and telic verbs. When it occurs

with atelic motion verbs, such as *pǎo* 'run' or *zǒu* 'walk', it has the interpretation of temporal

continuity, as illustrated in (28):

(28) 張三不斷地跑/走
    Zhāngsān búduànde   pǎo/zǒu
    Zhangsan continuously run/walk
    'Zhangsan ran/walked continuously.

(28) describes a single event of talking or running, which lasts for quite some time. When

búduànde 'continuously' modifies telic verbs, however, the interpretation is not one of temporal

continuity; rather, it is one of high frequency, which, when the subject is singular, gives rise to

the reading of repeated action, as in (29):

(29)　　張三不斷地出現/跌倒
　　　　Zhāngsān　búduànde　chūxiàn/diédǎo
　　　　Zhangsan　repeatedly appear /fall
　　　　'Zhangsan appeared/fell repeatedly.'

In (29), there are many events of Zhāngsān appearing or falling. When the subject is plural, the

contrast between the single-event reading and the multiple-event reading is obvious, as in (30):

(30)a. 學生們不斷地跑
　　　　Xuéshēngmen búduànde　　　pao
　　　　students　　　continuously　run
　　　　'Students run continuously.'

　　b. 學生們不斷地出現
　　　　Xuéshēngmen búduànde　　　chūxiàn
　　　　students　　　continuously　appear
　　　　'Students appeared one after another.'

(30a) implies that students run together, while (30b) implies that students appeared at different

times, one after another.

　　　　Consider now what happens when *zou zài lùshang* is modified by *búduànde* 'continuously':

(31) a. * 張三不斷地走在路上
　　　* Zhangsan buduande　　　zou　zài lushang
　　　　Zhangsan　continuously　walk　on road-on
　　　　'Zhangsan continuously walked on the road.'

　　b. 車子不斷地走在路上
　　　　Chezi buduande　　　zou　zài lushang
　　　　cars　continuously　run　at road-on
　　　　'Cars ran on the road one after another.'

(31a) is unacceptable, and I suggest this is because *zǒu zài lùshang* is telic and it gives rise to a

multiple-event reading when modified by *búduànde*, whereas we usually think of walking as a

single event. (31b) supports the telic status of *zǒu zài lùshang*, as the plural subject allows for a multiple-event reading, involving different cars.

We have seen two pieces of evidence showing that when atelic dynamic verbs are followed by a locative phrase, they are turned into telic predicates, where the *zài* phrase provides a locative boundary for the events described by the predicates. I now turn to the atelic dynamic verbs that are non-motion, e.g. *wán* 'play', *gōngzuò* 'work'. For most of these verbs, the only possible *zài* phrases that can follow are ones that denote not a location, but a resultative state, e.g. *yīkuài* 'together', *yīqǐ* 'together', as in (32):

(32) a. 小孩子們一下子就玩在一起了
Xiǎoháizimen yīxiàzi jiù   wán zài yīqǐ   le
children   soon   then play at together PRT
'The children soon played together.'

    b. 我們每天工作在一起
Wǒmen měitiān gōngzuò   zài yīqǐ
we   everyday work   at   together
'We work together everyday.'

(32b) is actually not as natural as (33), which has a pre-verbal locative phrase:

(33)   我們每天在一起工作
Wǒmen měitiān   zài yīqǐ   gōngzuò
we   everyday   at together   work
'We work together everyday.'

While both sentences have the habitual reading, (32b) also has the resultative reading, but (33) doesn't. (32b) says that everyday people come together through their work, which makes 'be together' the focus of the sentence. On the other hand, in (33) the focus is 'work'. (33) describes a more typical daily work situation, while (32b) describes a less common situation. This explains why (32b) is less natural than (33). (32b) usually occurs in a coordination, such as (34):

(34)　　我們每天吃在一起，睡在一起，工作在一起
　　　　Wǒmen měitiān chī zài yīqǐ,　　shuì zài yīqǐ,　　gōngzuò zài yīqǐ
　　　　we　　everyday eat at together sleep at together work　　at together
　　　　'Everyday we eat together, sleep together, and work together.'

