

An Aspectual Approach to the Postverbal Locative *Zai*-Phrase

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In this study, I take an aspectual approach to the syntax and semantics of postverbal locative *zai*-phrases in Mandarin Chinese. Verb scalar properties are shown to determine verb co-occurrence with the postverbal locative *zai*-phrase, and to determine the interpretation of the *zai*-phrase. I address the question why postverbal locative *zai*-phrases sometimes have a directional meaning and sometimes do not using event structure. The *zai*-phrase has a locative reading when the location denoted by the *zai*-phrase and the event denoted by the verb are coterminous, and thus homogeneous; it has a directional reading when they are not coterminous, and thus not homogeneous. The non-homogeneity suggests that there are two subevents: one denoted by the predicate and one denoted by the *zai*-phrase. These two subevents are temporally independent. I posit that time lag indicates spatial path.

1. Introduction

Postverbal locative *zai*-phrases may be ambiguous between locative and directional meaning (cf. Li and Thompson 1981; Zhu 1982; Chirkova and Lamarre 2005; Liu 2009). As exemplified in (1a), adopted from Liu (2009), the *zai*-phrase obtains a directional reading because the sentence describes a situation that the referent of the subject undergoes a spatial change (i.e. path) from not being in the location to being in the location denoted by the object of the preposition *zai*. Fan (1982) and Liu (2009) point out that in (1b) the postverbal *zai*-phrase may also refer to the goal the activity reaches. Unlike (1a), in (1b), it is not the case that the referent of the subject being stuck onto the window, but rather it is the action of hitting the window. The directional reading is due to an assumption that there be an interval between the starting point and the endpoint of an activity, where the *zai*-phrase expresses the endpoint of the activity.

- (1) a. yushui da zai chuangu-shang
rain hit at window-on
'The raindrops hit the window.'
- b. wo yixia da zai chuangu-shang le

I one-Cl¹ hit at window-on Prt
 ‘I made a hit and it got the window.’

Alternatively, the *zai*-phrase carries a locative reading when its containing sentence describes the state of the subject referent being in a location. Take (2) for example, the sentence in (2) does not describe any change of location. Instead, we may say that the event of their living and the event of their being in the disaster area are coextensive.

(2) tamen shenghuo zai zaiqu
 they live in disaster area
 ‘They live in a disaster area.’

In this paper, I argue that the lexical meaning of the postverbal preposition *zai* is locative, not directional. The inferred path emerges from the concept of change-of-location implied by the recognition of the final location, which is not involved in the beginning of the event. Thereafter, the source of the interpretation of the postverbal locative *zai*-phrase concerns event decomposition. I propose that if a *zai*-phrase is used to refer to the location of the whole event, it is interpreted as an attributive locative PP. On the other hand, if it is used to refer to the location where the consequent event holds, it is interpreted as a complementary directional PP. In the former case, the event-denoting predicate and the *zai*-phrase must be cotemporaneous. In the latter case, there is a temporal interval between them. From the perspective of Davidsonian semantics, the attributive locative *zai*-phrase “coordinates with” the event-denoting predicate, while the complementary directional *zai*-phrase should be in a way “subordinated to” the event-denoting predicate. The relationship of coordination can be justified by the homogeneity between the event denoted by the predicate and the locative modification encoded by the *zai*-phrase. The non-homogeneity between them indicates that they have a subordination relationship. Accordingly, both the interpretation and the distributional constraint of the postverbal locative *zai*-phrase can be accounted for in terms of the event structure.

This paper opens with an examination on the aspectual properties of verbs. My main diagnostics are adopted from Rappaport Hovav (2008). Subsequently, I will elaborate on the temporal relation between the predicate and the *zai*-phrase, arguing that the locative and directional readings of the *zai*-phrase depend on event structure. Section 4 concludes the paper.

2. The aspectually relevant lexical properties of verbs

¹ Abbreviations: Cl: classifier, Prt: particle.

To demonstrate that the lexical meaning of *zai* is locative and not directional, it is important to identify the aspectual properties of the verbs that *zai* associates with. Rappaport Hovav (2008) points out that verbs differ aspectually on whether the event they denote involves “change”. Dynamic verbs involve change, but state verbs do not. State verbs such as *zhidao* ‘know’ and *xihuan* ‘like’ cannot combine with a postverbal *zai*- or *dao*-phrase.² This is illustrated by the example in (3).

