

## Mandarin SOV Word Order and Applicative Shift

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This paper shows that Mandarin SOV word order is not always related to expressive effect, thus not always derivable from topicalization or focalization, contra previous claims. Assuming a feature analysis of thematic roles ( $\theta$ -roles), I argue that Mandarin SOV word order and its variants can be derived via applicative shift motivated by voice heads corresponding to thematic roles that are independently needed. The proposed treatment has a wider empirical coverage, while still capturing syntactic properties of the structure.

### 1. Introduction

Mandarin Chinese, a language generally considered to have SVO as its default word order, allows sentences with SOV order as well. For instance, (1) shows a Mandarin SOV sentence with its SVO counterpart:

- (1) a. Zhangsan      zixingche      xiuhao le.  
         Z.              bicycle        fix     perf  
         S              O              V  
      b. Zhangsan      xiuhao le      zixingche.  
         Z.              fix     perf    bicycle  
         ‘Z. fixed the (a) bicycle.’

Discussions of SOV word order are often found in the context of expressive effect related operations such as topicalization and focalization (Xu 2006, Paul 2005, Kuo 2009, Shyu 1995; 2001, a.m.o). However, these analyses face empirical problems, as I will show later. For now, let us take a look at a simple question-answer test in (2), which suggests that sentences with SOV word order in Mandarin could be free from the above mentioned output effects:

- (2) a. - Zhangsan      zenme le?  
         Z.              how     perf  
         ‘What is going on with Z.?’  
      b. - Zhangsan      zixingche      xiuhao le.  
         Z.              bicycle        fix     Perf  
      c. - Zhangsan      xiuhao le      zixingche.

Z.            fix    Perf    bicycle  
 ‘Z. fixed the (a) bicycle.’

When spoken with neutral intonations, both (2b) and (2c) could be appropriate answers to (2a), a general information-seeking question about the subject. This suggests that SOV sentences can be interpreted without discourse-related readings such as topicalization or focalization.

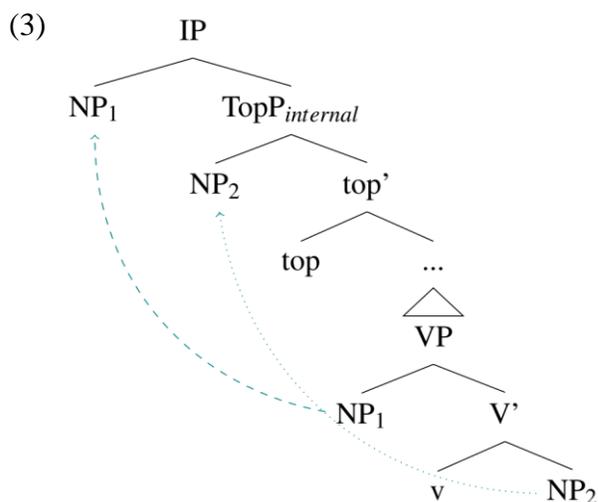
In this paper, I argue that Mandarin SOV word order is derived via applicative shift proposed in Larson (2014), Zhang and Larson (2016). Specifically, a conspiracy of null verb heads and voice heads predicts SOV word order. The remainder of the paper is organized as follows: in section 2, I discuss two popular analyses of Mandarin SOV order and empirical problems both face. The applicative shift analysis for SOV is proposed in section 3. Predictions and consequence of the proposal is discussed in section 4. I conclude the paper in section 5.

## 2. The Mandarin SOV puzzle

Apart from the possibility of being informationally neutral, as shown in (2), Mandarin SOV order is puzzling under the two most popular analyses, namely, the topic analysis and the focus analysis.

### 2.1 SOV as a result of topicalization

Objects in Mandarin SOV structures are often analyzed as IP internal topics (Paul 2005, Xu 2006, Badan 2008, among many others). A cartographic structure within IP is proposed in Paul (2005), schematized in (3):



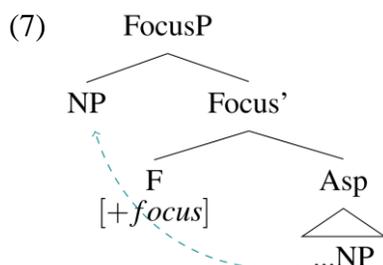


- b. [Zheba dao] Zhangsan qie.  
This.CL knife Z. cut
- c. \*Zhangsan [zheba dao] qie.  
Z. this.CL knife cut  
'Z. cuts with this knife.'

(6a) is a sentence with *zheba dao* 'this knife' being the object, but understood as INSTRUMENT (INST). Such objects are called "non-canonical" objects with THEME objects being canonical. External topicalization of the non-canonical object is possible as shown in (6b), while internal topicalization is not (6c). This contrast is not expected for internal topic analysis of SOV structures since there is nothing semantically or syntactically preventing the internal topic head to select the non-canonical object.

## 2.2 SOV as a result of focalization

Alternatively, focus analysis of the object in Mandarin SOVs is entertained by Shyu (1995), Shyu (2001). According to this analysis, objects in SOV structures are moved to a focus phrase that is post-subject and preverbal. Such a movement is caused by a strong focus feature born by a focus head. A schema of the focus analysis is shown in (7):



One piece of evidence supporting the focus analysis comes from the similarity between SOV structures and *lian...ye/dou* focus structure in terms of word order and interpretation. Such similarities are shown in (8) and (9):

- (8) Zhangsan yu chi le.  
Z. fish eat Perf
- (9) Zhangsan **lian** yu **dou** chi le.  
Z. **lian** fish **dou** eat Perf  
'Z. ate even fish.'

(Shyu 2001)

According to Shyu (2001), [+focus] realizes covertly in (8) and overtly as *lian...dou* in (9). Nevertheless, a unified movement analysis of SOV structures immediately faces the challenge from SOVOs, an example of which we have seen in (4). That is, if the object is

moved from post-verbal position, it is impossible for the structure to allow an extra object post-verbally, yet SOVOs are possible in this language, as shown in (10) - (12):

- (10) Zhangsan [zixingche] buhao le [qianlun].  
 Z. bicycle fix Perf front.wheel  
 ‘Z. repaired the front wheel of the bicycle.’
- (11) Ta [yingyu] kao le ge [jiushi-fen].  
 3SG English take.exam Perf CL 90-point  
 ‘He obtained 90 points in the English exam.’  
 (=4)
- (12) Zhangsan [dachengshi] xihuan [niuyue].  
 Z. big.city like New.York  
 ‘For big cities, Z. likes New York.’

This suggests that a unified focus movement analysis for SOV structures is not empirically adequate. I explore yet another alternative in the next section.

### 3. Deriving Mandarin SOV word order

#### 3.1 Checking $\theta$ -features

To derive SOV word order in Mandarin, I assume a feature checking system proposed in Larson (2014), Zhang and Larson (2016). This system consists of three key mechanisms, (a) feature analysis of  $\theta$ -roles, (b) distinction of features according to whether they are interpretable, valued or neither, and (c) applicative shift.

