

## Appearance and Existence in Mandarin Chinese

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**Abstract** In Mandarin Chinese, the string of three overt elements in a row, a locative, a verb, and a nominal, asserts the existence of the entity denoted by the nominal in the location. This paper argues that the verb is contained in an adjunct, while the locative in its base-position and the nominal establish a matrix predication relation. Thus, instead of the overt verb, the head of the matrix predicate of the construction is null. Moreover, a new analysis is provided to explain the obligatory argument-sharing between the verb and the matrix predication of the construction. Furthermore, the paper argues that the agent of a transitive verb in certain types of embedded clauses needs to be Case-licensed by either the *v* of the selecting verb, as in an ECM construction, or a local *c*-commanding functional element, such as a complementizer, as in the English infinitive *for* construction. This Case-licensing explains why the transitive verb in the string has no agent. The research shows that the syntactic strategies to license abstract Cases in Chinese are similar to the ones found in other languages. Finally, the paper argues that the post-verbal *-zhe* is an adessive marker when it occurs in a non-progressive context.

**Keywords** existential, locative, argument-sharing, agent, abstract Case, adessive

存現於漢語

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**摘要** 漢語的存現句以方位短語開頭,然後是動詞,並以名詞短語結尾.整個句式的意思著眼於名詞短語的所指存在於方位短語所表示的位置.本文支持存現句的主語是方位短語的論點,提出謂語的中心是零形式,結尾的名詞短語是這個零形式的補語.而動詞則處於這個主謂關係之外的修飾語中.本文還分析了存現句中的動詞如何與這個主謂關係共享論元.本文還從抽象格方面解釋了存現句中的動詞為甚麼沒有施事論元.指出在抽象格方面,漢語與英語等其他語言有共性.本文還論證了存現句中動詞後的“著”可以是一個著面成分,不一定是時體標記.

**關鍵詞** 存現句, 方位短語, 論元共享, 施事論元, 抽象格, 著面成分

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### 1. The issue and the essentials of the proposal

So far, it has been taken for granted that if only one overt verb is seen in a sentence, it must be the lexical head of a predicate, and the predicate is not embedded. This paper challenges this belief. What to be shown is that in a certain construction in Mandarin Chinese (Chinese henceforth), the unique overt verb is in fact embedded in a subordinate predicate, and the lexical head of the matrix predicate is null.<sup>1</sup>

This naughty construction is composed of a locative, a verb, and an entity-denoting nominal sequentially, exemplified by (1). In (1), the verb *he* ‘drink’ follows the locative *wo de duzi-li* ‘in my belly’ and precedes the nominal *henduo shui* ‘much water’. The construction can belong to what traditionally called *cun-xian ju* ‘existence-appearance sentence’ (Zhu 1982: 184). I call the construction LVEC (Locative-V-Entity Construction).<sup>2</sup>

- (1) a. Wode duzi-li he-le henduo shui.  
my belly-in drink-PRF much water  
‘My belly has much water because of my drinking.’

The general reading of a LVEC is that the entity denoted by the right-edge nominal exists in the place denoted by the left-edge locative (see Zhu 1982: 115 and Huang 1987: 227).<sup>3</sup>

Various kinds of verbs may occur in a LVEC, e.g., transitives, such as *he* ‘drink’ in (1),

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<sup>1</sup> A somehow relevant effort, but in the opposite direction, is made by Thompson (1983). She tries to show that some complement clauses in English are not subordinate. However, her argumentation has been shown to be problematic by Boye & Harder (2007) and Newmeyer (2010). I thank James Myers for the references.

<sup>2</sup> Abbreviations: CL: classifier; DE: modification/nominalization marker; EXP: experiential aspect; PASS: passive; PRF: perfective aspect; PRG: progressive aspect; PRT: sentence-final aspect/mood particle; Q: question.

<sup>3</sup> The construction represented by (i) means that the entity denoted by the right-edge nominal disappears or is coming out of existence in the place denoted by the left-edge locative. The basic syntactic analysis of this paper applies to this construction, although I do not discuss the construction in this paper.

- (i) Jie-shang shao-zhe yi liang jipuche.  
street-on burn-PRG one CL jeep  
‘A jeep is being burned on the street.’

LVEC covers Huang’s (1987) type II (= Zhu’s 1982: 114 Type B) and type III (= Zhu’s Type A) existential constructions (Huang’s Type I is a simple *you* ‘have’ existential construction, such as (ii); and Type IV is a complex existential construction that contains multiple overt verbs; see Zhang 2008 and the references therein). For Huang (1987), the locative is optional in his Type II, but obligatory in his Type III; and the verbs in Type II are all unaccusative, but those of Type III can be any kind of verb. In my opinion, however, the left-edge locative of a LVEC can be a *pro*, licensed by the discourse information (Teng 1978: 199, cited and adopted in Li 1990: 143). Such a null locative occurs typically with a verb that encodes a deictic meaning, such as *lai* ‘come’, as seen in (iii). In English, the omission of a locative in the so-called existential unaccusatives is also easier for the verb *go*, which has a deictic meaning, than other verbs, as shown in (iv). See 3.1 for my discussion of possible verbs in a LVEC.

- (ii) Jie-shang you bushao xuesheng. (iii) (Men-wai) lai-le yi ge ren.  
street-on have many student door-outside come-PRF one CL person  
‘There are many students on the street.’ ‘Outside of the door came a person.’

- (iv) Context: Speaker is describing waiting outside a health food store  
a. #All of a sudden, a hippie danced in. b. %All of a sudden, a hippie danced into the store.  
c. All of a sudden, a hippie went in (to the store). (Irwin 2018: 26)

coming-on-the-scene unaccusatives, such as *dao* ‘arrive’ in (2a) and *zhang* ‘grow’ in (2b), change-of-state unaccusatives, such as *dong* ‘freeze’ and *liang* ‘dry’ in (3) (see Kural 2002, Deal 2009, Irwin 2012, Cuervo 2014, among others, for classification of unaccusatives), and unergatives, such as *shui* ‘sleep’ in (4).<sup>4</sup> Accordingly, various event types denoted by the verbs are allowed in a LVEC (see T. Lin 2001: 137-139).

- (2) a. Shangdian-li dao-le yi pi huó. (Zhu 1982: 114)  
shop-in arrive-PRF one CL goods  
‘Some goods arrived in the store.’
- b. Lulu de bozi-shang zhang-le yi ge liuzi.  
Lulu DE neck-on grow-PRF one CL tumor  
‘A tumor has grown on Lulu’s neck.’
- (3) a. Bingxiang-li dong-le henduo jiaozi.  
refrigerator-in freeze-PRF many dumpling  
‘Many dumplings were frozen in the refrigerator.’
- b. Yangtai-shang liang-le henduo yifu.  
balcony-on dry-PRF much clothes  
‘A lot of clothes are drying on the balcony.’
- (4) Chuang-shang shui-zhe yi ge xiaohai.  
bed-on sleep-PRG one CL kid  
‘There is a kid sleeping on the bed.’

Since a LVEC allows various types of verbs, the construction is different from a locative inversion construction in English, which disallows some types of verbs. For example, a verb of change of state is not allowed, as seen in (5a) and (5b) (Levin & Rappaport Hovav 1995: 223; see Nakajima 2001 for the same constraint in Japanese).

- (5) a. \*On the line are drying a lot of clothes.  
b. \*On the top floor of the skyscraper broke many windows.

A LVEC is also different from ‘presentational-*there*’ construction in English (e.g., *There stepped out in front of his care a small child*), which allows a stative verb of location or active directional verb only (Aissen 1975).

In a LVEC, the right-edge nominal has been called *cun-xian binyu* ‘existence-appearance object’ of the verb (Zhu 1982: 116). As stated in Huang (1987: 238-242), it is indefinite by

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<sup>4</sup> See Nakajima (2001: 50f) for a discussion whether unergatives are allowed to occur in a locative inversion construction in English and Japanese. Huang (1987: 23) claims that unergatives are disallowed in LVECs, but (4) is a counter-example to the claim.

default, although it can be definite in certain special cases, as seen in (6) (In Section 5, I show that *-zhe* in examples like (6) is not a real progressive marker, although it is glossed as PRG).

- (6) a. Shu-dixia      zuo-zhe {yi ge ren/Zhangsan/nei ge xiaohai}.  
 tree-bottom sit-PRG one CL man/Zhangsan/that CL child  
 ‘Under the tree sits a man/Zhangsan/the child.’ (Huang 1987: 242: (63))
- b. Qiang-shang xie-zhe Min-Zhu liang ge zi.  
 wall-on write-PRGpeople-preside two CL character  
 ‘On the wall, the two characters, Min-Zhu (democracy), were written.’

But most LVECs reject a definite nominal at the right-edge. The possible occurrence of a definite nominal in (6) can be similar to the one in *\*There’s the duck on my desk*, which is unacceptable in general, but acceptable in some special context, e.g., as a response to *I don’t see anything weird in your office* (Milsark 1974, Frances 2007, Irwin 2018: 18). Also, it is possible for an existential sentence to serve not only to introduce a novel discourse referent but also to reintroduce or focalize a referent that has been mentioned (Abbott 1993, 1997; Ward & Birner 1995). Abbott (1993, 1997) and Francez (2007) argue that such a definite use of a nominal has to do with the pragmatic function of the existential sentence rather than the basic rules in its syntax and semantic composition. See McNally (2011: Sec. 3) for more discussion. I thus assume that for the general pattern of LVECs, the right-edge nominal is indefinite.

In a LVEC, the left-edge locative phrase is composed of a noun and a localizer, such as *li* ‘inside’ in (1), (2a) and *shang* ‘surface’ in (2b) (see Lü 1965 and Chao 1968: 397 for localizers). The whole locative phrase is a nominal (Huang 1987: 251; Zhang 2002, 2017, and the references therein; Wu 2008: 62; Li 2016). As pointed out by Huang (1987: 229), no preposition precedes the locative nominal in a LVEC. This is shown in (7). Thus, the locative of a LVEC is different from the one in the English locative inversion construction (e.g., *To the shore swarm little boys and girls; Into my office dashed students.*).

- (7) a. \*Zai wode      duzi-li      he-le      henduo      shui.      (cf. (1))  
 at my      belly-in      drink-PRF      much      water
- b. \*Wang      jiaoshi-li      chong-le      henduo      xuesheng.  
 to      classroom-in      dash-PRF      many      student  
 Intended: ‘Into the classroom dashed many students.’

Zhu (1982: 115), Huang (1987: 229), T. Lin (2001), and Wu (2008: 65-73), all claim that the left-edge locative phrase in a LVEC is a subject, rather than a modifier. Wu gives a group of syntactic arguments to show that the phrase has moved from its base-position to SpecTP (or called SpecIP), like the subjects in other constructions. One of her arguments is that the phrase

can precede a raising verb, such as *sihu* ‘seem’ or *kanqilai* ‘seem’ (for such raising verbs, see Li 1990: 123; Tsao 1996: 176, 178; Tang 2000: 199). I use (8a) to show the point. (8a) is similar to (1), except that the locative is *nide duzi* ‘your belly’ and it precedes *kanqilai* ‘seem’. (8b) shows that the non-locative nominal *bushao shui* ‘much water’ in the LVEC cannot precede a raising verb, and thus the nominal does not show subject properties.