- (3) **zhe jian shi ta zhidao/xihuan zai/dao xuexiao*
 this-Cl thing he know/like at/to school
 ‘he knows/likes it at school’

Dynamic verbs include scalar verbs and nonscalar verbs. According to Rappaport Hovav (2008), verbs denoting events of scalar change are called scalar verbs, and those denoting events of nonscalar change are called nonscalar verbs. I suggest that this distinction casts restrictions on verb co-occurrence with postverbal *zai*- and *dao*-phrases. For example, verbs like *shenghuo* ‘live’ are identified as nonscalar verbs because no scalar change occurs during the progression of the event. These verbs are compatible with postverbal *zai*-phrases, but incompatible with intrinsic directional *dao*-phrases, as demonstrated by the contrast in (4).

- (4) *tamen shenghuo zai/*dao zaiqu*
 they live in/to disaster area
 ‘They live in a disaster area.’

Scalar verbs are more complicated, because they profile various aspectual features. Rappaport Hovav (2008) claims that “verbs that lexically specify a scale can have a telic interpretation even without an overt expression explicitly bounding the scale”. As shown in (5a), the directional *dao*-phrase refers to a goal for the walking event and contributes to a resultative reading. But when the *zai*-phrase is associated with the verb *zou* ‘walk’, as shown in (5b), the sentence is neither directional nor resultative. Liu (2009) also points out that the *zai*-phrase in (5b) is non-directional, arguing that the combination of the atelic dynamic verb *zou* and the *zai*-phrase is telic. Since *zou* ‘walk’ can not have a telic interpretation without an expression explicitly bounding the scale, I conclude that it does not lexically specify a scale.

² In this paper, *dao* ‘to; arrive’ will be used as an (un)interchangeable alternative to *zai*. But we are not going to discuss any further issue that may concern *dao*-phrase.

- (5) a. zhangsan zou dao lu-shang
 Zhangsan walk to road-on
 ‘Zhangsan walked to the road.’
 b. zhangsan zou zai lu-shang
 Zhangsan walk on road-on
 ‘Zhangsan walked on the road.’

Unlike the sentence in (5b), the sentences in (6) (cf. Liu 2009) obtain exclusively a directional reading. In this case, *zai* can alternate with *dao*. To account for why postverbal *zai*-phrases can only carry directional meaning when associating with these verbs, I posit that these verbs lexically specify a scale. This scale can be represented by the postverbal *zai*-phrase under the constraint that it sets a boundary to the event.

- (6) a. mao tiao zai/dao zhuo-shang
 cat jump on/to table-on
 ‘The cat jumped onto the table.’
 b. xuduo yezi luo zai/dao di-shang
 many leaves fall on/to ground-on
 ‘Many leaves fell on the ground.’

Further, as exemplified in (7) (cf. Li and Thompson 1981) verbs of placement seem to be the only verb class which allows alternative positioning of *zai*-phrases which denote the location the object is placed.

- (7) a. wo zai shujia-shang fang zazhi
 I at bookcase-on place magazine
 ‘I put the magazine on the bookcase.’
 b. wo fang zazhi zai shujia-shang
 I place magazine at bookcase-on
 ‘I put the magazine on the bookcase.’

Based on the fact that *zai*-phrases in combination with verbs of placement are unambiguously directional, I postulate that these verbs lexically specify a scale. This scale has an explicit bound which is provided by the postverbal *zai*-phrase.

A special set of this kind of verbs involves directed motion verbs which do not

permit attachment with the *zai*-phrase, but allow the *dao*-phrase, evident in (8). (8b) is adopted from Liu (2009).

- (8) a. ta jinru dao/*zai wuzi-li
 he enter to/at house-in
 ‘He enters the house.’
- b. yuanyuande yueliang sheng dao/*zai touding-shang
 round moon rise to/at head-to-on
 ‘The round moon rose above my head.’
- c. ta pao dao/*zai tushuguan
 he run to/at library
 ‘He ran to the library.’