First, Larson (2014) re-analyzes  $\theta$ -roles as formal features born by both predicates and arguments. Subcategorization requirements on predicates are thus understood as feature agreements. For instance, transitive verb *fix* has a set of  $\theta$ -features which contains AGENT (AG) and THEME (TH). The THEME feature agrees with the one on the complement it selects (*bicycle* in this case) at the point of external merge, as shown in (13):

- (13)
- 
- ```

  graph TD
    VP[VP] --- fix[fix]
    VP --- bicycle[bicycle]
    fix --- AG["[AG]"]
    fix --- TH1["[TH]"]
    bicycle --- TH2["[TH]"]
    TH2 -.->|agree| TH1
  
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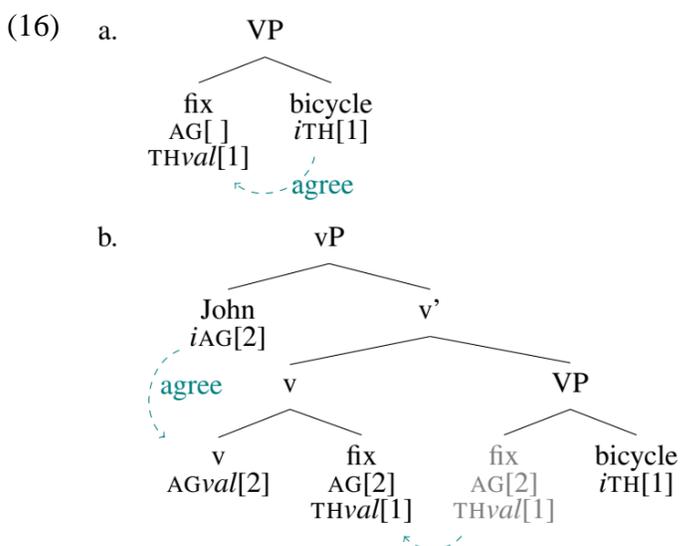
Next, formal features come in three flavors: interpretable (*iF*[ ]), valued (*Fval*[ ]) and neither (*F*[ ]) (Larson (2014) following Pesetsky and Torrego (2007)). To successfully “check” a feature, it must have at least one interpretable instance and at least one valued instance linked by agreement. For example, (14) shows cases where a feature *F* is interface “legible” whereas (15) shows illegible instances.

- (14) a.  $iF[n]...Fval[n]$   
 b.  $iF[n]...f[n]...Fval[n]$   
 c.  $iF[n]...f[n]...f[n]...Fval[n]$

- (15) a.  $iF[ ]$   
 b.  $Fval[ ]$   
 c.  $iF[ ]...f[ ]$   
 d.  $f[ ]...Fval[ ]$   
 e.  $iF[ ]...Fval[ ]$

(Larson 2014)

A derivation in (16) for a simple English sentence *John fixed a bicycle* shows how the above system works for a transitive verb:

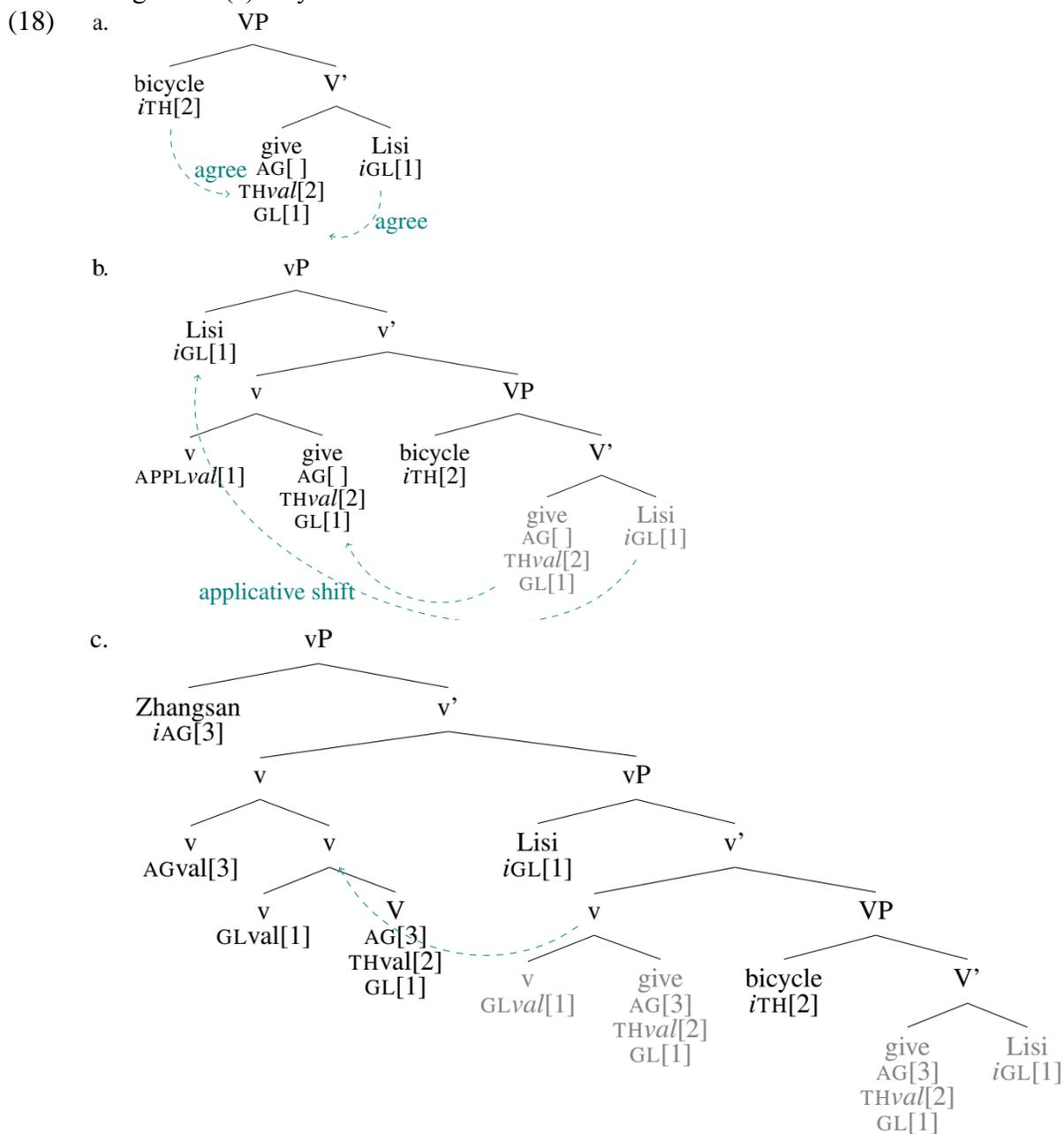


The verb enters the derivation first with a set of  $\theta$ -features consisting of AG and THval. It is stipulated that whenever a THEME-feature is present in the feature set of the verb, it is always valued, a point I will come back to later. When the THEME *bicycle* external merges with *fix*, THEME features on both the verb and the object agree (16a). Next, AGENT-introducing little  $v$  enters the derivation, to which *fix* raises to adjoin. AGENT *John* then merges and agrees with the AGENT feature on little  $v$  (16b). Both AGENT and THEME features have agreed instances of interpretable and valued features (indicated with agreeing numbers), the derivation is grammatical. Also, merge operations of arguments follow a low-to-high order of the  $\theta$ -hierarchy.

A third mechanism of the system is applicative shift (A-shift). Applicative shift refers to raising of oblique objects attracted by applicative voice head  $v_{appl}$ . Zhang and Larson (2016) show that this analysis is applicable to Double Object Constructions

(DOCs) in both English and Chinese. (17) and (18) show an applicative shift analysis of a Mandarin ditransitive verb *song* ‘give’ and the DOC it forms:

- (17) Zhangsan song le Lisi zixingche.  
 Z. give Perf L. bicycle  
 ‘Z. gave L. (a) bicycle.’



First, a VP is constructed with GOAL (GL) *Lisi* and THEME *bicycle* entering the tree following  $\theta$ -hierarchy and agree with paired  $\theta$ -features on the verb (18a). Next, applicative voice head  $v_{appl}$  valued for GOAL enters the tree, which attracts the verb to adjoin to its right, and causes the GOAL to applicative-shift to its spec position (18b). Finally, AGENT-introducing  $v$  enters the tree, lower  $v$  subtree adjoins to its right, AGENT *Zhangsan* then merges to its spec position (18c). All the features are surface legible under agreement (indicated with agreeing numbers).

Now, with all the tools ready, I explore derivations of Mandarin SOV word order with minimal refinements of the system.

### 3.2 Deriving Mandarin SOV word order

The feature checking system presented above could be applied to Mandarin SOV data with minimal refinements. Specifically, I assume a) two phonetically null  $V$  heads that correspond to Mandarin light verbs *ba* and *gei* respectively, b) verbs could sometimes be “THEME-less”. Fortunately, both stipulations are needed for independent reasons, as I will show below.

#### 3.2.1 Simple SOVs

To derive simple SOVs, I argue that the object in SOV sentences takes the  $\theta$ -role of affected THEME (ATH). A null  $V_{ba}$  that corresponds to Mandarin light verbs *ba* is present in the structure to value relevant  $\theta$ -roles. And applicative shift is responsible for deriving the correct word order.

A parallelism between SOV sentences and *ba* sentences suggests that the object could be interpreted as an affected object, thus bearing a  $\theta$ -feature of ATH, as shown in (19) and (20):

- (19) Zhangsan      **ba**      zixingche      xiuhao le.  
       Z.            **BA**      bicycle        fix      Perf
- (20) Zhangsan      zixingche      xiuhao le.  
       Z.            bicycle        fix      Perf  
       ‘Z. fixed the (a) bicycle.’

An overt Mandarin *ba* takes a “deposed” or “affected” object (Huang et al. 2009). If we assume that a null  $V_{ba}$  does the same, the above parallelism is expected: (19) is a typical Mandarin *ba* sentence while (20), with similar interpretation, is its counterpart with a null  $V_{ba}$ .

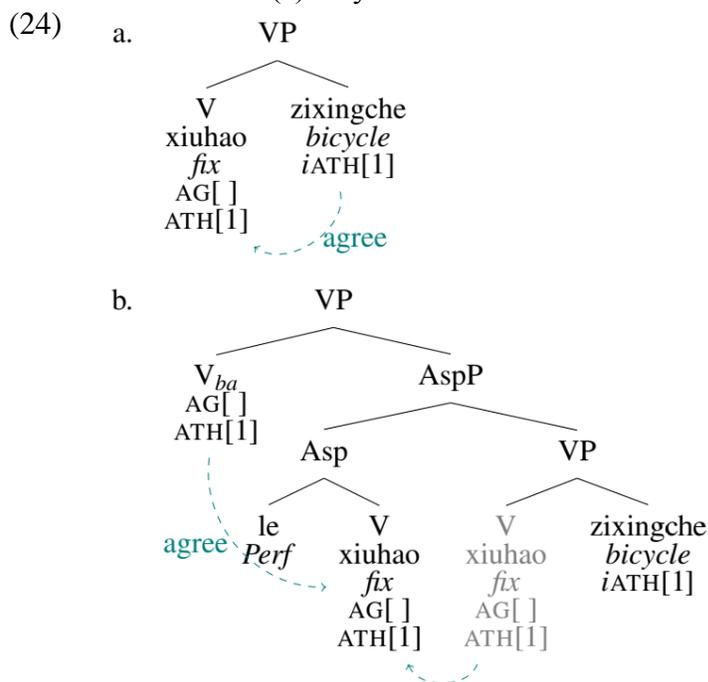