- (8) a. Nideduzi-li kanqilai he-le henduo shui.  
       your belly-in seem drink-PRF much water  
       ‘Your belly seems to have much water because of my drinking.’  
    b. \*Henduo shui kanqilai nide duzi-li he-le.  
       much water seem your belly-in drink-PRF

I adopt Wu’s analysis that the locative phrase has moved to the surface position of the matrix subject, and thus, it is not a modifier. In 2.2 and Section 5, I add two more pieces of evidence for this analysis. The main goal of this paper is to give novel analyses to four major issues of LVECs. First, what is the structure of the matrix predication of the construction? I will claim in Section 2 that the matrix predication does not include the verb; instead, it is an existential predication headed by a null head. Second, how is the verb integrated into the construction? I will claim in Section 3 that the verbal phrase that contains the verb (XP in (9)) is an adjunct to the matrix predication (YP in (9)), and the obligatory argument sharing between the adjunct and the matrix predication is achieved by a sideward movement. With Wu’s (2008) locative raising to the surface position of the subject, the surface order of a LVEC is derived. Thus, the basic structure of (1) is (9) (following Partee & Borschev 2004 and others, I use DP to cover DP, NP, and QP).

- (9) [<sub>DP</sub> my belly-in]<sub>k</sub> [[<sub>XP</sub> drank t<sub>i</sub>] [<sub>YP</sub> t<sub>k</sub> ∅<sub>EXIST</sub> [<sub>DP</sub> much water]<sub>i</sub>]]

Third, why does a transitive verb in a LVEC reject an agent (Pan 1996, T. Lin 2001, J. Lin 2002), as shown in (10)? I will claim in Section 4 that the rejection is predicted since there is no Case-licensor for the agent in the construction.

- (10) Wode duzi-li (\*wo) he-le henduo shui.  
       my belly-in I drink-PRF much water  
       ‘My belly has much water because of my drinking.’

Fourth, why does a LVEC allow the non-progressive use of the progressive marker *-zhe* (e.g., Pan 1996, T. Lin 2001, J. Lin 2002)? I will claim in Section 5 that LVECs provide the right structure for licensing the adessive use of *-zhe*. I will address the significance of this research

in Section 6, and give a short summary in Section 7.

## 2. The existential structure of the matrix predication of a LVEC

In order to show that the matrix predication of a LVEC is an existential predication, I present four arguments: the existence assertion of the construction (2.1), the impossible circumstantial location reading of the left-edge locative (2.2), the unpredicted form of the right-edge DP if the DP were the argument of the verb (2.3), and an unpredicted word order if the verb heads the matrix predicate (2.4). I then give the structure of the matrix predication (2.5).

### 2.1 Existence assertion

The claim that a LVEC expresses an existential predication is supported by the fact that the construction asserts the existence of an entity in a location, beyond the meaning of the verb. In other words, although the information encoded by the verb can be new, it is not the at-issue meaning of the construction. Instead, it is the existential meaning that is the at-issue content of the construction. For instance, (11a) has the verb *tang* ‘lie’ while (11b) has the verb *zuo* ‘sit’, but both LVECs assert that there is a cat on the chair.

- (11) a. Yizi-shang    tang-zhe yi    zhi mao.  
         chair-on    lie-PRG one CL cat  
         ‘There is a cat lying on the chair.’  
      b. Yizi-shang    zuo-zhe yi    zhi mao.  
         chair-on    sit-PRG one CL cat  
         ‘There is a cat sitting on the chair.’

This existence assertion can be attested in the following way. One can add *Dui ma?* ‘Is it right?’ to a LVEC to form a yes-no question. Then, various *you* ‘have’ forms can be possible answers. Specifically, the form *Dui, DP1 qieshi you DP2* ‘Right, DP1 indeed has DP2’ is always a possible positive answer, and the form *Bu-dui, DP1 shenme dou meiyou* ‘No, DP1 has nothing’, or *Bu-dui, DP1 meiyou DP2* ‘No, DP1 does not have DP2’, is always a possible negative answer. This is shown in (12). In contrast, such *you*-forms cannot be proper answers to other questions in the form [DP1 V DP2. *Dui ma?*]. This is shown in (13).

- (12) a. Yizi-shang    tang-le yi    zhi mao.    Dui ma?  
         chair-on    lie-PRF one CL cat    right Q  
         ‘There is a cat lying on the chair. Is it right?’

- b. Dui, yizi-shang      queshi      you yi      zhi      mao.  
 right chair-on      indeed      have one CL      cat  
 ‘Right, there is indeed a cat lying on the chair.’
- c. Bu-dui,      yizi-shang      shenme      dou mei-you.  
 not-right chair-on      what      all      not-have  
 ‘No, there is nothing on the chair.’
- d. Bu-dui,      yizi-shang      mei-you      mao.  
 not-right chair-on      not-have cat  
 ‘No, there is no cat on the chair.’
- (13) a. A-hua      kanjian-leyi      zhi      mao. Dui ma?  
 A-hua      see-PRF      one CL      cat      right Q  
 ‘A-hua saw a cat. Is it right?’
- b. #Dui,      A-hua      queshi      you yi      zhi      mao.  
 right      A-hua      indeed      have one CL      cat  
 ‘Right, A-hua indeed has a cat.’
- c. #Bu-dui, A-hua      shenme      dou mei-you.  
 not-right A-hua      what      all      not-have  
 ‘No, A-hua has nothing.’
- d. #Bu-dui, A-hua      mei-you      mao.  
 not-right A-hua      not-have cat  
 ‘No, A-hua does not have a cat.’

The contrast between (12) and (13) shows that for a LVEC, if the hearer gives an answer only to the existence of DP2 with respect to DP1, it counts as an appropriate answer. This confirms that it is the existence of DP2 that is asserted in a LVEC. The semantics of the verb plays no role in this assertion. The unacceptability of (13b), (13c), and (13d) shows that a non-LVEC DP1-V-DP2 construction does not have to assert the existence of DP2.

The existence meaning of a LVEC is also asserted under a modal. The question in (14a) can be answered by (14b), where the verb *zuo* ‘sit’ in (14a) is changed into *you* ‘have’. The meaning of *zuo* is not asserted in (14a), and is thus ignored in the answer in (14b). On the other hand, *you* does not occur in (14a), but the *you*-form in (14b) is not an irrelevant answer at all.<sup>5</sup>

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<sup>5</sup> A reviewer assumes that (i) is a LVEC. But the left-edge nominal in (i) is not a locative. (i) is in fact a capacity/accommodation construction, similar to (ii), instead of a LVEC. In such a capacity/accommodation construction (Lu 2004; Ramchand 2008: 192; Her 2009: 1156; Li 2014: 309), a manner-denoting verb may be adjoined to a null capacity/accommodation verb, and the post-verbal nominal is the theme object of the null verb, rather than an argument of the overt verb (see Zhang 2018: 1402).

(i) Zhe zhang chuang      neng shui      san ge      ren.      (ii) Zhe ping shui      he      san ge      ren.  
 this CL      bed      can sleep three CL      person      this      bottle water drink three CL      person  
 ‘This bed fits 3 persons.’      ‘This bottle of water is for 3 persons.’



- (14) a. Que. Jiangtai-shang bixu zuo ji wei laoshi?  
stage-on mustsit how.many CL teacher  
‘How many teachers must sit on the stage?’
- b. Ans. Jiangtai-shang bixu you san wei laoshi.  
stage-on musthave three CL teacher  
‘There must be three teachers on the stage.’

Also, in (12), *yi zhi mao* ‘a cat’, like the indefinite DP in an existential sentence, has the narrow scope with respect to the question. The sentence does not ask whether a specific cat is lying on the chair. Thus, from the perspective of the reading of the right-edge DP of a LVEC, the construction is also similar to an existential construction.

These facts show that a LVEC contains an existential predication, encoding that the location denoted by the left-edge locative has the entity denoted by the right-edge DP. Importantly, the semantics of the verb of a LVEC is not part of this existential predication.

## 2.2 An interpretation restriction on the left-edge locative phrase

The left-edge locative phrase of a LVEC must be interpreted as a new goal position of the entity denoted by the right-edge DP, rather than a circumstantial location of an action. In (1), my belly is where the water exists, rather than where I drank. Consider the LVECs in (15a) and (15b).

- (15) a. Jiaoshi-li song-lai-le yi ge baoguo.  
classroom-in send-come-PRF one CL package  
‘A package has been sent to the classroom.’
- b. Jiaoxue-lou-li song-lai-le yi ge baoguo.  
teaching-building-in send-come-PRF one CL packag  
‘A package has been sent to the teaching building.’

Not: ‘In the teaching building, a package has been sent from one place to another.’

The source of the sending in (15a) must be out of the classroom; and similarly, the source of the sending in (15b) must be out of the teaching building. This rules out the impossible reading of (15b), in which the locative is a circumstantial location of the sending action, rather than the goal of a sending action. Although it is possible to send a package from one room to another room within the same teaching building, this meaning cannot be expressed by the LVEC in (15b). In this radical *pro* language, null arguments can be licensed by the discourse information, as seen in Speaker B’s answer to Speaker A’s question in (16). However, The second intended reading of (15b) is still cannot be expressed by the LVEC. Specifically, the goal expression is null in (16), but not in the second intended reading of the LVEC in (15b).

- (16) Speaker A: Baoguo song-lai-le ma? Speaker B: Song-lai-le.  
 package send-come-PRF Q send-come-PRF  
 ‘Has the package been sent in?’ ‘Yes.’

The reading restriction on the left-edge locative phrase of a LVEC supports the semantic function of the phrase, as argued by T. Lin (2001), Wu (2008), among others: it is not a circumstantial modifier of an action denoted by the verb. Instead, it is the locative subject of an existential predication.

Note that this discussion does not exclude the possibility that the locative subject is accidentally overlapped with the circumstantial location pragmatically. In (17a), the campus is both the position of the snake and the position of the finding. This contrasts with (17b), where his belly must be the position of the tumour, rather than that of the finding event.

- (17) a. Xiaoyuan-li faxian-le du-she.  
 campus-in find-PRF poisonous-snake  
 ‘There is a poisonous snake found in the campus.’  
 b. Tadeduzi-li faxian-le zhongliu.  
 his belly-in find-PRF tumor  
 ‘A tumor is found in the belly.’

### 2.3 A form restriction on the right-edge DP

In a LVEC, the DP following the verb cannot be a pronoun, but the constraint does not apply to an argument of a verb in other constructions.<sup>6</sup> The LVEC in (18a) is not acceptable, because it ends with the pronoun *tamen* ‘they’. In (18b), which is not a LVEC, the same verb *zuo* ‘sit’ is able to take *tamen* as its argument.

- (18) a. \*Wuzi-li (yizhi) zuo-zhe tamen. (also Li 1990: 143 (74b))  
 room-in all.the.time sit-PRG they  
 b. Tamen yizhi zuo-zhe.  
 they all.the.time sit-PRG  
 ‘They are sitting there all the time.’