Other verbs which can be considered as candidates for this class are resultative verb compounds. As pointed out in Liu (2009), resultative verb compounds are incompatible with the postverbal *zai*-phrase. Given that the postverbal *zai*-phrase is in essence locative, the answer is straightforward: it is because resultative verb compounds c-select a lexical directional phrase as complement, and at the same time exclude a functional one which embeds a locative *zai*-phrase. Examples are given below for illustrating. (9a) is adopted from Liu (2009).

- (9) a. *zhangsan ba shu nacho zai zhuoshang
 Zhangsan BA book take-out at table-on
 ‘Zhangsan took out the book (and put it) on the table
- b. *ta zhangda zai yi-ge fuyu-de jiating-li
 he grow up at one-Cl wealthy-DE family-in
 ‘He grew up in a wealthy family.’

Note that the above discussion does not indicate that all verbs, which lexically specify an explicit bound in a scale, can always be followed by a *dao*-phrase. Neither does it indicate that verbs which can be followed by a *dao*-phrase, but not by a *zai*-phrase, lexically specify a scale with an explicit bound. As shown in (10), citing Ma (2004), we can see that some volitional verbs are able to take a postverbal *dao*-phrase, but are unable to take a *zai*-phrase. Hence, I confine my discussion temporarily to motion verbs.

- (10) shuo dao/*zai shi dian zuo dao/*zai tianhei deng dao/*zai fangjia
 talk to/at ten o'clock do to/at dark wait to/at vacation
 ‘talk till ten o’clock’ ‘work till it is dark’ ‘wait till the vacation’

In direct opposition to verbs in (8) and (9), change-of-state verbs and verbs of (dis)appearance can be attached with a *zai*-phrase, but not with a *dao*-phrase, as exemplified in (10), adopted from Liu (2009).

- (11) a. xuduo daozi lan zai/*dao tian-li
 many rice rot at/to fields
 ‘Many rice plants rotted in the fields.’
 b. zhangsan chuxian/xiaoshi zai/*dao yan-qian
 Zhangsan appear/disappear at/to in-front
 ‘Zhangsan appeared/disappeared in front of me for a while.’

Based on their denotation of a state of affairs, I posit that these verbs lexically specify a scale which does not have an explicit bound. Consistently, only locative *zai*-phrases will be selected, but not the intrinsic directional *dao*-phrase. This analysis is on first glance contradictory to the general view that change-of-state verbs and verbs of (dis)appearance are telic predicates. However, notice that these verbs lexically specify a scale and are consequently telic.

Not all verbs can be clearly classified as demonstrated above. In (12a), adopted from Liu (2009), the *zai*-phrase is locative by nature, not directional, whereas in (12b), *zai* can be replaced by *dao*, and share the directional meaning. I suggest that the different interpretations come from the two-sided specifications of the manner-of-motion verbs. I postulate that if the manner facet is depicted, the *zai*-phrase receives a locative interpretation. This is the case in (12a). But, if the motion facet is depicted, then the *zai*-phrase obtains a directional interpretation, as is the case in (12b). In the former usage, the manner-of-motion verbs do not lexically specify a scale, and in the latter usage, they are classed with scalar verbs encoding an explicit bound.

- (12) a. daohangyan fei zai qianmian
 guide wild-goose fly at front
 ‘The guiding wild goose flew in front.’
 b. yi-zhi hudie fei zai tade jianbang-shang

one-Cl butterfly fly at his shoulder-on
 ‘A butterfly flew to his shoulder.’

Verbs of posture, as defined in Li and Thompson (1981), also depict both manner (the posture of an entity) and motion (physical dispositions of an entity at a location) facets. An example from Fan (1982) is adopted below in (13) for illustration (cf. also Chirkova and Lamarre 2005).

- (13) a. ta an'an jing'jing de zuo zai shafa-shang
 he quiet.quiet. DE sit on sofa-on
 ‘He was quietly sitting on the sofa.’
- b. ta yi pigu jiu zuo zai shafa-shang
 he one buttocks just sit on sofa-on
 ‘He sat down with all his weight on the sofa.’