Notice that the null  $V_{ba}$  is not simply treated as a phonetically suppressed form of overt *ba*, since they have different requirements on the verb following them, as shown in (21) and (22):

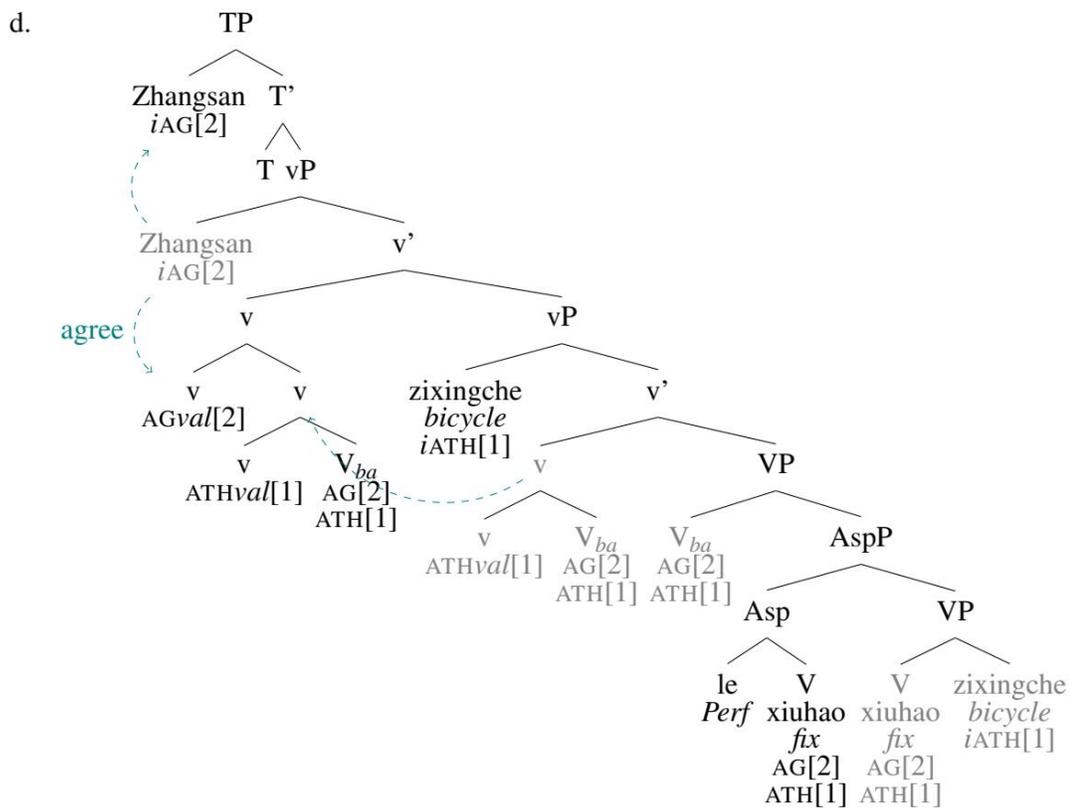
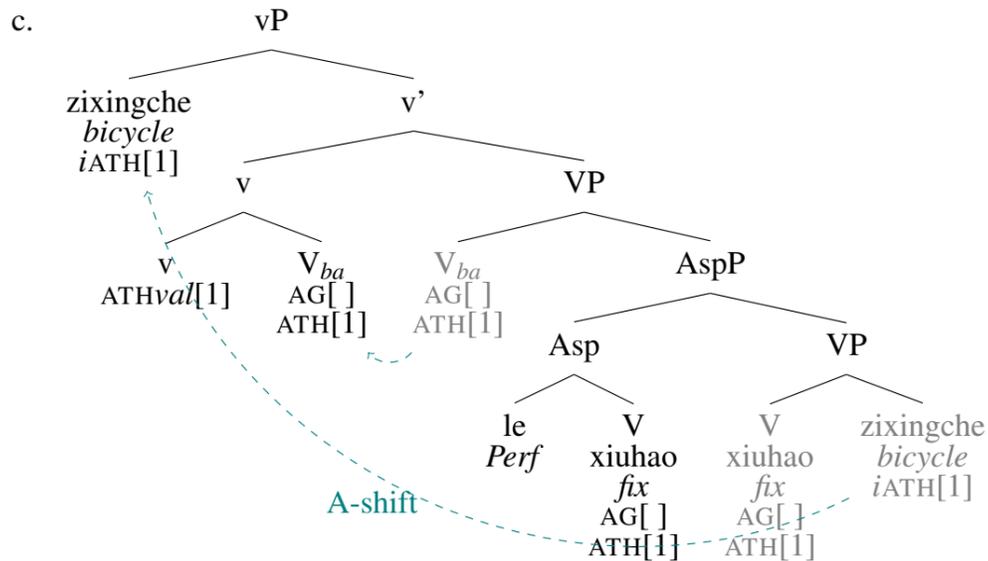
- (21) Zhangsan [biye de shijian] zhidao le.  
 Z. graduation DE time know Perf.  
 (22) \*Zhangsan ba [biye de shijian] zhidao le.  
 Z. BA graduation DE time know Perf.  
 ‘Z. knows the time for graduation.’

The contrast in (21) and (22) suggests that the overt *ba* has stricter selectional requirements (rejecting stative verbs like *zhidao* ‘know’) than the null  $V_{ba}$ . Here, I propose that the null  $V_{ba}$  is associated with AG and ATH  $\theta$ -features, the same as overt *ba*, but without its selectional requirements.

Assuming a  $V_{ba}$  with its feature specified as AG and ATH, a derivation for simple SOVs such as (23) is given in (24):

- (23) Zhangsan zixingche xiuhao le.  
 Z. bicycle fix Perf  
 ‘Z. fixed the (a) bicycle.’





First, a VP is constructed with the verb taking only an A-THEME *zixingche* ‘bicycle’ (24a); AspP is then constructed, attracting verb to head-adjoin the perfective head *le*, the constructed phrase is then taken by  $V_{ba}$  as a complement (24b); next, a voice head valued for ATH merges into the tree, which, like applicative voice heads, A-shifts the feature-agreeing object ATH to its spec position; finally, AGENT-introducing little *v* is merged, introducing the subject and checking the AG feature. In terms of cases, assume that  $V_{ba}$  does not assign case, *zixingche* ‘bicycle’ gets case from AGENT-introducing little *v* and *Zhangsan* from T head.

From the above derivation, notice first that there is no THEME-role present in the  $\theta$ -feature set of the predicate. This is potentially desirable since many other predicates allow their  $\theta$ -grid to be “THEME-less”, as shown in (25):

- (25) a. Zhangsan mai lubiantan.  
 Z. sell street.stall  
 AGENT LOC  
 ‘Z. sells in street.stall.’  
 b. Zhangsan mai wansang.  
 Z. sell evening  
 AGENT TEMPORAL  
 ‘Z. sells in the evenings.’ (Li 2014)
- Cf.  
 Zhangsan mai xiaochi.  
 Z. sell street.food  
 ‘Z. sells street food.’

(25a) and (25b) have LOC and TEMPORAL roles as the objects respectively. The sentences are as grammatical as the “canonical” one given in the comparison. This suggests that being able to adjust the set of  $\theta$ -features a verb bears is not only possible, but also desirable for covering different facts in Mandarin.

Furthermore, the ungrammatical sentences where a non-canonical object is fronted could be explained. Consider the following contrast:

- (26) a. Zhangsan **qie** [zheba dao].  
 Z. cut this.CL knife  
 INST  
 b. \*Zhangsan [zheba dao] **qie**. (= (6c))  
 Z. this.CL knife cut  
 ‘Z. cut with this knife.’
- (27) a. Zhangsan **qiehuai** le [zheba dao].  
 Z. cut.break perf this.CL knife.  
 ATH

- b. Zhangsan [zheba            dao] **qiehuai**            le.  
 Z.            this.CL            knife cut.break Perf  
 Lit. ‘Z cut with this knife and caused it to break.’

Notice that the predicate in (26) is *qie* ‘cut’, a simple transitive verb, whereas the verb in (27) is *quehuai* ‘cut.break’, a resultative verb compound. This suggests that *zhebadao* ‘this knife’ in (26) is understood as an INST while that in (27) is understood as an affected THEME. If this were true, then the SOV variant in (27) is derived in the same fashion as simple SOV construction, while the same ATH voice head is unable to A-shift an INST preverbally due to a feature mismatch, hence the ungrammaticality of (26b).

Moreover, the derivation in (24) predicts that extra affected objects, generally allowed in Mandarin (Huang 2016), are not allowed in SOV sentences. This prediction seems to be correct, as shown in (28) and (29):

- (28) a. Zhangsan za le [yige beizi].  
 Z. break Perf one.CL mug  
 ‘Z. broke a mug.’  
 b. Zhangsan za le **Lisi** [yige beizi].  
 Z. broke Perf L. one.CL mug  
 ‘Z. broke a mug on Lisi.’
- (29) a. Zhangsan [yige beizi] za le.  
 Z. one.CL mug break Perf  
 ‘Z. broke one mug.’  
 b. \*Zhangsan [yige beizi] za le **Lisi**.  
 Z. one.CL mug break Perf L.  
 c. \*Zhangsan [yige beizi] **Lisi** za le.  
 Z. one.CL mug L. break Perf  
 d. ??Zhangsan **Lisi** [yige beizi] za le.  
 Z. L. one.CL mug break Perf

The pair in (28) shows a Mandarin SVO sentence (28a) and its variant with an added affected object **Lisi** (28b). The sentence means that the *mug-breaking* event “affects” **Lisi** in some way. The most natural interpretation is that the *mug-breaking* event negatively affected **Lisi**, while a positive interpretation is also available given enough context.

(29b) - (29d) show that it is impossible to add an affected object before or after the verb, presumably because such an affected object position, introduced by  $V_{ba}$ , is already taken by *yige beizi* ‘one mug’. Also, following the assumption that  $V_{ba}$  does not assign case, both the postverbal (29b) and the preverbal (29c) extra objects are blocked by case and the post subject **Lisi** has no head to license the movement, causing the ungrammaticality of (29d).