The contrast in (18) is explained, if the matrix predication of a LVEC is existential. Pronouns do not occur in an asserted or foregrounded position (see, e.g., Venhuizen et al 2018, for references and examples). In 2.1, we have shown that what is asserted in a LVEC is that in

<sup>6</sup> LVECs thus differ from existential constructions in Catalan, which allow pronouns (McNally 2011: 1844).

Also see the text below (6) on the definiteness of the right edge DP of a LVEC. A reviewer points out that a LVEC like (i) is acceptable, where the right edge definite DP is a complex complemented pronoun (see Zhang 2016: 278).

(i) Zicong suo-li lai-le tamen san ge ren yihou, mafan bu duan.  
 since institute-in come-PRF they three CL person after trouble not stop  
 ‘Since they three came to the institute, troubles do not stop.’

a certain location, there is an entity, which is denoted by the right-edge DP. An existential sentence introduces or focalizes referents. Thus, the DP is informationally focused. Accordingly, the LVEC in (18a) is not allowed to end with a pronoun. But a subject does not have to be focused, and thus the subject in the non-LVEC example in (18b) can be a pronoun.

## 2.4 The unexpected word order for unergative verbs

The surface order of the three overt elements of a LVEC is fixed: the verb must follow the locative and precede the non-locative DP. If one assumes that the right-edge DP is an argument of the verb exclusively, one needs to explain why the relative order of the two elements can be different from the one if they occur in other constructions. For example, the unique argument of an unergative must precede the verb in Chinese (Li 1990: 136). In the non-LVEC in (19a), *yu* ‘fish’ precedes the verb *you* ‘swim’. (19b) shows that the reversed order is impossible. (19c) shows that exactly this impossible order is seen in the LVEC.

- (19) a. *Yu zai shui-li you-zhe.*  
 fish at water-in swim-PRG  
 ‘Fish are swimming in the water.’
- b. \**Zai shui-li you-zhe yu.*  
 at water-in swim-PRG fish
- c. *Shui-li you-zhe yu.*  
 water-in swim-PRG fish  
 ‘Fish are swimming in the water.’

Can the surface order of the LVEC in (19c) be derived from (19a) by movement? The leftward movement of the verb to the left of its argument is ruled out, for the following reason. In the language, if an adverb occurs with a verb, it precedes the verb, as seen in (20a). In the correlated LVEC, the adverb also precedes the verb, as seen in (20b). This parallelism indicates that the verb in a LVEC does not move to any position higher than its default position.

- (20) a. *Yu (yizhi) zai shui-li you-zhe (\*yizhi).*  
 fish all.the.time at water-in swim-PRG all.the.time  
 ‘Fish are swimming in the water all the time.’
- b. *Shui-li (yizhi) you-zhe (\*yizhi) ji tiao yu (\*yizhi).*  
 water-in all.the.time swim-PRG all.the.time a.few CL fish all.the.time  
 ‘A few fish are swimming in the water all the time.’

The rightward movement of the DP from (19a) to form (19c) does not work, either. Such a movement would derive the PP-initial string \**zai shui-li you-zhe yu*, which is ungrammatical,

similar to those in (7). Thus, the LVEC in (19c) is not derived from (19a).

In the above discussion, I have argued that the verb of a LVEC is out of the matrix predication of the construction, not only the meaning of the verb is not asserted, but also its position is not expected if it heads the matrix predication. My conclusion is different from the classic analysis, which treats the verb as the lexical head of the matrix predicate (Zhu 1982: 114, 116). A modern version of the classic analysis is seen in T. Lin (2001, 2008). In T. Lin's analysis, a null light verb EXIST takes the VP headed by the overt verb as its complement (i.e., VP1 in (21)), and the right-edge DP is the internal argument of the overt verb (2001: 150f). I use (21) to illustrate a possible derivation of (1) in his analysis.

(21) [VP2 [LOC my belly-in] [v2' drank<sub>i</sub>-EXIST] [VP1 t<sub>i</sub> [DP much water]]]

One main problem of (21) is that the complement of the null light verb EXIST is a VP, which denotes an eventuality, rather than an individual. But a LVEC asserts the existence of an individual, rather than an eventuality. For (1), it is the water, rather than the action of drinking, that exists in my belly. A structure like (21) might be a possible structure for a construction where the locative is a circumstantial location (see the impossible reading of (15b)).

Moreover, if it were an event that were asserted in a LVEC, the internal argument of the VP should allow a pronoun (cf. 2.3). In (22), *you* 'have' may take a clausal argument, and what is asserted is the existence of an eventuality, rather than the existence of an individual (Li 1996). In this case, the internal arguments of the verb can be a pronoun.

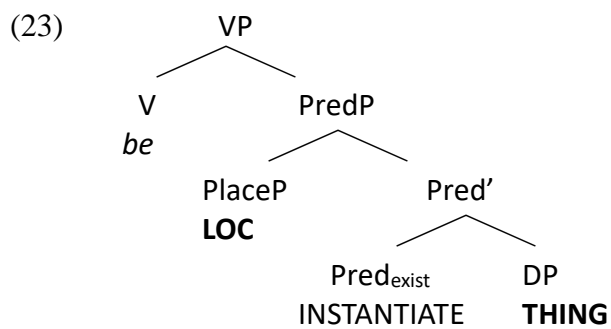
(22) Ruguo you [Lao Li zhaogu wo], wo hui hen xingfu.  
if have Lao Li care I I will very happy  
'If there is such a situation that Lao Li takes care of me, I will be very happy.'

So far, I have shown that semantically and syntactically, the verb is out of the matrix predication of a LVEC, which is an existential predication. In the next subsection, I present the structure of the matrix predication of the construction.

## 2.5 The internal structure of the existential predication

I use Irwin's (2018) theory of existential predication to analyze the structure of the existential predication of LVEC. According to McNally (2011: 1831), "in all existential sentences there is a 'pivot' nominal which describes the individual whose existence is under discussion". In our LVEC, the right-edge DP is such a pivot. According to McNally (1992, 1997), the meaning of existential sentences involves a special predicate, INSTANTIATE, which asserts the existence of an entity that is described by the property denoted by the pivot (see McNally 2011 for the advantages of this instantiate analysis over some other analyses). As stated in Partee &

Borschev (2004: 214), “existence is always relative to a ‘LOCation’, which may be implicit.” Irwin (2018: 15) states that “an existential proposition says that an instance of some set or property (THING) exists at a given spatio-temporal ‘location’ (LOC). The existential predication’s statement of existence is executed by the function instantiate (McNally, 1992; 1997).” (the terms LOC and THING are from Partee & Borschev 2004) According to Irwin (2018: 10), such a state in English has the structure in (23).



In (23), the head  $\text{Pred}_{\text{exist}}$  has two arguments: LOC (PlaceP) and THING (DP), which is the pivot. This head is not realized by any overt verb. For an English sentence such as *There is a lady at the door*, the copular *is* is external to the PredP and takes the PredP as its complement. The separation of the syntax of an existential predication from that of the copula is important here. In Chinese, no copula occurs in a LVEC. So for the matrix predication of the construction, like the PredP in (23), the head is not realized by any overt verb. Whether the head  $\text{Pred}_{\text{exist}}$  has to be null cross-linguistically and in other constructions in the same language is a different issue. McNally (2011: 1831) summarizes that though existential sentences do not always contain a verb, if there is one it is often homophonous with a verb meaning ‘to be’ or ‘to have’, or with some other verb related to possession (such as *geben* ‘give’ in German) which is ‘bleached’ of its content; it may also be a special lexical item such as Hebrew *yeS*. It is possible that the verb *you* ‘have’ in a simple existential construction, exemplified by (ii) in footnote 3, is a realization of this head. Here the point is that the silence of the matrix predication in a LVEC is not ad hoc. The semantics of the head  $\text{Pred}_{\text{exist}}$  is the following (Irwin 2018: 16, 21):

$$(24) [[\text{Pred}_{\text{exist}}]] = \lambda P_{\langle e, t \rangle} \lambda \text{LOC}_{\langle e, \langle s, t \rangle \rangle} \lambda e_s [\text{INST}(\overset{\cap}{\lambda} x [P(x) \& \text{LOC}(x, e)])]$$

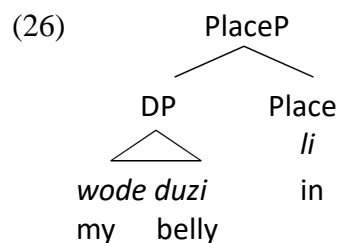
In (24), P is a variable to be saturated by the THING in (23), which is of property type (or a higher type, cf. Frances 2007). LOC is a variable name for the type *e* locational argument (LOC) in (23). The variable *e* is for an eventuality, and the subscript *s* means that the semantic type of the eventuality is of state. Finally, “the operator  $\overset{\cap}{\lambda}$  has the effect of requiring that INSTANTIATE take an argument that is of property type, which is then type-shifted down to entity type. This is how the function yields an individual instance from the set (or set of sets) denoted by the pivot (Chierchia 1984; Partee 1987; McNally 1992).” (Irwin 2018: 16)

In the PredP in (23), PlaceP is the subject. Developing McNally (1992, 1997: 7) and McClosky (2014), Irwin (2018: 8, 15) argues that for an English sentence such as *There is a lady at the door*, the locative PP *at the door* is syntactically an adjunct and semantically a modifier of the existential proposition, and thus it is not a realization of PlaceP directly. The PP just specifies the content of PlaceP. In the spirit of Williams (1994, 2006), PlaceP can be realized by the expletive *there*. Thus, (25) is one possible analysis of *There is a lady at the door*. In this structure, PredP is headed by a null Pred,  $\emptyset$ ; the final PP is an adjunct to the PredP; and *there* is raised to SpecTP.

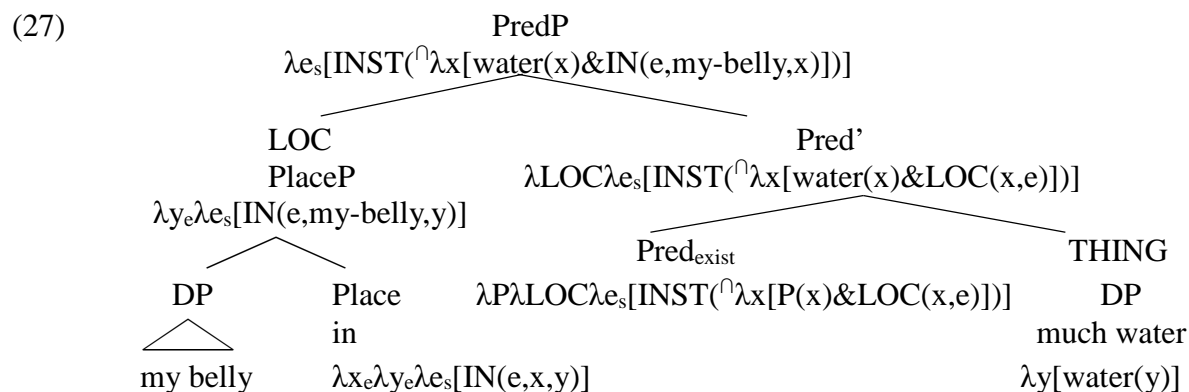
(25) [TP *there* ... *is* [[PredP <*there*> [Pred'  $\emptyset$  [DP *a lady*]]] [PP *at the door*]]]

In Chinese, there is no expletive, and the locative in a LVEC may not be a PP (see (7)). As I reported in Section 1, many studies have shown that the locative nominal in a LVEC show properties of a subject. In contrast, a PP, such as *zai wode duzi-li* ‘in my belly’, is not able to play the role of a subject. I thus claim that the locative nominal is the PlaceP in (23).