This is because (34) allows for a non-resultative reading where *chī* 'eat', *shuì* 'sleep' and

gōngzuò 'work' function as topics: Everyday, with respect to eating, sleeping and working, we

are together. The possibility of interpreting the verb as a topic seems to be available only in

coordination. Why this is the case is an interesting issue for future research. In short, the

postverbal phrase following non-motion atelic dynamic verbs denotes a resultative state, in

particular, a state described by *yīqǐ*, 'together' or its synonyms, and only limited verbs can occur

in this environment.

　　　　In summary, for atelic dynamic verbs, the postverbal *zài* phrase turns the verbs into telic

predicates. The *zài* phrase either provides a locative boundary for the event or describes a

resultative state. Some of the motion verbs become directional in this context, while other motion

verbs remain non-directional. This difference has an effect on the type of locations that can be

expressed by these verbs.

3.3 Stative verbs

　　　　The last verbs to be considered are stative verbs. These verbs include verbs of existence

verbs such as *huó* 'be alive', *zhù* 'live', posture verbs such as *zuò* 'sit'; and adjectival predicates

such as *hǎo* 'be good' and *cuò* 'be wrong'.

　　　　When the *zài* -phrase is attached to verbs of existence and position, it does not provide a

boundary for the situation, and the verbs remain atelic. One piece of evidence is that these verbs

can be modified by a duration phrase, as illustrated in (35):

(35)a.　我們住在這兒住了十年了

    wǒmen zhù zài zhèr zhù-le   shínián le
    we   live at here live-PERF ten-year PRT
    'We have lived here for ten years.'

b. 老李坐在沙發上坐了半天
    Lǎolǐ zuò zài shāfāshàng zuò-le   bàntiān
    Laoli sit   at sofa-on   sit-PERF long-time
    'Laoli sat on the sofa for a long time.'

The ability to be modified by a duration phrase is a property of atelic verbs (Dowty 1979), and this characteristic also manifests itself in Chinese (Smith 1997).

When the *zài* phrase is attached to adjectival predicates, however, it does not denote a physical location; rather, it denotes an abstract or metaphorical location, as in (36):

(36) a. 昨天的考試到底難在哪兒?
    Zuótiān   de   kǎoshì dàodǐ   nán   zài nǎr
    yesterday NOM exam in-the-end difficult at   where
    'What was so difficult about yesterday's exam?'

b. 它難在每題都得發揮，不能光靠死記硬背
    Tā nán   zài měi tí   dōu děi   fāhūi bùnéng guāng kào   sǐjìyìngbèi
    it difficult at each question all   have-to expand not-can just   rely-on memorize
    'It was difficult in that in each question needs to be elaborated on; you cannot simply rely on memorization.'

c. *它難在問答題
    * Tā nán   zài wèndá tí
     it   difficult at essay   questions
    'The essay questions were difficult.'

In (36a) the *zài* phrase asks about in which way the exam was difficult. An appropriate answer cannot simply be a part of the exam, as in (36c), but must include characteristics of the exam, as in (36b), which is expressed as a clause. This suggests that when occurring with adjectival verbs, the *zài* phrase takes on a metaphorical extension which maps from the physical domain to the conceptual domain. Thus rather than a concrete area of the exam, (36b) describes abstract properties of the exam.

To summarize, we have seen that the postverbal *zài* phrase performs different functions depending on whether the verbs are dynamic or stative. For telic verbs, it provides a locative boundary to the events that may or may not coincide with the temporary boundary inherent in the verbs; for atelic dynamic verbs, it adds a locative boundary to the events and turns the predicate into a telic predicate; finally, for stative verbs, it provides no boundary to the events. Thus the aspectual functions of the postverbal *zài* phrase vary according to the aspectual properties of the verbs it is attached to.