### 3.2.2 SOV with an extra argument

Mandarin SOV sentences with an extra argument (SOVO) are derived similarly to SOV cases, except that the null *V* head corresponds to *gei*, which has a feature specification of TH<sub>val</sub>, AG and holonym of THEME (HTH).

First, for most SOVO sentences<sup>1</sup>, a light verb *gei* could be added after the subject, or even in other positions in dialects spoken in Northern China without changing the meaning of the sentence, as shown in (30). This motivates the analysis of a null  $V_{gei}$  head.

- (30) a. Zhangsan **gei** zixingche buhao le qianlun.  
 Z. **GEI** bicycle repair Perf front.wheel  
 b. Zhangsan zixingche **gei** buhao le qianlun. (Northern dialect)  
 Z. bicycle **GEI** repair Perf front.wheel  
 c. Zhangsan **gei** zixingche **gei** buhao le qianlun. (Northern dialect)  
 Z. **GEI** bicycle **GEI** repair Perf front.wheel  
 ‘Z. repaired the front wheel of the bicycle.’

Next, in SOVO sentences, the two objects stand in a part-whole relationship, as shown in (10) - (11), here repeated as (31) - (32), motivating the HTH  $\theta$ -feature:

- (31) Front wheel **of** the bicycle.  
 Zhangsan zixingche buhao le qianlun.  
 Z. bicycle repair Perf front.wheel  
 ‘Z. repaired the front wheel of the bicycle.’  
 (32) Points **of** the exam  
 Ta [yingyu] kao le ge [jiushi-fen]. (= (4))  
 3SG English take.exam Perf CL 90-pint  
 ‘He obtained 90 points in the English exam.’

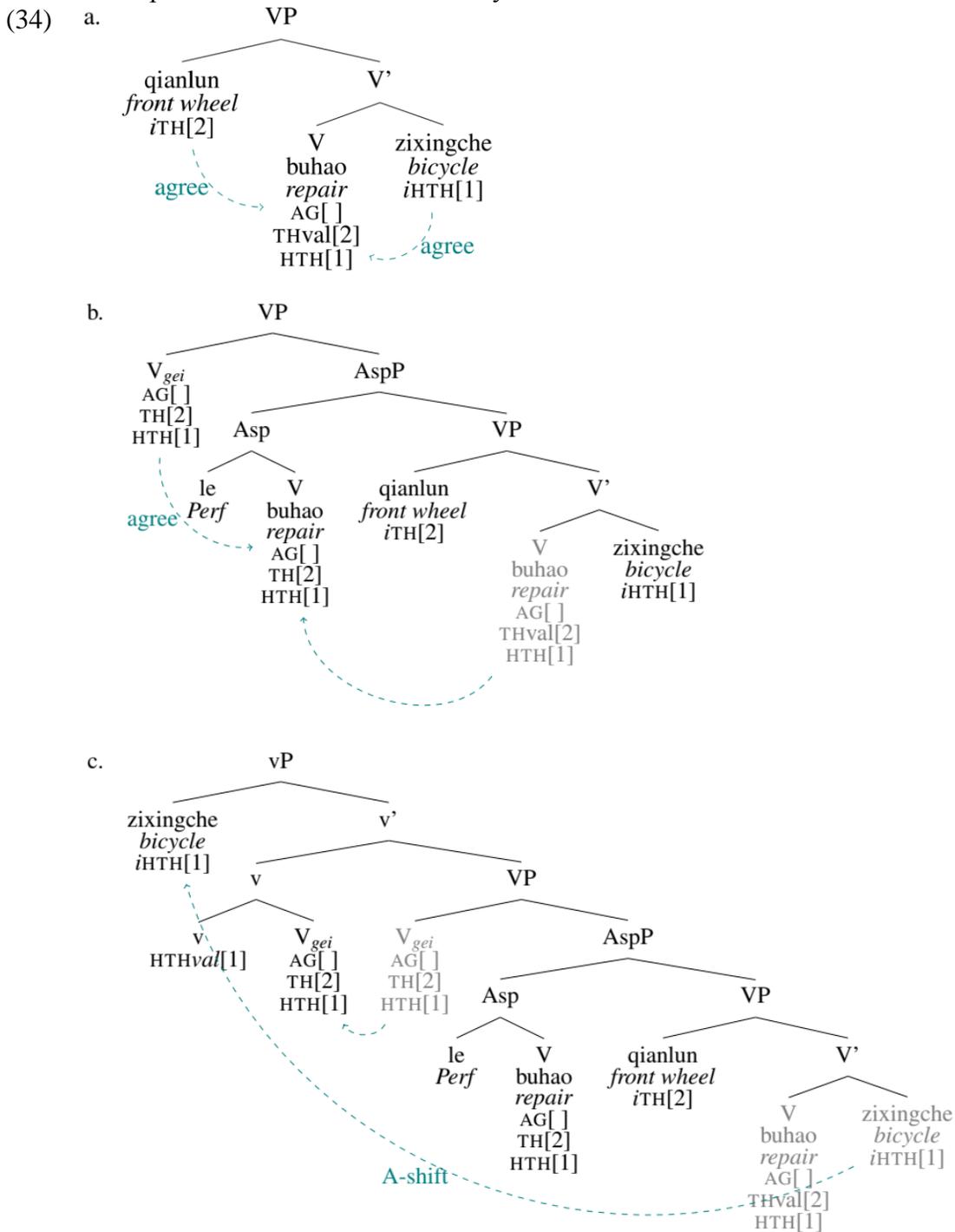
Now, with the help of null  $V_{gei}$  head, we are ready to derive SOVO sentences such as (33) in (34):

<sup>1</sup> Note that *gei* could not be added to SOVO sentences such as (12), here repeated as i:

- i. Zhangsan (\*gei) [dachengshi] xihuan [niuyue].  
 Z. (GEI) big.city like New.York  
 ‘For big cities, Z. likes New York.’

I suspect that a portion of sentences with SOVO word order might involve true internal topic structures, as suggested by their counterparts in other languages such as Korean. And adding *gei* might serve as a diagnostics. However, fully exploring this point is beyond the scope of this paper. I leave this to future research.

- (33) Zhangsan      zixingche      buhao le      qianlun.  
 Z.                bicycle            repair Perf      front.wheel  
 ‘Z. repaired the front wheel of the bicycle.’





that it is possible to freely order LOC and TEMPORAL as shown in (35). On the other hand, (36) shows that fronting a true THEME dramatically decreases the grammaticality of the sentence:<sup>2</sup>

- (35) a. Zhangsan lubiantan mai wanshang.  
 Z. street.stall sell evening  
 LOC TEMPORAL  
 b. Zhangsan wanshang mai lubiantan.  
 Z. evening sell street.stall  
 TEMPORAL LOC  
 ‘Z. sells in the street stall in the evening.’
- (36) a. Zhangsan [zheba dao] qie [rou].  
 Z. this.CL knife cut meat  
 INST THEME  
 ‘Z. cuts meat with this knife.’  
 b. \*Zhangsan [zheba dao] [rou] qie.  
 Z. this.CL knife meat cut  
 INST THEME  
 c. ??Zhangsan [rou] [zheba dao] qie.  
 Z. meat this.CL knife cut  
 THEME INST

Second, the proposed analysis requires movement, specifically, applicative shift, which is a case of A-movement. This predicts A-property of the moved objects, which appears to be correct. Shyu (1995), Shyu (2001) note that object preposing is clause-bound, as shown in (37):

- (37) a. Zhangsan [zixingche]<sub>i</sub> xiuhao le t<sub>i</sub>  
 Z. bicycle fix Perf  
 ‘Z. fixed the (a) bicycle.’  
 b. \*Lisi [zixingche]<sub>i</sub> renwei Zhangsan xiuhao le t<sub>i</sub>  
 L. bicycle think Z. fix Perf

<sup>2</sup> For cases like i:

- i. Niuroumian chi dawan.  
 Beef.noodle eat big.bowl

I assume that *dawan* is THEME rather than INST. In a situation where one is eating from a big bowl of beef noodle, using a small bowl, the above sentence is still true while the true INST use of *dawan* (ii) would be false:

- ii. #niuroumian yong dawan chi.  
 Beef.noodle use big.bowl eat  
 ‘Eat beef noodles with big bowls.’

Int. ‘L. thought that Z. fixed the (a) bicycle.’

Also, the preverbal object in SOVO sentences is able to license a reciprocal, suggesting that the landing site is an A-position, as shown in (38):

- (38) Zhangsan [zixingche lunfu] tiaozhenghao le [bici] de jianju.  
 Z. bicycle spoke adjust Perf each.other DE distance  
 ‘Z. adjusted the distance between the spokes of the (a) bike.’

## 5. Conclusion

In this paper, I extended the applicative shift analysis proposed in Larson (2014), Zhang and Larson (2016) to Mandarin SOV structures. Specifically, I argue that the interaction of  $\theta$ -feature set on the predicate, two null *V* heads and the  $\theta$ -features born by the arguments predicts different instance of SOV structures. The proposed analysis has a wider empirical coverage, while still having desirable predictions on syntactic properties of the structure.

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## Parametric Variation in Resultative Patterns in Chinese Dialects<sup>1</sup>