This PlaceP is headed by Place, which takes a type *e* nominal as its complement. The head Place is realized by a non-path localizer (Svenonius 2010 and the references there), which is a place-value-denoting element (Zhang 2002). In the nominal *wode duzi-li* ‘in my belly’, the localizer *li* ‘in’ realizes Place, taking *wode duzi* ‘my belly’ as its complement (cf. Zhang 2002). The PlaceP is a nominal, which is the subject of PredP, and also the matrix subject of a LVEC.



Adapting Irwin’s (2018: 17) semantic structure of the PredP for an existential proposition, I propose the PredP structure in (27) for the matrix predication in (1) (called YP in (9)).



In (27), the pivot is the right-edge *much water*, which is for the DP *henduo shui* in (1). It is a weak indefinite, having only the narrowest scope with respect to other operators, if any, in the existential sentence. According to Milsark (1974, 1977), weak indefinites are systematically licensed as pivots because indefinite determiners can be analyzed as cardinality predicates, making the nominal amenable to a property-type analysis.

Summarizing, in this section, I have presented semantic and syntactic arguments for a new analysis of the matrix predication of LVEC, claiming that it is an existential structure: the existence assertion, the impossible circumstantial location reading of the left-edge locative, the unpredicted form of the right-edge DP if the DP were the argument of verb, an unpredicted word order if the verb headed the matrix predicate. I have also given the semantic structure of the proposed matrix existential predication. The structure of the verbless existential state is similar to that of the existential state in languages such as English, in which the existential PredP is headed by the null INSTANTIATE (McNally 1992, 1997, Irwin 2018). Regardless of the overtness of any element of the construction, the syntax and the semantics of the construction are both compositional.

### 3. The integration of the verbal expression

#### 3.1 The semantic restriction on the verb of a LVEC

In a LVEC, if the matrix predication is a PredP, as in (27), how is the verb integrated into the construction? Li & Thompson (1981: 512) call the verbs in LVECs positional verbs. Huang (1987: 228) state that such verbs are “locative verbs – transitive or intransitive verbs that subcategorize for a locative phrase. These include intransitives like *zhu* ‘live’, *zuo* ‘sit’, *tang* ‘lie’, *piao* ‘float’ and transitives like *fang* ‘put’, *gua* ‘hang’, and *xie* ‘write’.” However, Huang’s locative-subcategorizing theory can be challenged. In Chinese, if a transitive verb subcategorizes for a phrase, the former precedes the latter; but why must the subcategorized locative precede the verb in a LVEC consistently? Moreover, why does this assumed locative-subcategorization is not seen in other contexts? For example, if *xie* ‘write’ subcategorizes for a locative in the LVEC in (6b), why does it not do so in (28)? As pointed out by T. Lin (2008: 73), “it is conceptually difficult to accept that such verbs as *xie* ‘write’ (and many others) have an internal locative argument. Why does writing have anything to do with a location, other than it must happen somewhere?” T. Lin’s comment applies to other verbs, such as *he* ‘drink’ in (1).

- (28) Lulu xie-le liang ge zi.  
 Lulu write-PRF two CL character  
 ‘Lulu wrote two characters.’

Instead of the problematic locative-subcategorizing theory, a better analysis is called for. I have observed that only three types of verbs are allowed in a LVEC: verbs that encode an eventuality that leads to the existence of an individual in a certain location, verbs of finding, and verbs of spatial configuration (see Levin 2003: 255 for verbs of spatial configuration) (as I stated in footnote 3, I do not discuss the disappearing version of LVEC in this paper).

Verbs that encode an eventuality that leads to the existence of an individual in a certain location include verbs of appearance such as *chuxian* ‘appear’, *lai* ‘come’, *dao* ‘arrive’, as in (2a), and verbs such as *he* ‘drink’ in (1). For example, *he* in (1) tells us that my drinking leads to the existence of the water in my belly.

Verbs of finding such as *zhaodao* ‘find’ and *faxian* ‘discover’ in LVECs, as in (17), encode an eventuality, and the occurrence of the eventuality depends on the existence of the entity denoted by the internal argument in a certain place.

Different from the above two types of verbs, in LVECs, verbs of spatial configuration, such as *tang* ‘lie’ in (11a) and *zuo* ‘sit’ in (11b), encode the mode of the individual whose existence can be asserted (cf. Levin’s 1993: 250 concept “entity-specific mode of existence” for locative inversion in English). The verbal phrase headed by such a verb functions as a secondary predicate, depicting the individual, in a LVEC.

No other types of verb (e.g., verbs of desire, such as *zhuiqiu* ‘seek’) may occur in a LVEC. Thus the verb of a LVEC is not free. Also, the same verb may or may not occur in a LVEC, depending on the choice of the locative. Consider the verb *he* ‘drink’, which does not belong to the types of verb of finding and verb of spatial configuration. Thus, only when a verb is able to encode a cause for an entity to exist in a certain place, may it occur in a LVEC. In (29a), drinking can cause the water to be in my body, but in (29b), drinking cannot cause water to be in the office (see Pan 1996: 425 for more unacceptable examples like (29b)).

- (29) a.   Wode     duzi-li   he-le     henduo   shui.  
           my     belly-in  drink-PRF much   water  
           ‘My belly has much water because of my drinking.’  
       b.   \*Bangongshi-li   he-le     henduo   shui.<sup>7</sup>  
           office-in       drink-PRF much   water

Reversely, the same locative may or may not occur in a LVEC, depending on the choice of the verb. In (30a), *you* ‘swim’ is a verb of spatial configuration, and its occurrence in the LVEC is legal. However, the verb *diao* ‘fish’ in (30b) is not a verb of finding or verb of spatial configuration, and fishing is not able to cause fish to appear in a river. Although fishing needs

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<sup>7</sup> In examples like (i), an agent, or its *pro* form, may occur. But in a LVEC, no agent is allowed (see Section 4).

(i)   Keting-li        (renmen)   zheng     he-zhe    jiu   ne!  
       living.room-in  people     right.now  drink-PRG  wine PRT  
       ‘In the living room, people are drinking wine!’

(adapted from T. Lin 2008: 80 (64))



a water-place, (30b) is still not acceptable.

- (30) a. He-li you-zhe ji tiao yu.  
river-in swim-PRG several CL fish  
'In the river, several fish are swimming.'
- b. \*He-li diao-zhe ji tiao yu.  
river-in fish-PRG several CL fish

In (31a), showing a movie on a screen causes the movie to appear on the screen, and thus the LVEC is acceptable. In contrast, in (31b), seeing a movie does not cause a movie to appear on a screen. Although watching a movie needs a screen, the LVEC in (31b) is still unacceptable.

- (31) a. Pinmu-shang bofang-zhe dianying.  
screen-on show-PRG movie  
'A movie is playing on the screen.'
- b. \*Pinmu-shang kan-zhe dianying.  
screen-on watch-PRG movie

T. Lin (2001: 141, 163) notes that verbs of state are rejected in a LVEC, as seen in (32a). Verbs like *lei* 'tired' and *shangxin* 'sad' are also banned. We observe that LVECs also reject "verbs of nonverbal expression" (a term in Levin 1993: 95), e.g., *xiao* 'smile, laugh', and psych-verbs, as seen in (32b) and (32c), respectively. None of the verbs in (32) belongs to any of the three types of verbs mentioned above. Thus, the unacceptability of these examples is predicted.

- (32) a. \*Jia-li e-zhe xiaohai.  
home-in hungry-PRG kid
- b. \*Men-wai xiao-zhe yi ge nühai.  
door-outside smile-PRG one CL girl
- c. \*Malu-shang danxin-zhe xiaohai.  
street-on worry-PRG kid

The examples in (32) also show that not all verbs are able to denote the mode of the existence of an entity in LVECs (cf. T. Lin 2008: 74). In (32a), for example, it is possible for a kid to exist at home in the mode of a hungry state, but the sentence is still unacceptable. Only a verb of spatial configuration can denote the mode of the existence of an entity in a LVEC, as discussed above.

For all three types of verbs that may occur in a LVEC, first, one argument of the verb is shared with the non-locative DP of the matrix predication (see 3.2), and the existence of the

individual denoted by this argument is asserted in a LVEC; second, the verb provides certain information associated with the existential state expressed by the matrix predication. However, the three types of verbs in LVECs are not semantically unified, although I claim that syntactically, the verbal phrase is an adjunct to the matrix PredP consistently (see 3.2). The eventualities expressed by them have different temporal relations with the existential state denoted by the matrix predication. For verbs of spatial configuration, their denoted eventuality is temporally overlapped with the existential state. For verbs of finding, their denoted eventuality is temporally contained in the existential state. Finally, for verbs that encode an eventuality that leads to the existence of an individual in a location, there are two cases. If the verb is not durative, such as *dao* ‘arrive’, the denoted eventuality is temporally overlapped with the initial point of the existential state expressed by the matrix predication of a LVEC. If the verb is durative, the ending or stopping time of the denoted eventuality is temporally overlapped with the initial point of the existential state expressed by the matrix predication of a LVEC. For the LVEC in (33), a dumpling exists in his hands as soon as he finishes the wrapping. Similarly, for the LVEC in (1), much water exists in my belly as soon as I have drunk much water.

- (33) Ta-shou-li    bao-zhe yi    ge    jiaozi.  
       he-hand-in    wrap-PRG one CL    dumpling  
       ‘In his hands, a dumping is being wrapped.’

### 3.2 The syntax of the obligatory argument-sharing

The verb in a LVEC not only must be semantically related to the existence state denoted by the matrix predicate, as shown in 3.1, but also must be structurally interacted with the structure of the matrix predicate. It must share a canonical argument with the right-edge DP, which is the THING argument of the matrix existential predication. Consider (34a) and (34b).

- (34) a. \*Lese-tong-li chi-le    bushao    chuyu.  
       trash-bin-in eat-PRF many    left.overs  
       b. \*Shuzhuo-shang    xie-le    bushao    mao-bi.  
       desk-on                write-PRF many    brush-pen

In (34a), one might think that the existence of leftovers in the trash bin is caused by eating. However, *bushao chuyu* ‘many leftovers’ is not an argument of *chi* ‘eat’. In (34b), one might think that the existence of brush-pens on the desk is caused by writing with them. However, the instrument *bushao maobi* ‘many brush-pen’ is not a canonical argument of *xie* ‘write’, although Chinese allows the string *xie maobi* ‘write brush-pen’ as a non-canonical object construction (e.g., T. Lin 2001, Zhang 2018). The unacceptability of both (34a) and (34b) indicates that the verb must share a canonical argument with the right-edge DP in a LVEC. Specifically, if the

verb is intransitive, its unique argument is shared; and if the verb is transitive, its internal argument is shared, with the THING argument of the matrix existential predication.