In (13a), *zai* is locative and can not be replaced by *dao*. The sentence in (13a) describes no change of location. Instead, it describes a durative situation without marking an explicit bound. In opposition, in (13b) *zai* can be replaced by *dao*, obtaining a directional meaning. The sentence in (13b) describes an event which involves change of location (cf. also Chirkova and Lamarre 2005). In Guéron (2008), it is pointed out that position verbs can define a situation which is stative in space, because the location of the situation is unchanging but eventive in time. As can be seen from the English counterpart for (13a), the sentence takes a progressive form in English despite it being stative in space. In (13a), the *zai*-phrase adds information to the location where the event denoted by the verb holds. On the contrary, in (13b), the *zai*-phrase modifies the location where the resulting state holds.

An issue occurs when verbs which can be modified by a preverbal locative *zai*-phrase refuses to take it postverbally. Examples are given in (14), adopted from Zhu (1981). The counterpart of (14) is (15). As shown in (15), the verb *si* permits only a postverbal *zai*-phrase, not a preverbal one. I will return to this issue in the next section.

- (14) a. ta zai pangbian ku/xiao/wan
 he at aside cry/laugh/play
 ‘He cries/laughs/plays aside.’
- b. *ta ku/xiao/wan zai pangbian
 he cry/laugh/play at aside

- (15) a. *ta zai jiali si
 he at home die
 b. ta si zai jiali
 he die at home
 ‘He died at home.’

In conclusion, as the diagram in (16) below illustrates, with respect to the aspectually relevant lexical properties, verbs are firstly distinguished between dynamic verbs and state verbs. State verbs such as *zhidao* ‘know’ and *xihuan* ‘like’ cannot associate with a postverbal *zai/dao*-phrase. Dynamic verbs can be divided into scalar and nonscalar verbs. Nonscalar verbs like *shenghuo* ‘live’ can only be attached by a *zai*-phrase, but not a *dao*-phrase. Scalar verbs should further be distinguished depending on whether or not they lexically specify a scale, i.e. whether or not they are inherently telic. Manner-of-motion verbs and verbs of posture can be combined with both a postverbal *zai*-phrase and a postverbal *dao*-phrase. However, the two differ in meaning: while the *zai*-phrase is locative, the *dao*-phrase is directional. As a result, these verbs are identified as lexically not specified with a scale. I suppose it is the manner, not the motion that is prominent. Manner in this case is perceived as a property of the subject the predicate is predicated of. The property of the subject has a state like status. Lastly, among verbs that lexically specify a scale, they differ on whether or not they encode an explicit bound. Directed motion verbs such as *jinru* ‘enter’ and *sheng* ‘rise’ encode an explicit bound, and allow only directional *dao*-phrases to co-occur. Activity verbs like *tiao* ‘jump’ and *luo* ‘fall’ permit both *dao*- and *zai*-phrases, and both of them obtain a directional meaning because they serve to express the explicit bound encoded by the verb. Hence that although the verb alone may not be an accomplishment verb, but the VP consisting of the verb and a postverbal *zai/dao*-phrase denotes an accomplishment event. A special set of this class concerns verbs of placement, which are three-place predicates and describe typically accomplishment events. Further, when a *zai*-phrase following manner-of-motion verbs and verbs of posture obtain a directional reading, it indicates that the motion/action side is prominent, and in this regard these verbs encode an explicit bound on the scale. The postverbal *zai*-phrase is used to express the explicit bound. Lastly, change-of-state verbs and verbs of (dis)appearance such as *lan* ‘rot’ and *chuxian/xiaoshi* ‘appear/disappear’ do not encode an explicit bound, and thus allow only locative *zai*-phrases to co-occur.

(16)

cotemporaneous is also attested by switching the word order. As shown in the sentences (b) of (17)-(18), the *zai*-phrases can take the preverbal position without causing change in meaning, providing support for their semantic coordination relationship to the event-denoting predicate. As expected, the *zai*-phrase has a locative reading.