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This paper studies some aspects of the parametric variation in resultative constructions (*V-R-Causee* & *V-Causee-R*) in Chinese dialects, which express a change of state as a result of the complement of an action denoted in the event. In this paper, we propose three resultative patterns in Chinese dialects are derived from similar underlying representations. For *V-Causee-R* resultatives, found in Shanghai dialect (Huang 1996) and Ningbo dialect (Cheng & Yang 2016), we maintain that the resultative predicate is phrasal in nature; the categoryless  $\sqrt{\text{Root}}$  undergoes head raising to a higher *v*, making it a verbal category (Chomsky 2013). For *V-R-Causee* resultatives, observed in Mandarin Chinese and Cantonese (Chow 2001), we hypothesize head status Res(ultative). Following  $\sqrt{\text{Root}}$ -raising, Res-raising occurs. The subsequent head movement is motivated by the need to engage with an [S-VERBAL] feature, triggered by the functional head *v*. Supporting evidence is found in DE-phrasal resultatives (*V-DE-Causee-R*) in Mandarin Chinese.

### 1. Compounding and serial verb resultatives

This paper compares two resultative patterns in Chinese dialects: *V-R-Causee* and *V-Causee-R*. The first pattern is found in compounding resultatives, observed in Mandarin and Cantonese (Chow 2001). The second pattern contains serial verbs, with an intervening Causee, as seen in Shanghai dialect (Huang 1996; Williams 2008) and Ningbo dialect (Cheng & Yang 2016).

#### (1) Compounding resultatives

- a. Nei go naam jan daa sei zo gwo zek gau.  
this CL man hit-dead ASP that CL dog  
'This man beat that dog, and made it dead.' (Cantonese, Chow 2001)
- b. Tamen zha hu le yi pan huashengmi.  
they fry overcook ASP one plate peanut  
'They fried a plate of peanuts, and the peanuts became overcooked.'

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<sup>1</sup> Our special thanks go to participants at NACCL-29 for helpful discussions and comments on the presentation. We also wish to thank China Scholarship Council (CSC) and Memorial University of Newfoundland for supporting the overseas study and the conference travel to Y.M.. All remaining errors are authors own.

(2) Serial verb resultatives

- a. ngu so yi su.  
 I cook it crisp  
 ‘I cook it crisp.’ (Shanghai dialect, Williams 2008)
- b. ngo ye nge huasheng que qi diao.  
 you one Cl peanut eat it drop  
 ‘you ate up some peanuts.’ (Ningbo dialect, adapted from Cheng & Yang 2016)

Both patterns contain an activity verb, followed by a predicate which signifies a change of state as a result of the action denoted in the event. In this paper, we suppose the resultative state is realized as the secondary predicate (Pylkkänen 2002); these two patterns share similar underlying bases, given the labeling algorithm (Chomsky 2013, 2014). Both patterns are derived from a two-layer-vP structure, but the difference of linearization results from the ‘Res-to-v’ head movement in the compounding pattern, but not in serial verb resultatives. In Section 2 we describe syntactic behaviors of these two patterns: occurrence of aspectual ‘le’, the internal structure of the postverbal argument, argument sharing between the two predicates and a specificity restriction for the postverbal argument. Section 3 analyses how the labeling algorithm is applied to account for resultative patterns, in particular, for the syntactic distribution of Causee in this diagram. Section 4 provides an overall analysis for these two resultative patterns based on the labeling algorithm. In Section 5, we extend the approach to explain another resultative pattern in Mandarin Chinese: the DE-phrasal resultatives, used to support our diagram.

**2. Structural properties of resultative patterns**

Before discussing the derivational analysis, it is necessary to describe structural characteristics of compounding resultatives and serial verb resultatives. There are distributional similarities: the activity verb always precedes the resultative predicate in both two patterns. It is also of note that no degree modification is allowed to precede the resultative predicate, although it is grammatical in single state clause.

- (3) a. Ma Li zha (\*hen) hu le yi pan huashengmi.  
 Ma Li fry very overcooked Asp one plate peanut  
 Intended reading: ‘Ma Li fried a plate of peanuts, and the peanuts became very overcooked.’
- b. ngu so yi (\*hen) su.  
 I cook it very crisp  
 ‘I cook it very crisp.’ (Williams 2008)
- c. Zhe pan huashengmi hen hu/su.  
 this plate peanut very overcooked/crisp

‘This plate of peanuts is very overcooked/crispy.’

Now let us compare four features of these two resultative patterns: occurrence of aspectual ‘LE’, argument sharing between the two predicates, the syllabic structure of the postverbal argument, and a specificity restriction for the postverbal argument.

First, Chinese has a rich aspectual representation, and LE is one aspectual marker, used to indicate the complement of an action (Lin 2004). The perfective aspectual marker LE may co-occur with either atelic or telic verbs, denoting the boundaries of an event (Lin 2004). In (4a), the aspectual LE indicates the inception point of the event denoted by the atelic state predicate *bing* ‘sick’. In (4b), the aspectual marker LE co-occurs with the compounding resultative pattern. The compounding verb *xie-wan* ‘write-complete’ functions as a resultative predicate, and LE is added to supplement the complement of the event (Lin 2004). However, the completive usage of aspectual LE is not used in serial verb resultatives in (4c).