Since argument-sharing is required between the verb and the THING argument of the existential predication in a LVEC, and since the latter argument is a weak indefinite normally, only a weak indefinite argument of the verb can be shared. If the unique argument of an intransitive verb is a pronoun, the verb does not occur in a LVEC (see 2.3). Also, since mental attitude verbs (e.g., *taoyan* ‘dislike’ and *xihuan* ‘like’) do not take weak indefinite as their internal argument (Diesing 1992), such verbs are rejected in LVECs.

- (35) \*Jiaoshi-li taoyan-zhe yi ge xuesheng.  
 classroom-in dislike-PRG one CL student

How does syntax represent this argument-sharing? First, the argument of the verb that is shared with the matrix predication cannot be a *pro*, because a *pro* allows an overt alternate, but no overt pronoun may occur with the verb of a LVEC. Also, it is not easy for a *pro* to take a weak indefinite as its antecedent.

- (36) Shuang-shang (\*ta)shui-zhe yi ge xiaohai.  
 bed-on he sleep-PRG one CL kid  
 Intended: ‘There is a kid on the bed, who is sleeping.’

Second, the argument of the verb that is shared with the matrix predication cannot be a deleted nominal, taking the right-edge nominal of the matrix predication as its antecedent. If the argument were deleted in this way, the deletion should satisfy the right-edge condition for backward ellipsis (Wilder 1997). In (37a), both the deleted part and its antecedent (the underlined part) are at the right-edge of the hosting clause. In (37b), however, the deleted part is at the left edge of the first clause and its antecedent is also at the left-edge of the second clause (see Wilder 1997: 59). In (37c), the deleted part is at the left edge of the first clause, although its antecedent is at the right-edge of the second clause. The backward ellipsis in neither example is possible. (37d) (Wilder 1997: 87) shows that backward ellipsis is not restricted to coordinate constructions.

- (37) a. John bought \_ and Sue read the day’s newspaper.  
 b. \*\_ sat down and Mary laughed.  
 c. \*\_ hugged Mary and she kissed John.  
 d. I talked to \_, without actually meeting everyone on the committee.

However, for an unergative verb, its unique argument is not at the right-edge of the clause

in Chinese (see 2.4). We thus see that the backward deletion of the argument of the verb of a LVEC is not possible.

Third, similarly, the argument sharing cannot be achieved by Right-Node-Raising (RNR), since for an unergative verb, its unique argument is not at the right-edge of the verbal phrase in Chinese, whereas RNR must be achieved by the sharing of the right-edge elements.

Fourth, the argument of the verb that is shared with the matrix predication cannot be a PRO, because it is not the subject of the verb if the verb is transitive, whereas a PRO must be a subject.

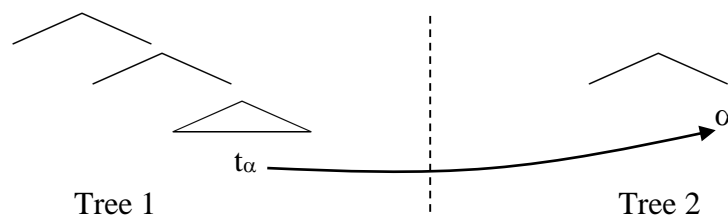
Fifth, the argument sharing cannot be achieved by a parasitic gap strategy, because the right-edge DP in a LVEC is not a gap. Thus it is not the case that the argument gap of the verb is parasitic on another gap.

Therefore, none of the five strategies, pro, deletion, RNR, PRO, and parasitic gap, is able to represent the argument sharing between the verb and the matrix predication of a LVEC.

I propose that the obligatory argument-sharing between the verbal phrase and matrix predication of a LVEC is achieved by a sideward movement of an argument from the former to the latter. The following is a brief introduction to sideward movement.

Generally speaking, the movement of  $\alpha$  lands at a position that c-command the launching site, in the same “tree.” The movement from one tree into another tree is sideward movement. The mode of sideward movement is illustrated as follows.

(38) Step 1:  $\alpha$  moves from Tree 1 to Tree 2



Step 2: Tree 2 grows.

Step 3: Tree 1 is merged with the developed Tree 2.

The theory of sideward movement is proposed in Bobaljik & Brown (1997), Nunes (2001, 2004), Hornstein (2001), Nunes & Uriagereka (2000), and Bošković (2018). It has been used to account for a number of unrelated phenomena, such as adjunct control, tough-movement, and other null-operator constructions (Hornstein 2001), issues pertaining to extraction domains (Nunes & Uriagereka 2000), PRO-gate effects (Hornstein and Kiguchi 2003), donkey anaphora (Boeckx 2003), antecedent-resumptive relations (Kayne 2002), and others. The existence of sideward movement seems to be expected, if Rmerge (i.e., Move), like Merge, just sets up new syntactic relations. As pointed out by Hornstein & Nunes (2002: 27), sideward movement does not add any new constraint to our current computational system. In contrast, it removes a

stipulation from the system that movement must target the syntactic object that contains the trace. Hornstein & Nunes (2002) claim that such a stipulation is actually a residue of D-structure, which is not compatible with the Minimalist Program. If no D-structure is assumed and the computational system resorts to generalized transformations to build phrasal objects, the landing site of a movement may be beyond the domain that contains the trace. “In other words, in a system that may operate with more than one single-rooted syntactic object at once, as in Chomsky 1995, only brute force would force movement to always target the same tree.” (Hornstein & Nunes 2002: 28)

The integration of the verbal phrase into the matrix predication in (39) is illustrated in (40).

- (39) Wode duzi-li he-le henduo shui.  
 my belly-in drink-PRF much water  
 ‘My belly has much water because of my drinking.’

(40) Step 1: build the XP that contains *he-le henduo shui* ‘drank much water’

- a. [XP ... he-le [DP henduo shui]] (Tree 1)

Step 2: The DP *henduo shui* ‘much water’ undergoes a sideward movement from Tree 1, to merge with a null  $\text{Pred}_{\text{exist}}$ , building another tree.

- b. [XP ... he-le  $t_i$ ] [Pred'  $\text{Pred}_{\text{exist}}$  [DP *henduo shui*] $_i$ ]  
 Tree1 Tree 2
- 

Step 3: Tree 2 “grows”, as in (27):

- c. [PredP wode duzi-li [Pred'  $\text{Pred}_{\text{exist}}$  [DP *henduo shui*] $_i$ ]]

Step 4: Tree 1 in the output of Step 2 left-adjoins to Tree 2. This is just a merger of two trees. In Chinese, an adverbial precedes the modified expression consistently (see (20)).

- d. [PredP [XP ... he-le  $t_i$ ] [PredP wode duzi-li [Pred'  $\text{Pred}_{\text{exist}}$  [DP *henduo shui*] $_i$ ]]]

Step 5: The locative DP *wode duzi-li* ‘in my belly’ moves to the surface position of a subject, higher than PredP, deriving the surface order in (39).

- e. [IP [DP wode duzi-li] $_k$  [ $\Gamma$  [PredP [XP ... he-le  $t_i$ ] [PredP  $t_k$  [Pred'  $\text{Pred}_{\text{exist}}$  [DP *henduo shui*] $_i$ ]]]]]

This derivation of a LVEC represents the syntactic and semantic relations between the verb containing XP and the PredP identified in the previous (sub)sections.

It needs to be clarified that in a LVEC, the verbal XP specifies some further information of the existential PredP semantically. An existential PredP does not need the verbal XP. If  $\text{Pred}_{\text{exist}}$  is realized by *you* ‘have’, no verbal XP occurs.

### 3.3 The aspect marker and the A-not-A form of the verb of a LVEC

Two remaining issues on the verb of a LVEC are clarified in this subsection, in order to show that they do not affect my claim that the overt verb does not head the matrix predication of a LVEC. One is about the aspect suffix on the verb. The verb may have an aspect suffix, e.g., the progressive *-zhe*, as in (41a), the perfective *-le*, as in (41b), and the experiential *-guo*, as in (41c). Such a suffix is licensed locally in the verbal phrase, which should be an AspP. Thus, precisely, the XP in all the structures in (40) (also in (9)) should be AspP.

- (41) a. Qiang-shang pa-zhe yi zhi mayi.  
wall-on crawl-PRG one CL ant  
'There is an ant crawling on the wall.'
- b. Qiang-shang pa-le yi zhi mayi.  
wall-on crawl-PRFone CL ant  
'There was an ant crawling on the wall.'
- c. Qiang-shang pa-guo yi zhi mayi.  
wall-on crawl-EXP one CL ant  
'There was an ant crawling on the wall.'

The choice of an aspect marker is decided by the temporal relation between the event denoted by the verbal expression and a certain reference time, as in other constructions in the language. Specifically, if there is no overt reference-time expression, the default reference time is the utterance time. This is the case in (41) above. If there is an overt reference-time expression, such as *nashi* 'at that time' in (42), a *-zhe* verb denotes that the event is simultaneous with the reference time (see Section 5 for more discussion of *-zhe*).

- (42) Na-shi, qiang-shang pa-zhe yi zhi mayi.  
that-time wall-on crawl-PRG one CL ant  
'There was an ant crawling on the wall at that time.'

I have discussed three temporal relations between the eventuality denoted by the verb and the existential state denoted by the matrix predication of a LVEC in 3.1. The choice of an aspect marker does not affect the relations. For example, in all the examples in (41) and (42), the crawling eventuality is temporally overlapped with the existential state of the ant on the wall.

The other issue is about the A-not-A form of the verb in a LVEC. The possibility for the verb to have an A-not-A form does not affect the embedded status of the verbal phrase in the construction. Since the verb in a LVEC occurs at the left-edge of the whole matrix predicate, it may have an A-not-A question form, as in (43a), although it does not head the matrix predicate. (43b) shows that the preposition *gen* 'from', which is at the left-edge of the whole predicate

and does not head the predicate, may also have an A-not-A form.

- (43) a. Qiang-shang gua-mei-gua-zhe yi fu hua?  
 wall-on hang-not-hang-PRG one CL picture  
 ‘Is there a picture on the wall?’
- b. Ni gen-mei-gen ta jie-guo qian? (also see Huang et al. 2009: 249 (61))  
 you from-not-from he borrow-EXP money  
 ‘Did you borrow money from him?’

In this section, I have argued that the verbal phrase headed by the verb in a LVEC is an AspP, adjoined to the structure of the matrix predication, that one argument of the verb must be shared with the internal argument of the matrix predication, and that the sharing is syntactically implemented by sideward movement.

#### 4. The one-argument constraint on the verb of a LVEC

Having discussed the matrix predication of a LVEC, and the integration of the verbal phrase into the construction, in this section, we discuss a structural restriction on the verbal phrase itself in a LVEC: it has one argument only.

##### 4.1 The one argument constraint on several constructions

In a LVEC, if the verb is transitive, no agent is allowed, as shown in (44a). As expected, no agent-oriented adverb is allowed, either, since such an adverb needs an agent licenser. In (44b), *guyi* ‘deliberately’ is banned, and in (44c), the instrument adverbial *yong jiu-bei* ‘with a wine-cup’ is banned. The restrictions consistently indicate that there is no *pro* or PRO agent for the transitive verb in a LVEC.