4. Verbs incompatible with the postverbal *zài*

So far I have considered how the postverbal *zài* interacts with telic verbs, atelic dynamic verbs and stative verbs. In this section I would like to consider why *zài* does not occur with certain verbs. In 4.1 I discuss two classes of verbs that don't occur with *zài*, and in 4.2 I examine the sources of incompatibility. I show that historical changes play a major role in the present situation.

4.1 Two classes of verbs

As illustrated in (5), repeated here, verbs such as *lái* 'come', *shēng* 'rise' and *shōuhǎo* 'put away', don't occur with *zài* :

(37) (=5)
    a. * 李四來在門口
        * Lǐsì lái   zài   ménkǒu
          Lisi come at   doorway
          'Lisi came to the doorway.'

    b. * 圓圓的月亮升在頭頂上
        * Yuányuánde   yuèliàng shēng zài tóudǐngshang
          round   NOM moon   rise   at head-top-on
          'The round moon rose on top of my head.'

c. * 張三把書拿出在桌上
   * Zhāngsān bǎ shū náchū   zài zhuōshang
   Zhangsan OBJ book take-out   at table-on
   'Zhangsan took the book out (and put it) on the table.'

(37a-b) seem to suggest that *zài* is incompatible with verbs that imply directed motion. Verbs in this category include verbs of inherently directed motion, verbs of cause directed motion, and compound verbs that contain verbs of directed motion, as illustrated in (38):

(38)a. verbs of inherently directed motion:
   去 qù , táo 'escape', 回 huí 'return', 前進 qiánjìn 'move forward', 到達 dàodá 'arrive', 來 lái 'come', 離開 líkāi 'depart', 下降 xiàjiàng 'descend', 進 jìn 'enter', 出 chū 'exit', 升 shēng 'rise', 掉 diào 'fall', 倒 dǎo 'fall'

   b. verbs of cause directed motion:
   送 sòng 'send, take', 丟 diū 'throw, 扔 rēng 'throw', 派 pài 'send'

   c. compound verbs containing verbs of directed motion:
   拿出 náchū 'take out', 帶回 dàihuí 'bring back', 推進 tuījìn 'push into', 走來 zǒulái 'walk over', 上升 shàngshēng, 'rise', 跌倒 diédǎo 'fall', 落下 luòxià 'drop, fall'

Most of the verbs in (38) don't occur with *zài* ; however, as listed in (6), some of the verbs do, such as *dǎo* 'fall', *rēng* 'throw', and *diédǎo* 'fall'. One major difference between these verbs and the rest of the directed motion verbs is that they describe a downward direction. We can therefore postulate (39) as a constraint:

(39)   The postverbal *zài* does not occur with verbs that imply directed motion unless the
        direction is downward.

        As for (37c), it suggests that *zài* does not occur with verbs that contain a resultative complement. Since a resultative state marks an end point, and, according to the analysis proposed here, the *zài* phrase also provides an end point to the event, (37c) may be ill-formed due to a constraint that prohibits marking the end point more than once. This view is supported by the

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unacceptability of sentences that contain an element other than a resultative complement which also provides an end point, as in (38):

(40) * 李四把鑰匙抓著在手裏
      * Lǐsì bǎ yàoshǐ zhuā-zhe   zài shǒuli
       Lisi OBJ key   hold-IMPERF at hand-in
       'Lisi is holding the key in his hand.'

The imperfective marker *-zhe* carries the resultative meaning (Yeh 1993, Smith 1997), and it does not occur with a locative phrase. Thus the postverbal *zài* phrase is subject to a second constraint, given in (41):

(41)   The end point of an event is syntactically encoded only once.

       (41) can be subsumed under Tenny's (1994:79) Single Delimiting constraint, which says that an event may only have one measuring-out and be delimited only once. In English, this constraint explains why the sentences in (42) are unacceptable:

(42) (Tenny 1994: 81)
    a. * Sarah pounded the pavement flat to Bloomingdale's.
    b. * John pushed the car over, the whole distance to a gas station.
    c. * Carmen walked her feet off to school.