- (4) a. Ta bing le.  
       he sick LE  
       ‘He’s sick. (He has become sick.)’ [He is still sick.]       (Inchoative LE, Lin 2004)
- b. Wo xie-wan       le yi feng xin.  
       I write-complete LE one Cl letter  
       ‘I completed a letter.’ [I am no longer writing]       (completive LE, Lin 2004)
- c. Ngu so (\*le) yi su (\*le).  
       I cook it crisp  
       ‘I cook it crisp.’       (No aspectual LE)

Second, argument sharing between the activity verb and the resultative predicate is optional in compounding resultatives, but obligatory in serial verb resultatives. In compounding resultatives, the argument structure between these two predicates and the postverb argument is complex, since the postverbal argument is not necessarily the s-selected complement of the activity verb.

The postverbal argument in (5a) is the common argument shared by the activity verb and the resultative predicate. In (5b), however, the postverbal argument is the argument of the resultative predicate, since the activity verb *ku* ‘cry’ is an ergative verb, without any s-selected complement. In the serial verb pattern (5c), only the pronoun ‘it’ can be used in the postverbal argument, so the argument is shared by two predicates.

- (5) a. Tamen zha hu       le yi pan huashengmi.  
       they fry overcook Asp one plate peanut  
       ‘They fried a plate of peanuts, and made the peanuts overcooked.’
- b. Ta ku shi le shoupa.

- he cry wet Asp handkerchief  
 ‘They cried the handkerchief wet.’ (Cheng and Huang: 1994)
- c. Ngu so yi su.  
 I cook it crisp  
 ‘I cook it crisp.’ (Williams 2008)
- d. \*Ngu so pingdiguo hu.  
 I cook pan burnt

The argument sharing contrast indicates the structural relation between the postverbal argument and the activity verb is more flexible in the compounding pattern, but less productive in the serial verb pattern. We will explain this is caused by a post-syntactic M-merger operation in serial verb patterns in this paper.

Third, the internal structure of the postverbal argument shows distinctions in these two patterns: a phrasal constituent appears in compounding resultatives (unless a topicalized or focalized phrase is mentioned in the sentence-initial position), but a monosyllabic pronoun is necessary in serial verb resultatives.

- (6) a. Tamen zha hu le yi pan huashengmi.  
 they fry overcook Asp one plate peanut  
 ‘They fried a plate of peanuts, and made the peanuts overcooked.’
- b. \*(Zhe zhi niao,) Tamen da si le ta.  
 this Cl bird they hit dead Asp it  
 Literal: ‘As for this bird, they hit it, and made it dead.’
- c. Ngu so yi su.  
 I cook it crisp  
 ‘I cook it crisp.’ (Williams 2008)
- d. \*Ngu so yi pan huashengmi su  
 I cook one plate peanut crisp  
 Literal: ‘I cook a plate of peanuts crisp.’

The asymmetric structure further shows that the postverbal argument is less productively used in serial verb resultatives. The exclusively pronoun-usage indicates that serial verb resultatives are highly context-dependent, and the antecedent of the pronoun is supposed to be known by language participants.

Fourth, the pronominal contrast in postverbal arguments above direct us to the asymmetric specificity between these two patterns in (7). In compounding resultatives, either specific or unspecific postverbal arguments are allowed, while only the specific reading is possible in serial verb resultatives. It is not surprising the pronoun usage is expected to denote specific interpretation. In this paper, we explain the specific asymmetry is created by labeling algorithm, corresponding to two different landing sites of Causee in two patterns.

- (7) a. Ma Li zha hu                    le yi/na pan huashengmi.  
 Ma Li fry overcooked ASP one/that plate peanut  
 ‘Ma Li fried a plate of peanuts, and the peanuts became overcooked.’  
 b. Ngu so yi/(\*yi pan huashengmi) su.  
 I cook it/one plate peanut crisp  
 ‘I cook it crisp.’

The differences are identified between compounding and serial verb resultatives in (8), which presents an overview of these two resultative patterns in Chinese dialects.

(8) Structural Properties in Two Resultative Patterns

| Distinctions                      | Compounding Resultatives           | Serial Verb Resultatives |
|-----------------------------------|------------------------------------|--------------------------|
| Aspect ‘le’                       | Co-occurrence                      | No co-occurrence         |
| Internal structure of object      | Phrasal and polysyllabic           | Monosyllabic pronoun     |
| Argument sharing of object        | May or may not share between V & R | Must share between V & R |
| Specificity restriction of object | Specific/non-specific              | Specific                 |