- (17) a. tamen shenghuo zai zaiqu yizhenzi le
 cf. (2) they live in disaster area a while Prt
 ‘They have been living in a disaster area for a while.’
 b. tamen zai zaiqu shenghuo yizhenzi le
 they in disaster area live a while Prt
 ‘They have been living in a disaster area for a while.’
- (18) a. zhangsan zou zai lu-shang yizhenzi le
 cf. (5b) Zhangsan walk on road-on a while Prt
 ‘Zhangsan have been walking on the road for a while.’
 b. zhangsan zai lu-shang zou yizhenzi le
 Zhangsan on road-on walk a while Prt
 ‘Zhangsan have been walking on the road for a while.’

In contrast, the durational time adverbials in (19) modify only the time of an entity being in the location, not the duration of the action denoted by the verb. As can be seen from the paraphrase in (19), the sentences in (19) involve change of location, or completion of the event. According to Lin (2008), the durational time adverbial in this case measures the duration of the consequent state resulting from an event (cf. also Ma 2004; Chirkova and Lamarre 2005). Denotations of the predicate and the *zai*-phrase are thus proven to be not homogeneous. As a result, the *zai*-phrase receives a directional reading. In the case of verbs of placement as illustrated by the example of (7), it goes without saying that the denotations of the *zai*-phrase and the predicate are non-homogeneous, because the object will come to the location after the action has completed. Verbs of placement are thus characteristic of this class.

- (19) a. mao tiao zai zhuo-shang yizhenzi le
 cf. (6a) cat jump on table-on a while Prt
 The cat jumped on the table and has been there for while now.’
 (The cat jumped on the table and the cat has been on the table ever

since it jumped on and the cat is still on the table.)

- b. yezi luo zai di-shang yizhenzi le
 cf. (6b) leaves fall on ground-on a while Prt
 ‘Leaves fell on the ground and have been there for a while now.’
 (Leaves fell on the ground and the leaves have been on the ground
 ever since they fell down and they are still on the ground.)

The sentence in (20) is ambiguous. The durational time adverbial has the potential to modify either the time span since the raindrops became to be on the window, or the duration of the repetitive hitting at the window. In the former case, the event described is perfective, whereas in the latter case, the event described is non-completed (on-going) and thus imperfective.

- (20) yushui da zai chuangu-shang yizhenzi le
 cf. (1a) rain hit at window-on a while Prt
 ‘Rain dropped on the window and has been there for a while now.’ (perfective)
 ‘Raindrops have been hitting the window for a while.’ (imperfective)

If we switch the word order of the sentences in (19)-(20) to give (21a-c), we find a change in meaning: the actions denoted by the verbs in (21a) and (21c) become iterative, and both the *zai*-phrase and the predicate are in the scope of the durative phrase. It follows that the denotations of the *zai*-phrase and the predicate are homogeneous. Consequently, the *zai*-phrase obtains exclusively a locative reading.

- (21) a. mao zai zhuo-shang tiao yizhenzi le
 cat on table-on jump a while Prt
 ‘The cat has been jumping on the table for a while now.’
 b. *yezi zai di-shang luo yizhenzi le
 leaves on ground-on fall a while Prt
 ‘Leaves have been falling on the ground for a while now.’
 c. yushui zai chuangu-shang da yizhenzi le
 rain at window-on hit a while Prt
 ‘The raindrops have been hitting the window for a while.’

(21b) is excluded with or without the durative phrase, which indicates that the event of being on the ground and the event of falling cannot be homogeneous. The ban on the *zai*-phrase from appearing in front of *luo* ‘fall’ reminds us of the case with the verb *si* ‘die’ mentioned above in (15), repeated together with other verbs in (22) below.

- (22) a. *shu zai lu-bian dao/duan/si
 tree at roadside fall/break/die
 b. shu dao/duan/si zai lu-bian
 tree fall/break/die at roadside
 ‘The tree fell/broke/died at the roadside.’

According to Ma (2004), *si* ‘die’ and *luo* ‘fall’ are non-durative verbs. Non-durative verbs express activities whose starting point and endpoint are conceived as two adjacent points in a scale (cf. also Rappaport Hovav 2008). In this regard, they do not differ from verbs such as *tiao* ‘jump’ and *da* ‘hit’, and being punctual verbs, when they are modified by a durative phrase, the possible reading can only be a modification of the duration of the resultant state. Take (23) for example, though in reality he may be at home before he died, as pointed out in Fan (1982), but this sentence can only have the reading that “he was at home (dead) for three days long”, but not “he was dying for three days long”. Assuming that durative phrases impose an aspectual homogeneity requirement on the modifiee, it turns out that the denotations of the predicate and the *zai*-phrase are not homogeneous.