In each sentence, more than one event boundary is encoded; for example, (42a) includes both a resultative state and a goal. In Chinese, similar examples are also ruled out, as in (43):

(43)   * 請把桌子搬出到外面
      * Qǐng   bǎ zhuōzi bānchū   dào   wàimiàn
       please OBJ table move-out to   outside
       'Please move the table outside.'

In (43), both the RVC and the directional phrase provide an event boundary. It is in violation of (41) and is furthermore ungrammatical. However, (41) also excludes sentences like those in (44), which are grammatical:

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(44) a. 李四跌倒在地上
     Lǐsì diédǎo   zài dìshang
     Lisi fall-down at ground-on
     'Lisi fell on the ground.'

    b. 小明不小心把牛奶打翻在桌上
      Xiǎomíng bù xiǎoxīn bǎ niúnǎi dǎfān   zài zhuōshang
      Xiaoming not careful OBJ milk hit-topple at table-on
      'Xiaoming spilled milk on the table by accident.'

On close inspection, the second member of the compounds in (44), i.e. *dǎo* 'fall' and *fān* 'topple' both take a locative phrase as an argument. Most of the exceptions to (41) exhibit this property. I will return to these examples in 4.2.

      In short, in Contemporary Mandarin *zài* is subject to two constraints; one is specific to *zài* , while the other is a general constraint on end point marking. A natural question to ask here is how these two constraints came about. In the next section I will show that the constraints and the exceptions are better understood from the perspective of language change. When we look at texts from earlier periods, we will see that forms that are excluded in the present time occurred in earlier periods; they have subsequently disappeared from the V *zài* environment.

4.2. Sources of the constraints

      In order to understand how the two constraints came about, I will first briefly outline the development of the postverbal *zài*. I will sidestep the issue of whether *zài* is considered a verb or a preposition in Archaic Chinese; for different positions, see Peyraube (1991), Dobson (1962), Huang (1978), Sun (1996), and Wu (1996). In Archaic Chinese *zài* only occurs with a small number of verb classes, including verbs of directed motion, verbs of combining and verbs of continuation of a pre-existing state, as illustrated in (45):

(45)a. 歸在豐, 作周官 (史記本紀 Shǐjì Běnjì, 1st century B.C.)

Guī   zài Fēng zuò Zhōu guān
return at NAME be NAME official
'(He) returned to Feng and became an official of Zhou.'

b. 衣服附在吾身 (左傳襄公Zuǒzhuàn Xiānggōng 31, 4th century B.C[5]).
Yīfú fù   zài wú shēn
clothes attach at my body
'Clothes are attached to my body.'

c. 曰：『世世子孫無相害也！』載在盟府 (左傳禧公 Zuǒzhuàn Xīgōng 26)
Yuē shì   shì   zǐsūn   wú xiāng hài yě zài zài méngfǔ
say generation generation descendants NEG mutually hurt PART keep at alliance-archive
'(The vow) said: "Generations of descendants do not hurt each other." (This vow) was
    kept in the alliance archive.'

During the Six Dynasties period, most of the *zài* phrases occurred preverbally (Peyraube 1991).

Nonetheless, the number of post-verbal *zài* phrases increased, as the verb classes expanded to

include atelic verbs such as psychological state verbs, e.g. *hèn* 'hate', as in (46), and verbs of

existence, as in (47).

(46) 太傅深恨在心未盡 (世說新語 雅量 Shìshuōxīnyǔ Yǎliàng, 5th century)
Tàifù   shēn hèn zài xīn wèi jìn
master-teacher deep hate at heart NEG exhaust
'The master teacher deep hatred was inexhaustible.'

(47) 吳道助、附子兄弟居在丹陽郡 ((世說新語 德行 Shìshuōxīnyǔ Déxìng)
Wú Dàozhù Fùzǐ   xiōngdì jū   zài Dānyáng jùn
NAME   NAME   brothers live at NAME   county
'The two brothers Wú Dàozhù and Wú Fùzǐ lived in Dānyáng county.'

At the end of the Tang dynasty and during the Song dynasty, verbs of posture began to occur

postverbally as well.