These contrastive structural properties will be explained via derivations based on Chomsky’s (2013, 2014) labeling algorithm.

**3. Theoretical assumption**

**3.1 Labeling and its implication**

Background assumptions about labeling and the implications for resultative patterns are introduced in this section. A generative grammar is explored as a formal and computational system (Chomsky 1995, cited in Krivochen 2015); the operation Merge combines two syntactic objects and Labeling is an operation to determine and label the new syntactic object (Biskup 2015). It is labeling that licenses syntactic objects, which are interpretable at interfaces, and only labeled syntactic objects are transferred (Chomsky 2013, Biskup 2015). According to Chomsky (2013), labels are determined by a fixed labeling algorithm based on minimal research (cited in Biskup 2015).

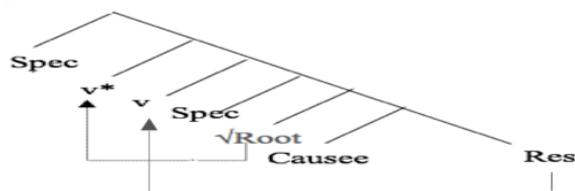
In the configuration [H, XP], the labeling algorithm takes H as the label, if H is a phasal head. If H is a non-phasal head, the head H becomes strengthened, by moving the specifier of XP to the specifier position of H. The shared feature between the non-phasal head H and the raised spec-XP is the new label. For instance, the Root and V obtain their labels by moving the subject of their complement, and the shared feature  $\langle \phi, \phi \rangle$  is the label of the syntactic object (cited in Hosono 2015).

Chomsky (2013) also supposes that in the configuration {XP, YP}, two possibilities work for labeling. If there are shared features between X and Y, then the shared feature is the label. If no shared feature, one of phrases must move. The labeling algorithm takes the head of the remaining phrase as the label (Biskup 2015). Thus “movement feeds labeling” (Chomsky 2013, Biskup 2015: 9).

### 3.2 Head movement and the motivation

We propose a two-layer vP structure in the derivation, where feature inheritance occurs from the phasal head  $v^*$  to a lower functional  $v$ . The [C(ategorizing)-feature] is assumed on phasal head  $v^*$ , and it splits into the [CATEGORIAL] feature on the higher  $v^*$  and the [VERBAL] feature on the lower  $v$ . The two-layer-vP structure is empirically supported by the phrasal nature of compounding verbs. Following Chomsky (2013), Root is categoryless, and its merger to a higher functional head  $v$ , creating the verbal category. We suppose it is the [CATEGORIAL] feature on the higher  $v^*$  that triggers the Root-to- $v^*$  movement, taking a verbal label. However, a [VERBAL] feature is assumed on the lower  $v$ , which can be strong or weak, represented as [S-VERBAL] and [W-VERBAL] respectively. The [S-VERBAL] feature can trigger Res(ultative)-to- $v$  movement, whereas [W-VERBAL] leaves Res in-situ.

(9)



Res-to- $v$  movement seems not to respect the Head Movement Constraint (Travis 1984), which skips an intervening Root. This is due to how head-movement depends on feature checking (Roberts 2010): the strong [VERBAL] feature on  $v$  must be checked by a [VERBAL] head, which locates at Res, rather than the categoryless Root, although it is the closest within the local domain. The Root-to- $v^*$  movement skipping the lower  $v$  is also grammatical. The [CATEGORIAL] feature on the higher  $v^*$  checks and values a category to Root, making it a verbal category, whereas the lower  $v$  does not carry the

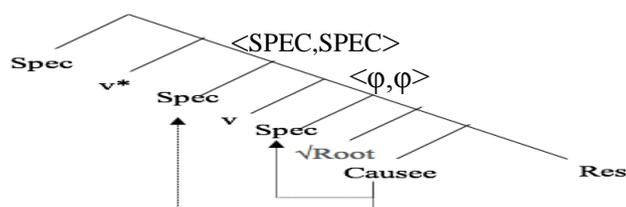
[CATEGORIAL] feature, so it is not an expected landing site of Root. This may indicate that the Res-to-v movement occurs later, in counter-cyclic fashion.

### 3.3 Landing sites of postverbal arguments

Another issue involves the postverbal argument in resultatives. Chomsky (2013, 2014) advocates a specifier position for Root from the labeling perspective. In the labeling algorithm, Root inherits  $\phi$ -features from the higher functional v. The non-phasal head Root is weak and cannot be labeled by itself. It must be strengthened by the movement of the specifier of its complement; LA takes the shared  $\langle\phi,\phi\rangle$  feature as the label.

We adopt this hypothesis to analyse resultative patterns in Chinese dialects, and further suppose Causee lands in spec-Root in Compounding resultatives, but further moves to spec-v in serial verb resultatives, required by labeling algorithm. In compounding resultatives, Root inherits uninterpretable  $\phi$ -features from v (cyclically from v\*), thus LA takes the shared  $\langle\phi,\phi\rangle$  feature between Root and the shifted Causee as the label. In serial verb resultatives, we hypothesize that Root does not inherit  $\phi$ -features from v, so no label is created at that point. The unlabeled result further merges with a functional v; the functional v and the moved Causee share specificity features. LA takes the common feature as the label. The  $\phi$ -feature-inheritance from v (cyclically from v\*) to Root is motivated by [VERBAL] feature on the functional head v: it is allowed when the [VERBAL] feature is strong, otherwise no inheritance is permitted. This hypothesis on multiple landing sites of Causee conforms to asymmetric specificity of Causee in two resultative patterns, which will be discussed in Section 4.2.