- (23) ta si zai jiali san-tian le
 he die at home three days Prt
 ‘He has been dead at home for three days.’

Notice that *si* ‘die’ and *dao* ‘fall’ can also refer to a state of “being dead” and “being fallen down”. In this regard, I will point out that while *tiao* ‘jump’ and *da* ‘hit’ signal the beginning point of the actions, *luo* ‘fall’, *si* ‘die’, *dao* ‘fall’ and *duan* ‘break’ signal the endpoint, despite that these two points are adjacent in a scale as proposed generally for non-durative verbs. Further, assuming that this semantic specification affects the syntactic distribution of the *zai*-phrase, it follows that non-durative verbs which encode the initial point in a scale allow iterative interpretations, and can be modified by a preverbal *zai*-phrase. On the contrary, non-durative verbs which encode the endpoint in a scale deny iterative readings and can only take *zai*-phrases postverbally.

This analysis explains not only why in (22b) the *zai*-phrase can only appear postverbally, but also why it has a pseudo-directional meaning. It is well known that cases in (22b) challenge the view that the postverbal *zai*-phrase describes the final

position an affected entity arrives at (cf. e.g. Zhu 1982). As we can see, the sentence in (22b) does not mean the tree is affected by the event of falling/breaking/dying and as a result it becomes to be at the roadside. According to my analysis, verbs in (22b) signal the endpoint in a scale, it follows that the syntactic realization of the *zai*-phrase is designated to describe the endpoint of a scale encoded by the verb. In this regard, the *zai*-phrase does not introduce new locative information to the event denoted by the verb. Verbs which signal the initial point of a scale yield the counterpart. Take (6a) for example, the locative information introduced by the *zai*-phrase is new, because *tiao* ‘jump’ which signals the initial point of a scale does not involve the information of the endpoint location. Therefore, I propose that endpoint-denoting *zai*-phrases which add new locative information to the verb obtain a directional meaning, while endpoint-denoting *zai*-phrases which do not add new locative information to the verb obtain at most a pseudo-directional meaning. It is only in the former case that locative preposition *zai* can freely alternate with intrinsic directional preposition *dao*. In the latter case, the alternation is restricted. A pseudo-directional meaning is not raised by change of location, but by referring to the endpoint in a scale encoded by the verb. (19b) and (22b) are such the case.

Sentences in (22b) have posed problems to previous analyses, because they do not fit the traditional characterizations that the *zai*-phrase refers to the location the event takes place, or the location the activity reaches, or the location a sentence participant becomes to be situated (cf. e.g. Li and Thompson 1981; Zhu 1982; Fan 1982). My analysis casts a new light on this issue by postulating that the *zai*-phrase represents the endpoint in a scale which is encoded by the verb. Assuming that the associating verbs signal (highlight) the endpoint in a scale, which will be explicitly realized in the syntax by the *zai*-phrase, I posit that these sentences obtain a so-called pseudo-directional interpretation.

The next case we are going to discuss concerns change-of-state verbs such as (24). These verbs are assumed to be lexically specified without an explicit bound regarding their incompatibility with a postverbal *dao*-phrase. In (24), the durational time adverbial modifies the duration of the event denoted by the verb, but does not necessarily make reference to the time of the rice being in the fields. As pointed out in Liu (2009) “the rice is already in the fields before becoming rotten”.

- (24) xuduo daozi lan zai tian-li yizhenzi le
 cf. (11a) many rice rot at fields a while Prt
 ‘Many rice plants rotted in the fields for a while.’