(48) 忽見一人著緋, 乘一朵黑雲, 立在殿前 (敦煌變文集 韓擒虎話本 Dūnhuáng Biànwén Jí,
                  Hánqínhǔ Huàběn)
Hū   jiàn yì rén   zhuó fěi   chéng yì duǒ hēi yún lì   zài diàn qián
suddenly see one person wear scarlet ride one CL black cloud stand at hall front
'Suddenly (they) saw a person dressed in scarlet, riding a black cloud, standing in front of
    the hall.'

In the 13th century, another verb class entered the V *zài* NP structure: manner of motion verbs:

(49)   只是一箇陰陽五行之氣, 滾在天地中, 精英者為人, 渣滓者為物 (朱子語類 Zhūzǐ yǔlèi
                                                                      14, 13th century)
        Zhǐ shì yíge   yīnyáng wǔxíng   zhī qì gǔn zài tiāndì   zhōng jīngyīng
        only be   one-CL yingyang five-elements   spirit roll at   universe inside essence
        zhě wéi rěn   zhāzǐ zhě wéi wù
        NOM be   human-being dregs NOM be   things
        'It's just a spirit made of Ying, Yang and the five elements. It rolls into the universe; the
            essence of it becomes human beings, while the dregs become things.'

By 1750, verbs that don't take locative or a directional argument began to occur with *zài* , as in

(50):

(50)   像你怎麼也不算在裏頭, 我心裏就不服 (紅樓夢 *Hónglóumèng* 26, mid 18th century)
        Xiàng nǐ   zěnme yě bú suàn   zài lǐtóu wǒ xīnlǐ   jiù bù fú
        like   you why   also not count at inside I   mind-in EMP not yield
        'Why weren't you included in it? In my mind I just can't accept it.'

Adjectival verbs also joined these verb classes, as in (51):

(51)   就壞在讀了這幾句死書 (儒林外史*Rúlín wàishǐ* 25, mid 18th century)
        Jiù   huài   zài dú-le   zhè jǐ   jù   sǐshū
        EMP be-bad at read-PERF this few sentence read-texts-without-understanding
        'The problem lies in having read these few sentences in the texts without really
            understanding them.'

In the 1900's, the verb classes taking the postverbal *zài* phrase reached the full range, covering

all of the classes listed in (6).

      Thus from Archaic Chinese to Contemporary Mandarin, the verb classes that occurred with

zài have expanded greatly, from verbs which include location as part of the meaning to verbs that

do not, from dynamic verbs to stative verbs, from telic verbs to atelic verbs, and from verbs to

adjectival verbs. This is a case of syntactic change through the process of analogy (Hopper and

Traugott 2003). The analogical process is systematic, and it is accompanied by semantic change.

Before 1250 AD, the verbs that occurred with *zài* all took a locative argument. From 1250 AD on,

other verbs also entered the V *zài* context, and it was at this time that the meaning of the *zài* phrase started to change. The semantic changes in the *zài* phrase took two directions: for dynamic verbs, the *zài* phrase acquired the function of marking an event boundary (motion, non-directional verbs and other accomplishments) and marking a resultative state (process, non-motion verbs); for adjectival verbs, the *zài* phrase acquired an abstract sense, indicating not a physical location, but an abstract one. The semantic changes are metaphorical in nature, from marking the location that participants reach at the end of an event to marking an event boundary or resultative state, and from concrete to abstract. Thus the syntactic change that the *zài* phrase underwent is reflected in the semantic change. As the classes of *zài*-taking verbs expanded, so did *zài*'s functions change.

I now come to the development of the two constraints (39) and (41). Consider (39) first, which bars directional verbs from occurring with *zài* unless they denote downward movement. This constraint was established rather late, after the 18th century. Before this time, deviations from (39) are common, e.g. (45a), from *Shǐjì* (ca. 100 BC), and (52), from *Shuǐhǔzhuàn* (between late 15th century and early 16th century)[6]:

(52)　　如今何故來在這里？ (水滸傳*Shuǐhǔzhuàn* 17, between late 15th century and early
　　　　　　　　　　　　　　　　　16th century)
　　　　Rújīn　hé　gù　　lái　　zài zhèlǐ
　　　　now　　what reason come　at　here
　　　　'Why did you come here now?'