- (44) a. Wode duzi-li (\*wo) he-le henduo shui. (= (10))  
 my belly-in I drink-PRF much water  
 ‘My belly has much water because of my drinking.’
- b. Wode duzi-li (\*guyi) he-le henduo shui.  
 my belly-in deliberately drink-PRF much water  
 Intended: ‘My belly has much water because of my deliberate drinking.’
- c. Wode duzi-li (\*yong jiu-bei) he-le henduo shui.  
 my belly-in with wine-cup drink-PRF much water  
 Intended: ‘My belly has much water because of my drinking with a wine-cup.’

The ban of an agent in LVECs has been noted by Huang (1987: 231: “they do not have a

D-Structure subject”), and discussed in Pan (1996), T. Lin (2001), and J. Lin (2002). Pan and J. Lin both propose their own versions of agent-deletion rule, to explain the restriction. Pan (1996: 428) claims that the deletion correlates with the progressive aspect marker *-zhe*. However, as pointed out by T. Lin. (2001: 134) and J. Lin (2002), the construction also allows the perfective aspect marker *-le*. In fact, the experiential aspect marker *-guo* is also allowed, as seen in the complement clause in (45a) (also see T. Lin 2001: 135); and no aspect marker occurs under a modal, as seen in (45b); but the agentless restriction is seen in all LVECs. Thus, the constraint has nothing to do with the choice of or even the occurrence of an aspect marker.

- (45) a. Zhentan duanding [zhuozi-shang (\*na ge ren) fang-guo yi ba dao].  
 detective sure table-on that CL person put-EXP one CL knife  
 ‘The detective is sure that there was a knife on the table (put by that person).’  
 b. Zai jiancha-zhiqian, nide duzi-li (\*ni)bixu he henduo shui.  
 at check-before your belly-in you mustdrink much water  
 ‘Before the checking, there must be much water in your body.’

In T. Lin’s (2001: 149) analysis, an agent is licensed by the light verb DO, but a LVEC is headed by the light verb EXIST, as seen in (21). That is why an agent is not allowed to co-occur with the locative subject. In (21), the light verb heads an extended projection above the VP that is headed by the overt verb, in the same predication. One predication naturally disallows two external arguments. But, since we have recognized that the overt verb heads a different predication from the matrix one in a LVEC, we need to explain the missing of the agent for a transitive verb in the construction.

Semantically, following J. Lin (2002: 279), I assume that in an agentless LVEC, the agent of the verb is saturated through existential closure. For example, *he* ‘drink’ in (44a) has the semantics in (46), where the agent variable *y* is bound by the operator  $\exists y$ .

$$(46) [[he]] = \lambda x \exists e \exists y [\text{Theme}(x,e) \ \& \ \text{Agent}(y,e) \ \& \ \text{drink}'(e)]$$

Syntactically, I claim that the absence of an agent in a LVEC follows a general constraint on some types of embedded clauses in Chinese. In addition to LVECs, the agentless constraint is also seen in at least two more constructions.

The first construction is the impersonal V-*qilai* construction, such as (47a) (Wang & Wu 2018). In (47a), the V-*qilai* cluster (i.e., the underlined part) is hosted in a frame-setting modifier. Wang & Wu (2018: 13) argue that in (47a), the left-edge DP *zhe ben shu* ‘this book’ is the subject of the right-edge expression *hen youshendu* ‘very deep’, and *du-qilai* ‘read-qilai’ has a function similar to that of the clause-initial adjunct in *Standing on the chair, John can reach the ceiling*. Wang & Wu also notice that in this V-*qilai* construction, a transitive verb also has no



agent, and disallows any agent-oriented adverb, as seen in (47b).

- (47) a. Zhe ben shu      du-qilai      hen youshendu.  
 this CL book      read-QILAI      very deep  
 ‘This book is deep for reading.’
- b. Zhe ben shu      (\*Lulu/\*renmen) (\*keyi)      du-qilai      hen youshendu.  
 this CL book      Lulu/people      deliberately read-QILAI      very deep  
 ‘This book is deep for reading.’

It is obvious that no deletion rule applies to any possible agent here, since there is simply no form in the whole construction that can function as an antecedent for the deletion (cf. Wang & Wu 2018: 16). This is also true of LVECs.

The second construction is the subordinate clause (but not coordinate clause) in a serial verb construction (SVC) (Huang et al. 2009: 163). This type of subordinate clause follows the matrix clause directly, as seen in the underlined part of (48a) and (49a). The embedded clause also rejects an agent and agent-oriented adverb, as seen in (48b) and (49b).

- (48) a. Lulu mai piao      kan dianying.  
 Lulu buy ticket      see movie  
 ‘Lulu bought a ticket to see a movie.’
- b. Lulu mai piao      (\*ta)      (\*guyi)      kan dianying.  
 Lulu buy ticket      he      deliberately      see movie  
 ‘Lulu bought a ticket to see a movie.’
- (49) a. Zhangsan tui-zhe      yi      liangjiaotache dao xiao-menkou. (J. Lin 2002: 273)  
 Zhangsan put-PRG      one CL bike      go school-entrance  
 ‘Zhangsan pushed a bike going to the school entrance.’
- b. Zhangsan tui-zhe      yi      liangjiaotache (\*ta) (\*guyi)      dao xiao-menkou.  
 Zhangsan put-PRG      one CL bike      he deliberately      go school-entrance  
 ‘Zhangsan pushed a bike going to the school entrance.’

Thus, the agentless restriction is observed not only in LVECs, but also in some other constructions. In the next subsection, I propose a unified account for the restriction.

#### 4.2 Licensing the Case of the agent of a transitive in an embedded clause

Syntactically, one way to license a DP is to license its abstract Case (e.g., Legate 2008, and Li 1990, 2013 for Chinese). If the verb of a LVEC is intransitive, and the unique argument moves to the internal argument position of the matrix predication (3.2), it is Case-licensed in the matrix predication structure in the same way as an argument that is base-generated there. But if the

verb of a LVEC is transitive, its external argument needs its Case to be licensed.

It is generally assumed that the internal argument of a transitive verb is Case-licensed by *v*, but the external argument has to be Case-licensed by a functional head external to *vP*. For a finite clause, its external argument is licensed by the local *Infl*, but for a nonfinite clause, its external argument has to be licensed in some special way. It is possible that the three types of agentless embedded clauses introduced in 4.1 (i.e., LVECs, impersonal *V-qilai* constructions, and the subordinate clauses in SVCs) are not finite clauses and they also do not have a Case-licensor for an agent. Zhang (2019) argues that a nonfinite clause in Chinese disallows any of the three sentence-final particles of the lowest *C*-level: *le*, *ne*, and *laizhe*, although finite embedded clauses do allow them. For example, in (50a), the conditional clause allows *ne*, but in (50b), the complement clause under the control verb *dasuan* ‘plan’ rejects *ne*. She claims that the embedded clause in (50a) is finite, whereas the one in (50b) is nonfinite.

- (50) a. [Ruguo ni zai kaiche ne], jiu bu yao hua shouji.  
           if you PRG drive SFP then not should swipe cellphone  
           ‘If you are driving, you should not swipe a cellphone.’
- b. Ajie dasuan [mingtian-zhongwu zai jia dengni (\*ne)].  
       Ajie plan tomorrow-noon be home wait you SFP  
       ‘Ajie plans to be at home waiting for you at tomorrow noon.’

Indeed, none of the three types of agentless embedded clauses allows such a particle. For example, the verb *zuo-zhe* in the LVEC in (51) is followed by the sentence-final particle *ne*, and the example is not acceptable. Possibly, such an agentless embedded clause is nonfinite.

- (51) \*Yizi-shang [zuo-zhe ne] yi zhi mao.  
       chair-on sit-PRG SFP one CL cat

But how do we know that they do not have a Case-licensor for an agent? One clue is that in certain special contexts, the occurrence of the passive marker *bei* ‘by’ licenses an agent in a LVEC, as seen in (52a) and (52b) (also (68c)). *Bei* is local to *John* in (52a) and *yisheng* ‘doctor’ in (52b). Plausibly, it is this functional element *bei* that Case-licenses the agent in these examples.

- (52) a. Qiang-shang bei Johnke-le henduo zi. (Pan 1996: 412 (5b))  
       wall-on PASS Johncarve-PRFmany words  
       Lit. ‘On the wall was carved many words by John.’

- b. Wode duzi-li bei yisheng guan-le henduo shui.  
 my belly-in PASS doctor fill.in-PRFmuch water  
 ‘My belly has much water because the doctor filled it in.’
- c. Wode duzi-li (\*bei wo) he-le henduo shui.  
 my belly-in PASS I drink-PRFmuch water  
 ‘My belly has much water because of my drinking.’

But in general, *bei* may not occur in LVECs, as seen in (52c), and in the other two constructions discussed in 4.1. Plausibly, the absence of a Case licenser for an agent correlates with the absence of an agent in these constructions.

My new observation is that an agent of an embedded clause is not licensed if the clause does not satisfy either of the following two conditions:

- (53) a. The embedded clause is selected by the matrix verb.  
 b. The embedded clause is introduced by a functional element, e.g., a complementizer, or the clause-linking *de*, which can be understood as a complementizer.

None of the three types of embedded clauses discussed in 4.1 satisfies the two conditions in (53). They are not selected by the matrix verb, and not introduced by any functional element. Now let us see how the two conditions license an agent of an embedded clause.

First, (53a) states that the agent of a complement clause of the matrix verb can be licensed. In (54), the embedded clause *Lulu dou ta* ‘Lulu tease her’ is the complement of *zhiwang* ‘expect’. In this example, it is the *v* of the selecting verb *zhiwang* that Case-licenses *Lulu*, which is the external argument of an embedded clause, similar to the Case-licensing in an ECM construction in English. For example, in *Sue expects him to clean the room*, it is the *v* of *expects* that licenses the Case of *him*, which is the agent of the embedded nonfinite clause.

- (54) Wo zhiwang [Lulu dou ta].  
 I expect Lulu tease he  
 ‘I expected Lulu to tease him.’

If the matrix verb has its own nominal object, its *v* licenses the Case of the object, and thus is not able to license the Case of another element. Thus, even if one analyzes the purposive *kan*-phrase in (55) (= (48b)) as the complement of the matrix verb *mai* ‘buy’, assuming *piao* ‘ticket’ is SpecVP, the *v* of *mai* is still unable to license the Case of *ta* ‘he’.

- (55) Lulu mai piao (\*ta) (\*guyi) kan dianying.  
 Lulu buy ticket he deliberately see movie  
 ‘Lulu bought a ticket to see a movie.’

Second, (53b) states that if a complementizer or the clause-linking *de* is available, the agent of the relevant embedded clause can also be licensed. Consider (56). In this example, the purposive complementizer *lai* ‘in order to’ (Liao & Lin 2019) is able to license the Case of the null external argument of the verb *qi* ‘anger’ and thus *guyi* ‘deliberately’ is allowed (although the agent is null). *Lai* is thus similar to the infinitival complementizer *for* in English, which can license the Case of the external argument of the relevant nonfinite clause. For example, in *For him to cook a meal is difficult*, the word *for* licenses the Case of *him*, which is the agent of the embedded nonfinite clause.<sup>8</sup>

- (56) A-Mao mai ta qian-qi de shu lai guyi qi laopo.  
 A-Mao buy his ex-wife DE book to deliberately anger wife  
 ‘A-Mao bought his ex-wife’s book in order to anger his wife.’