Comparing (24) with the previous sentences as in (19) and (20), we find that they are in contrast depending on whether the location described by the *zai*-phrase participates at the end, or at the start of the event. So, for (24), even though I admit that the rice is already in the fields before becoming rotten, I argue that this reading is not syntactically encoded by

the *zai*-phrase, but an inference to the fact that the location denoted by the *zai*-phrase participates in the beginning of the event of rotting. Supporting evidences come from the aspectual homogeneity requirement of durative phrases. In (24), the durational time adverbial attributes to the duration of the event. This indicates that it also modifies the time associated with the denotation of the *zai*-phrase. As far as we have seen, either the durational time adverbial modifies solely the consequent state referred to by the *zai*-phrase, excluding the causing (i.e. preceding) event denoted by the verb, or it measures the event time, including the reference time of the *zai*-phrase. There is no case in which the durational time adverbial measures the duration of the event, but does not include the reference time of the *zai*-phrase. Therefore, given that the location denoted by the *zai*-phrase participates at the start of the event denoted by the verb, according to the aspectual homogeneity requirement of durative phrases, the interval of “many rice plants rotted”, the interval of “many rice were in the fields”, and the interval described by “a while”, must be identical, otherwise the sentence would be ruled out. In the spirit of Lin (2008), I assume that the starting point of the event is the left boundary of the interval. Since no right boundary is specified, I suggest that this kind of verbs does not specify an explicit bound in a scale.

- (25) zhangsan chuxian/xiaoshi zai yan-qian yizhenzi le
 cf. (11b) Zhangsan appear/disappear at in-front a while Prt
 ‘Zhangsan has appeared/disappeared in front of me for a while now.’

Verbs of (dis)appearance are also scalar verbs without an explicit bound. Upon initial inspection, it seems that the durational time adverbial in (25) does not modify the duration of the event of (dis)appearance, because the associating verbs are punctual. Instead, the durational time adverbial modifies the time of an entity being at the location. While this interpretation suits cases of appearance, it does not suit cases of disappearance, because if Zhangsan disappeared in front of me, he cannot be in front of me (for a while). Henceforth, I conclude that the *zai*-phrase expressing ‘in front of me’ does not describe the location the resulting state hold, which is modified by the durational time adverbial. Instead, the durational time adverbial in (25) modifies the time span since the beginning of the event including the reference time of the *zai*-phrase. Since the event denoted by the verb and the location denoted by the *zai*-phrase are homogeneous, the *zai*-phrase is predicted to have a locative interpretation. As expected, switching the word order, making the *zai*-phrase occur before the verb, as in (26) and (27), would not cause any change of meaning.

- (26) xuduo daozi zai tian-li lan yizhenzi le

many rice at fields rot a while Prt

‘Many rice plants rotted in the fields for a while.’

- (27) zhangsan zai yan-qian chuxian/xiaoshi yizhenzi le
 Zhangsan at in-front appear/disappear a while Prt
 ‘Zhangsan appeared/disappeared in front of me for a while.’

In short, the interpretation of the postverbal *zai*-phrase depends on the temporal relation between the denotations of the predicate and the *zai*-phrase. If these two are homogeneous, the *zai*-phrase carries a locative reading, otherwise it carries a directional reading.

4. Summary and conclusion

This paper proposes that verbs may be classed by whether they co-occur with a postverbal locative *zai*-phrase. Verb classes proposed in works of Li and Thompson (1981), Zhu (1981, 1982), Fan (1982) and Liu (2009) are reviewed in light of this proposal. Instead of Vendlerian aspectual features such as telicity, dynamicity and duration, I focus on verb “scalar” property (cf. Rappaport Hovav 2008).

This proposal first distinguishes dynamic and state verbs. Dynamic verbs include scalar verbs and nonscalar verbs. Scalar verbs differ on how the scalar property is specialized: with or without an explicit bound in a scale. This lexical specification determines whether verbs co-occur with a postverbal *zai*-phrase, and the interpretation of the *zai*-phrase.

This paper argues that whether or not postverbal *zai*-phrases receive a directional meaning rests on event structure. The homogeneity test shows that the *zai*-phrase carries a locative reading if its denotation and the denotation of the predicate are homogeneous, and it carries a directional reading if not. The non-homogeneity suggests that there are two subevents: one denoted by the predicate and one denoted by the *zai*-phrase. These two subevents are temporally independent. This time lag indicates the spatial path between them.

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