From late Tang, the locative of some directional verbs began to be marked by *dào* 'to', which has a basic meaning of 'reach, arrive'; in fact, during the period between *Dūnhuáng Biànwén Jí* (850-1015 AD) and *Hónglóumèng* (1754 AD), certain directional verbs and placement verbs began to take either *zài* or *dào*, as in (53):

(53) Verbs that can be marked by either *zài* or *dào*:
　　　敦煌變文集 *Dūnhuáng Biànwén Jí*: *sòng* 'take to', *lái* 'come', *fàng* 'put', *rù* 'enter'

水滸傳 *Shuǐhǔzhuàn*:　　　　　　　　*sòng* 'take to', *lái* 'come',
紅樓夢 *Hónglóumèng*:　　　　　　　*sòng* 'take to', *gǔn* 'roll'

Constraint (39) can therefore be considered as a constraint that established the division of labor between *zài* and *dào* 'to'; while *dào* marks directional verbs, *zài* marks non-directional verbs and downward directional verbs.

In the present day there are no exceptions among inherently directional verbs in Mandarin. However, derived directional verbs, e.g. *tiào* 'jump', don't quite follow (39), as they occur with both *zài* and *dào*, as in (21), and (54):

(54)　　貓一跳跳到桌上
　　　　Māo yí　tiào, tiào dào　　zhuōshàng
　　　　cat　one　jump jump to　　table-on
　　　　'The cat (made one jump and) jumped onto the table.'

In other dialects, however, there are exceptions to (39) even among verbs of inherent direction. Wu (1996) reports that in Guiyang and Chongqing dialects (varieties of Southwest Mandarin dialects) *zài* still occurs with inherently directional verbs, as in (55):

(55)　　天黑才來在城裏頭
　　　　Tiān hēi　cái　lái　　zài chéng lǐtóu
　　　　sky　dark　only come　at town　inside
　　　　'(He) didn't come to town until it was dark.'

As for (41), it developed even later than (39): at the end of the Qing dynasty. The constraint prohibits double marking of the end point, and it mostly concerns resultative compounds, which became productive around the 12th century (Shi 2002) and appeared with a locative phrase around the 13th century. Between the 13th century and the 20th century, there are many sentences that deviate from (41), suggesting that (41) was not yet at work during this time. This is illustrated in (56):

(56)a. …先學得在這裏，… (朱子語類 *Zhūzǐ yǔlèi* 18/397)
     xiān xuē   dē   zài   zhèlǐ
     first learn RES at   here
     '…if you have first learned it….'

    b. 一夥人圍住在一箇大墻院門首熱鬧 (水滸傳 *Shuǐhǔzhuàn*: 33)
       Yīhuǒ   rén   wéizhù   zài yíge   dà qiáng yuàn mén shǒu rènào
       one-group people surround-firm at one-CL big wall   yard door head hustle-and-bustle
       'A group of people hustled and bustled around the entrance to a big yard.'

    c. 用茶杯口大的一個竹弓釘牢在背面 (紅樓夢 *Hónglóumèng* 52)
       Yòng chábēi kǒu   dà de   yíge   zhúgōng   dìng láo zài bèimiàn
       use   tea-cup opening big NOM one-CL bamboo-bow pound firm at back-side
       '(He) used a bamboo bow the size of a tea-cup opening and pounded (it) firmly on the
          back.'

None of the combinations of resultative compounds and *zài* in (56) are possible in the present day.

As mentioned in section 4, in Contemporary Mandarin there are still sentences that violate (41). Most of the exceptions concern V1V2 resultative compounds where V2, the second member of a compound, takes a locative as an argument, as in (44). The sentences in (56), by contrast, don't have this property. Thus the development of (41) follows a path by which sentences whose locative phrases are a non-argument of V2 are ruled out first. That is, the constraint is sensitive to the distinction between argument and non-argument.