It needs to be clarified that Case-licensing is local. Therefore, in (57a), the intended agent *ta* ‘he’ cannot be Case-licensed by the complementizer *suiran* ‘although’, since the latter introduces the whole LVEC, rather than the adjunct clause in which *ta* occurs. In this example, as shown in (57b), I Case-licenses the locative subject. Since *ta* is in an adverbial island, it fails to establish a Case relation with either I or C.

- (57) a. Suiran tade duzi-li (\*ta)he-le henduo shui  
 although his belly-in he drink-PRF much water  
 ‘Although his belly has much water because of his drinking’  
 b. \*[CP suiran [IP [DPtade duzi-li] [I I [PredP [AspP ta he-le t] [PredP ...  
           X                    Case    No Case-relation

Now let us see how the clause-linking *de* licenses Case. The underlined part in each example in (58) is an embedded clause, and it is introduced by *de*.

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<sup>8</sup> In Liao & Lin (2019:95), the null subject of the *lai* clause is labeled as a PRO. In the null Case theory of PRO, a PRO is Case-licensed by the local C, whereas in the Case-less theory of PRO, PRO is licensed without any Case consideration. My discussion shares with Liao & Lin’s in the point that the external argument in a purposive *lai* clause occurs legally, and it in turn licenses an agentive adverb in the clause.

Moreover, clauses that are introduced by the complementizers such as *ruguo* ‘if’ and *yinwei* ‘because’ are finite (see (50a)) (Zhang 2019: Sec. 2.1), and thus if an agent occurs in such clauses, no special Case-licensor is required.

- (58) a. Wo zhengzai du Lulu mai de shu.  
 I PRG read Lulu buy DE book  
 ‘I am reading a book that Lulu bought.’
- b. Wo zhengzi du Lulu bangzhu lao-ren de xiaoxi.  
 I PRG read Lulu help old-person DE news  
 ‘I am reading the news that Lulu helped old people.’
- c. Da-guo dui xiao-guo de qinlue ling shi-ren danyou.  
 big-state to small-state DE invade make world-people worry  
 ‘Big states’ invasion of small states make people in the world worried.’

Both the relative clause in (58a) and the complement clause of *xiaoxi* ‘news’ in (58b) are introduced by *de*. One can assume that *de* is a complementizer and it c-commands the embedded clause in its base-position. Accordingly, *de* licenses the Case of *Lulu* in the two examples. Cinque (2019: Sec. 3.6) shows that Chinese relatives share properties with non-finite relatives in other languages. If such clauses are non-finite, the external argument in the clauses cannot be licensed by the local Infl. Our claim that it is *de* that licenses the Case of the external argument in such clauses is compatible with his findings.

In (58c), the nominalizer *de* introduces a nominalized clause. According to Wang (2018), which is a development of Fu (1994: 133), after the verb of a vP moves to a nominal head, the remnant vP moves to the left-edge of the complex nominal. This derives the surface order of a nominalized clause in Chinese, as shown in (59). The clause is the subject of *ling* ‘make’ in (58c).

- (59) da-guo dui xiao-guo de qinlue  
 big-state to small-state DE invade  
 ‘big states’ invasion of small states’  
 [FP [<sub>VP</sub> big states to small states <sub>t<sub>i</sub>]<sub>k</sub>] [<sub>F</sub> de [<sub>NP</sub> [<sub>N</sub> [invade]<sub>j</sub>] <sub>t<sub>k</sub></sub>]</sub>

The verbal phrase that undergoes nominalization can be treated as a nonfinite clause, which has its own internal and external arguments, as extensively discussed in Fu (1994). If so, the *de* here is similar to a complementizer that selects a nonfinite clause (e.g., *for* in English). It differs from other complementizers in the property that it projects a nominal feature, and it does not surface at a clause-edge position because of the remnant movement of the vP.<sup>9</sup> In this perspective, this use of *de* is able to license Case, similar to *lai* in (56), and *de* in (58a) and (58b). In (59), in their base-positions, *de* is the closest c-commanding functional head element

<sup>9</sup> In some languages, a nominalizer and a complementizer share the same form, e.g., *si* in Modern Okinawan (Shinzato 2011: 454) and *no* and *koto* in Japanese (Comrie & Horie 1995: 70). See Karakoç & Herkenrath (2016: 626) for a discussion of the close relation between complementizers and nominalizers in Turkish.

to the verbal phrase *da-guo dui xiao-guo qinlue* ‘big states invade small states’, and thus it can license the Case of the agent *da-guo* ‘big states’. In English, an agent in a nominalized clause is morphologically licensed by its genitive case marker, which is not available in Chinese.

Not every functional element is able to license Case. As we pointed out in 4.1, for the verb in a LVEC, its local Asp does not license an agent. The Asp of a nonfinite clause is not able to license an abstract Case. For example, in *Mary believes {him/\*he} to have robbed a bank*, if the embedded Asp *have* were able to license a Case, the agent in the embedded clause would be the nominative *he*, instead of the accusative *him*.

As expected, in the absence of a possible Case-licenser, an agent of an embedded clause is disallowed. This explains the agentless constraint on LVECs, the impersonal V-*qilai* construction, and the embedded clauses in the SVCs reported in 4.1. As stated above, the embedded clauses in these constructions are not selected by the matrix verb, and they disallow any complementizer. Neither (53a) nor (53b) is satisfied. If an agent argument is not licensed in a construction, its null form (*pro* or PRO) is not licensed, either. Accordingly, an agent-oriented adverbial is also rejected.

In 3.3, I have claimed that the verbal phrase in a LVEC is an AspP, and this AspP is an adjunct of the matrix PredP. In the absence of an agent for a transitive verb in the construction, there is no vP or SpecvP projected in the AspP. Therefore, it is a truncated AspP. This section has explained why the truncation is necessary: there is no licenser for the external argument.

In this section, I have shown that the agentless constraint on certain embedded clauses in Chinese, including the embedded clause headed by the verb in a LVEC, is explained by the absence of a Case-licenser for an agent. This account does not need an ad hoc agent-deletion rule that is tied with any aspect marker, such as *-zhe* (Pan 1996) or *-qilai* (cf. Wang & Wu 2018: 22). Also, my account does not need to stipulate that every transitive verb has two versions: one has an agent and the other does not (cf. J. Lin 2002: 279). It is the syntactic context that decides whether an argument is licensed. I have shown that if a nonfinite clause is selected by the matrix verb, its external argument is Case-licensed by the matrix v, as in an ECM construction; also, if a nonfinite clause is introduced by a complementizer, or the clause-linking *de*, which can be understood as a complementizer, the Case of the external argument of the clause is also licensed. The licensing is similar to the one achieved by the complementizer *for* in English.

## 5. Licensing the non-progressive *-zhe* in a LVEC

LVECs have a special property not seen in other constructions: in some LVECs, the perfective aspect marker *-le* can be replaced by *-zhe*, as seen in (60a). But such a replacement is impossible for some other LVECs, as seen in (60b) (also see the examples in Pan 1996: 412) and J. Lin 2002: 272). I now explain this replacement possibility and its occurrence condition.

- (60) a. Louding-shang    ting- $\{le/zhe\}$     yi    jia    zhishengji.  
 roof-on                    stop- $\{PRF/PRG\}$     one CL    helicopter  
 ‘On the roof, there is a helicopter.’
- b. Jie-shang lai- $\{le/*zhe\}$     bushao    jingcha.  
 street-on come- $\{PRF/PRG\}$     many    policeman  
 ‘There are many policemen coming to the street.’

Both *ting* ‘stop’ and *lai* ‘come’ are non-durative, and thus the expected aspect marker for such verbs is *-le*, instead of the progressive aspect marker *-zhe*.<sup>10</sup> In the absence of a locative, an aspect mismatch is not allowed, as seen in (61).

- (61) a. Na    jia    feiji    ting- $\{le/*zhe\}$ .                    (cf. (60a))  
 that CL    plane    stop- $\{PRF/PRG\}$   
 ‘That plane has stopped.’
- b. Na    jia    feiji    zheng    jiangluo- $\{*le/zhe\}$ .  
 that CL    plane    PRG    descend- $\{PRF/PRG\}$   
 ‘That plane is descending.’

The special use of *-zhe* in some LVECs are discussed in Pan (1996) and J. Lin (2002), but no one has explained the contrast between examples like (60a) and examples like (60b).

My account for the contrast is the following. The formative *-zhe* (著) has been developed from the verb *zhuo* (著) ‘touch’ (note the written form identity). In one use of the verb, it takes a location-denoting DP as its internal argument. This use is still available now, as seen in (62).

- (62) Na    jia    feiji    zhuo    lu    le.  
 that CL    plane    touch    ground    PRT  
 ‘That plane has landed.’

There are two major grammaticalized and thus non-verbal uses of *zhe*: as a progressive marker and as an adessive marker.<sup>11</sup> In the progressive marker use, it selects a durative eventuality, but does not require the occurrence of a locative. This is seen in (61b).

Adessive means a spatial relation of an entity on the surface of another entity. The latter

<sup>10</sup> The verb *ting* ‘stop’ in (61a) is non-durative, since if a temporal expression such as *wu fenzhong* ‘five minutes’ occurs, it means only the length of the result time, rather than the process time:

(i) Na    jia    feiji    ting-le    wu    fenzhong.  
 that CL    plane    stop-PRF    five    minute  
 ‘That plane stayed for five minutes after it stopped.’

<sup>11</sup> The formative *-zhe* can be further grammaticalized into an empty morph, following a preposition, e.g., *dui-zhe* ‘toward’, *xiang-zhe* ‘toward’, *chao-zhe* ‘toward’, *shun-zhe* ‘along’. The same is true of the perfective aspect marker *-le*, as seen in *wei-le* ‘for’, and *chu-le* ‘except’. A similar grammaticalization is seen in *-ing* in the English prepositions *regarding* and *concerning* (McCawley 1992: 224).

becomes a supporting entity of the former. The adessive notion is grammaticalized as a morphological case in Uralic languages (Finnish, Estonian and Hungarian). In Finnish, for example, the adessive case marker *-llä* contrasts with the inessive case marker *-ssa* ‘in’.

- (63) a. Kirja            on            pöydä-llä.            [Finnish; Zhang 2002: 62]  
           book.NOM    be.3SG    table-ADESSIVE  
           ‘The book is on the table.’  
       b. Sofia        on            talo-ssa.  
           S.NOM    be.3SG    house-INESSIVE  
           ‘Sophia is in the house.’

The adessive notion can also be seen in another fact. In German, there is a semantic type of verbs called “stative localizing verbs relating to a (solid) supporting object”, such as *sitzen* ‘sit’, *stehen* ‘stand’, and *liegen* ‘lie’ (Kaufmann 1995). They are able to undergo stative locative alternation, exhibiting special syntactic properties (I thank Daniel Hole for the German fact).