In Southwest Mandarin, however, some Guizhou speakers accept (57), where V2 does not take a locative argument:

(57)   我到他家的時候，他正睡熟在床上
       Wǒ dào   tā jiā   de shíhòu,tā zhèng shuìshóu   zài chuángshang
       I   arrive his house NOM time   he PROG sleep-sound at bed-on
       'When I arrived at his house, he was sleeping soundly on the bed.'

Shuìshóu zài chuángshàng 'sleep soundly on the bed' is also found in *Hónglóumèng*. The fact that (57) is possible for Guizhou speakers indicates that Southwest Mandarin still maintains the features of *Hónglóumèng* that are no longer present in Contemporary Mandarin.

5. Conclusion

In this paper I have examined the meaning and distribution of the postverbal locative *zài* phrase. The postverbal *zài* phrase occurs with a wide range of verb classes, and it has a variety of meanings. It denotes the location of a participant at the end of an event, as in *luò zài dìshàng* 'fall on the ground'; the location where a resultative state holds, as in *rónghuà zài shuǐlǐ* 'melt in the water'; the locative boundary of an event which has an inherent, but unspecified, temporal end point, as in *chi zài zuili* 'eat in the mouth'; an event boundary without implying the direction, as in *zǒu zài lùshàng* 'walk on the road'; a non-locative resultative state, as in *wán zài yìqǐ* 'play and become together'; and the location of a state, as in *zhù zài nǎr* 'live there'. I have proposed that all of these meanings can be captured in an aspectual approach. The postverbal *zài* phrase has different meanings depending on whether the verbs are dynamic or stative, telic or atelic. For telic verbs, it specifies a locative boundary of the events; for atelic dynamic verbs, it adds a boundary to the events and turns the predicate into a telic predicate; finally, for stative verbs, it does not provide an event boundary, but only specifies the location of a state. Thus the meanings of the postverbal *zài* phrase vary according to the aspectual properties of the verbs to which it is attached.

In addition, two types of verbs do not occur with the postverbal *zài* phrase: inherently directed motion verbs that do not denote downward movement, and resultative verb compounds, although exceptions to the latter restriction exist in the present time. Historical changes offer an explanation for why these two types of verbs do not occur with the postverbal *zài* phrase. The first constraint is a result of division of function between *zài* and *dào* 'to', while the second constraint arises from a prohibition of the double marking of an end point. In the present day, the

development of the first constraint is complete, while the development of the second constraint is ongoing, as exceptions to it still exist.

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[1] The following abbreviations are used throughout the paper: CL=classifier, EMP=emphatic, IMPERF=imperfective, NEG=negative, NOM=nominalizer, OBJ=object marker, PERF=perfective, PROG=progressive, PRT=particle, RES=resultative.

[2] These verbs are accomplishments on the basis of the following object. Thus while *chi* 'eat' by itself is atelic, *chi nàge dàngāoo* 'eat that cake' is telic.

[3] Fan (1982) actually provides two lists: a list of monosyllabic verbs that do not occur with the postverbal *zài* and a list of di-syllabic verbs that do occur with *zai*. The verbs are simply listed without classification. However, not all of the verbs in the list are attested to occur with *zài*.

[4] The contrast between (18) and (19) also shows that a predicate with an overtly marked boundary, as in (18a) behaves differently than a predicate with an inherent, but unmarked boundary, as in (19a). This is indicative of gradience of telicity (Liu 2006).

[5] The date of *Zuǒzhuàn* is not clear, neither is its author. Scholars have held different views on this issue. It is now generally believed that *Zuǒzhuàn* was not written by one person alone, but was the work of a number of people between the third and fourth century B.C.

[6] The dates and author of *Shuǐhǔzhuàn* are under much controversy. The various dates that have been proposed range from the end of Yuan dynasty (mid 14th century) to the middle of the Ming dynasty (mid 16th century). Here I adopt the later dates.

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