The adessive *-zhe* in Chinese does not require a durative eventuality, but it needs to satisfy two conditions. First, the action denoted by the verb leads to one entity contacting (or “landing on”) the surface of another entity; and second, the latter entity must be expressed by a local c-commanding locative nominal, and this c-commanding relation may not be intervened by any other nominal. This is seen in (60a), in which the helicopter touches the surface of the roof, and the locative nominal *louding-shang* ‘on the roof’ locally c-commands *-zhe*. Like the verbal *zhe* in (62), the adessive *-zhe* also has a local syntactic dependency on a locative nominal: the former selects a locative nominal, while the latter keeps the selection in a different structural relation: it needs to be locally c-commanded by a locative nominal.

The progressive marker *-zhe* is a suffix of a verb, whereas the adessive marker *-zhe* can be a bound relational root, following a verb. The progressive *-zhe* denotes a temporal relation, while the adessive *-zhe* denotes a spatial relation. The contrast between the two uses of *-zhe* explains the acceptability contrasts in (60) and (61). Let us look at (60) first. As stated above, (60a) satisfies both conditions of the adessive *-zhe*. The licensing of this *-zhe* occurs after the locative phrase has moved to a position higher than the verbal phrase that contains the adessive *-zhe*. In addition to (60a), the adessive *-zhe* is also seen in other LVECs in which the verb is not in a progressive aspect. Such verbs include *zuo* ‘sit’, as in (6a), *xie* ‘write’, as in (6b), *dai* ‘put on (a hat)’ or *chuan* ‘put on (clothes)’, *dui* ‘pile’, and so on. Moreover, the adessive *-zhe* occurs with various localizers. In addition to *shang* ‘on’, as in (60a), other forms such as *li* ‘in’ and *wai* ‘outside’ are also possible, as seen in (64). After the PlaceP (DP) moves to SpecIP, it c-commands the verb, and licenses the adessive *-zhe*.



- (64) a. Pingzi-li zhuang-zhe {yangqi/jiu/shazi}.  
 bottle-in put-PRG {oxygen/wine/sand}.  
 ‘There is {oxygen/wine/sand} in the battle.’
- b. Tadezui-li xiang-zhe yi ke jin-ya.  
 his mouth-in insert-PRG one CL gold-tooth  
 ‘There is a gold denture in his mouth.’
- c. Men-wai zhan-zhe yi ge jingcha.  
 door-outside stand-PRG one CL policeman  
 ‘There is a policeman stand outside of the door.’

In (60b), the durative *-zhe* may not occur, since *lai* ‘come’ is not durative; the adessive *-zhe* may not occur, either, since *lai* does not necessarily lead to one thing touching on the surface of another thing. The same is true of verbs like *chuxian* ‘appear’, *fasheng* ‘happen’, and *dao* ‘arrive’, and thus they are incompatible with the adessive *-zhe*, as seen in (65).<sup>12</sup>

- (65) a. Shangdian-li dao-{le/\*zhe} yi pi huo. (Zhu 1982: 114)  
 shop-in arrive-PRF/PRG one set goods  
 ‘Some goods have been shipped to the shop.’
- b. Diannaoli chuxian-{le/\*zhe} bingdu.  
 computer-in appear-PRF/PRG virus  
 ‘Virus appears in the computer.’

In (61a), although *ting* may have a physical contact meaning, in the absence of a locative, the adessive use of *-zhe* is not licensed. In this example, since the verb meaning is not durative, the progressive marker *-zhe* is also rejected. Thus, *-zhe* may not occur.

On the other hand, in some cases, the post-verbal *-zhe* can be understood as either a progressive or adessive marker. This is seen in (66) (also (4)). In (66), the durative event denoted by the verb *pa* ‘crawl’ is still going on, and thus the progressive *-zhe* is allowed; and meanwhile, the verb *pa* here does mean that the ant touches the surface of the wall, and the locative *qiangshang* ‘one the wall’ also locally c-commands *-zhe*. The two conditions for the adessive *-zhe* are both satisfied.

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<sup>12</sup> It is not clear to me why verbs of ingesting (such as eat and drink) reject *-zhe*, in either a progressive or adessive use, in LVECs, as shown in (i). One reviewer raised the hypothesis that *-zhe* might never be a progressive marker in LVECs. But the contrast between (69a) and (69b) challenges this hypothesis.

(i) Wode duzi-li he-{le/\*zhe} henduo shui.  
 my belly-in drink-PRF/PRG much water  
 ‘My belly has much water because of my drinking.’

- (66) Qiang-shang pa-zhe yi zhi mayi.  
 wall-on crawl-PRG one CL ant  
 ‘There is an ant crawling on the wall.’

The two uses of *-zhe* explain the ambiguity of examples such as (67). In Reading A of (67), *-zhe* is an adessive marker, and no progressive aspect is expressed in this LVEC. In Reading B of (67), however, *-zhe* is a progressive marker. Only in the latter reading, can an overt agent of the verb, such as *shibingmen* ‘soldiers’, occur before the verb. Since a null subject in Chinese may alternate with an overt form, we assume that in this reading of (67), there is a *pro* subject, and the initial locative is a topic.

- (67) Shan-shang jia-zhe pao. (Lu 2019: Sec. 2.2.1)  
 mountain-on put-PRG cannon  
 A: ‘There are cannons on the mountains.’  
 B: ‘People are putting cannons on the mountains.’

The proposal can also explain the contrasts in (68), reported in Pan (1996). In all the examples in (68), the non-durative verb *fang* ‘put’ occurs, which does not license the progressive *-zhe*. In (68a), the locative does not c-command *-zhe*, and thus the adessive *-zhe* is not allowed. In (68b), which is a LVEC, the locative does c-command *-zhe*, and thus the adessive *-zhe* is allowed. In (68c), the dependency of the adessive *-zhe* on the locative is intervened by *Lulu*. Following Huang (1999), we assume that the passive *bei* is a head element in the clausal spine (not a preposition), and *Lulu* here is the external argument of the verb, c-commanding the verb (recall that *bei* licenses the Case of *Lulu*; see (52a,b)). Thus, *Lulu* is able to block the dependency of *-zhe* on the locative. Before the locative moves to the surface position (SpecIP), it is inside PredP, and the verb is inside an adjunct of PredP. The locative in its base-position does not c-command the verb. As a consequence, the adessive *-zhe* is not licensed either before or after the raising of the locative. In (68d) and (68e), the locative nominal is contained in the PP headed by *zai* ‘at’, and thus it does not c-command *-zhe*. Therefore, an adessive use of *-zhe* is also blocked.

- (68) a. Lulu fang- $\{le/*zhe\}$  yi ben shu zai zhuozi-shang.  
 Lulu put-PRF/PRG one CL book at table-on  
 ‘Lulu put a book on the table.’  
 b. Zhuozi-shang fang- $\{le/zhe\}$  yi ben shu.  
 table-on put-PRF/PRG one CL book  
 ‘There is a book on the table.’

- c. Zhuozi-shang bei Lulu fang- $\{le/*zhe\}$ yi ben shu.  
table-on PASS Lulu put-PRF/PRG one CL book  
‘There is a book put on the table by Lulu.’
- d. Lulu [zai zhuozi-shang] fang- $\{le/*zhe\}$ yi ben shu.  
Lulu at table-on put-PRF/PRG one CL book  
‘Lulu put a book on the table.’
- e. [Zai zhuozi-shang] Lulu fang- $\{le/*zhe\}$ yi ben shu.  
at table-on Lulu put-PRF/PRG one CL book  
‘Lulu put a book on the table.’

A LVEC does not need the adessive  $-zhe$ , but its structure licenses the latter. The adessive  $-zhe$  occurs in the same position of an aspect suffix. It is underspecified with an aspect feature, and it can be replaced with a real aspect suffix, such as the perfective  $-le$  or the progressive  $-zhe$ , depending on the aspect content of the construction, as seen in (68b). But the progressive  $-zhe$  cannot be replaced with a different aspect suffix such as  $-le$ . (69a) and (69b) do not mean the same (In (69), the DP complement of Place (see (27)) is a *pro*; cf. Zhang 2002: 52).

- (69) a. Waimian xia-le yu.                              b. Waimian xia-zhe yu.  
outside fall-PRF rain                              outside fall-PRG rain  
‘It rained outside.’                              ‘It is raining outside.’

I have assumed that the adessive  $-zhe$  is a bound root. However, at PF, this bound root competes with the aspect suffix of a verb for the same position in a verb. Thus, the replacement of the bound root by an aspect suffix is possible, and they never co-occur, e.g., *fang-zhe* in (68b) may not be replaced with *\*fang-zhe-le* (I thank a reviewer for helping me to see this).

The local c-commanding relation between the locative and the adessive  $-zhe$  in a LVEC shows that the former is not in any PP. This supports the claim made in the literature: the locative phrase in a LVEC is a nominal subject directly (see Section 1). Specifically, the structure of (68b) is different from those of (68d) and (68e). In the LVEC in (68b), the left-edge locative is the subject of an existential predication. In contrast, in (68d) and (68e), *Lulu* is the subject.

In this section, I have given the structural conditions for the adessive marker use of  $-zhe$ , and explained why this use is possible in LVECs, but not in other constructions.

## 6. Significance

Descriptively, this paper has covered several issues of LVEC. I now highlight two major theoretical contributions. This research may be, as far as I know, the first one to explore the possibility that the unique overt verb in a construction is embedded in a subordinate predicate.

It has long been realized that not every type of sentences has a verb, e.g., in the so-called non-verbal predication sentences, such as (70), there is no verb (Zhu 1982: 103). Our linguistic theories thus predict that if the matrix predicate is not headed by an overt verb, it is still possible for an embedded predicate to have an overt verbal head. Thus, the result of this research has simply proved a prediction made by our theories. I have identified the null head of the matrix predication of a LVEC to be McNally's (1992, 1997) INSTANTIATE, and the overt verb in the construction is embedded in an adjunct.

(70) Ta   ershi     sui.  
      he   twenty   year  
      'He is twenty years old.'

This research has also explored the possible licensors of abstract Case in Chinese, a language that shows no Case contrast in the forms of any elements. First, what we have found is that if an argument is not Case-licensed, it is not allowed to occur. This shows that abstract Case is attested in the language. Second, the possible licensors of an abstract Case are also similar to those in other languages such as English. Specifically, the licensors of the external argument of a nonfinite clause in Chinese are also either the *v* of the selecting matrix verb (as in an ECM construction) or a C-element (similar to the infinitive *for*). Thus, the syntactic strategies to license abstract Cases in Chinese are similar to the ones found in other languages.

## 7. Summary

I have analysed four special properties of LVEC. First, the unique overt verb does not behave like the verb of a matrix predicate. Instead, a LVEC expresses an existential state in which the place denoted by the left-edge locative has the the entity denoted by the right-edge DP. Second, the integration of the verbal phrase as an adjunct requires argument-sharing with the matrix predication. Sideward movement can derive the sharing syntactically. Third, I have argued that a transitive verb in a LVEC, in an impersonal *V-qilai* construction, and in a subordinate clause of a SVC all rejects an agent because there is no abstract Case licensor for an agent. I have claimed that a Case-licensor for the agent of a nonfinite clause has to be a local *c*-commanding functional element that is either the matrix *v* (as in an ECM construction) or a complementizer. Fourth, the non-progressive marker use of *-zhe* in LVECs has been identified in this paper as an adessive bound root, licensed by a local *c*-commanding locative nominal.

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