(10)



## 4. Syntactic analysis of resultative patterns

In this section, we analyze two resultative patterns in Chinese dialects based on these premises. The contrasting structural characteristics discussed in Section 2 are also accounted for in this section.

#### 4.1 Head and phrasal distinctions

The resultative predicates in compounding and serial verb resultatives are realized as secondary predicates (Pylkkänen 2002). Res is a predicate head (Res<sup>o</sup>) in compounding resultatives, but phrasal (ResP) in serial verb resultatives. Supporting evidence is found in the distribution of the negative adverb ‘not’.

At the first sight, the item *bu* ‘not’ can be used right before Res in both patterns in (11). It seems these two patterns bear identical properties and our assumption is false at first. However, the denotation of ‘not’ is different in two patterns: potential modality (i.e., possibility or/and ability) in compounding patterns, but negative modification (i.e., negatively modifying the resultative state) in serial verb resultatives. The hypothesis is tested via occurrence of the other potential modality *de* ‘able to’. Both DE and BU can be used in compounding pattern, showing BU is a modality item in (11a). The modality DE is prohibited in serial verb patterns in (11b), supporting BU in this pattern is not a modality item.

Modality items in compounding resultatives can be analyzed as an inner modal head generated between V and R, rather than as an adjunct (see Wu 2004: 273). However, BU in serial verb patterns is a negation adverb, modifying the resultative state.

- (11) a. Tamen zha **de/bu** hu yi pan huashengmi.  
 they fry able/unable overcook one plate peanut  
 ‘They are able/unable to make the peanuts overcooked.’ (Modality, only Res in the domain of DE/BU)
- b. Ngu so yi (\*de)/**bu** su.  
 I cook it not crisp  
 ‘I cook it not crisp.’ (Negation, only Res in the domain of BU)

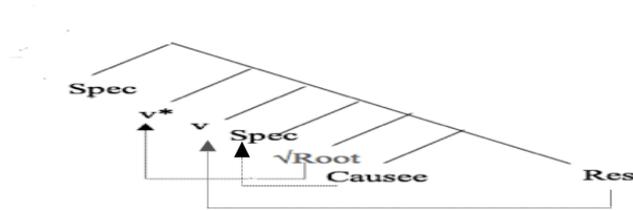
Treating the negation item *not* as a category of adverbs has been mentioned by Broekhuis (2016: 1181). We conclude the polarity adverb *not* adjoins to ResP in serial verb resultatives, which does not change the phrasal nature of the resultative predicate. In other words, constituent negation is possible in the serial verb structure.

#### 4.2 Syntactic derivations

Now let us look at the overall derivational process of compounding resultatives. With the labeling algorithm, Root inherits  $\phi$ -features from the higher functional *v* (cyclically from *v*\*). The postverbal argument is originated in the sister node of Res, later moving to the specifier of Root. Movement gets the non-phasal head Root strengthened, and the labeling algorithm takes the shared  $\langle\phi, \phi\rangle$  features between Root and the raised Causee as the label. We suppose the phasal head *v*\* locates more than one functional features, such as [CATEGORIAL] feature, [VERBAL] feature or many others. The [VERBAL] feature is inherited from *v*\* to *v*, whereas the [CATEGORIAL] feature stays in the phasal head *v*\* in resultative constructions. It is the [CATEGORIAL] feature on

the phasal head  $v^*$  which triggers Root-to- $v^*$  movement, creating a verbal category. The strong [VERBAL] feature on the lower  $v$  is also strong in compounding resultatives. The strong [VERBAL] feature is reflected by a verbal aspectual affix in  $v$  (e.g., morphologically realized as aspectual ‘*le*’ in Chinese). The strong [VERBAL] feature triggers Res-to- $v$  head movement, as seen in (12).

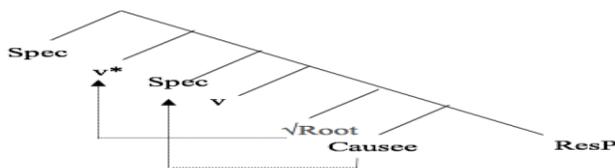
(12) Compounding resultatives



Next, turning to serial verb resultatives, the resultative predicate is analyzed as a phrasal constituent, supported by the negation adverb *bu* ‘not’ (in Section 4.1). In the configuration {Causee, ResP}, no shared features between these two sister phrases, so one of them has to move out. The categoryless weak Root enters the derivation, and no labels can be made by itself. In serial verb resultatives,  $v$  cannot inherit  $\phi$ -features from  $v^*$  and transfer to Root, since  $v$  is weak in this pattern (i.e., being null, without any overt affix). So no label is created at that point. The unlabeled result further merges with the functional  $v$ . In order to label this exocentric structure, a semantic feature must be present on both the  $v$  and its specifier. We suppose specificity serves as the (SPEC) shared feature. LA takes the shared feature as the label in (13).

In this paper, we further propose a morphological merger operation applies in serial verb patterns, since the postverbal argument is frozen and highly restricted to an exclusively closed category. This idea will be specified in Section 4.2.

(13) Serial verb resultatives



So far, coherent syntactic derivations of two resultative patterns follow from labeling-based assumption. The head ( $\text{Res}^0$ ) and phrasal (ResP) nature is distinguished in these

two patterns. Moreover, two landing sites of Causee are also observed: specifier of Root in compounding patterns, but specifier of *v* in serial verb patterns.

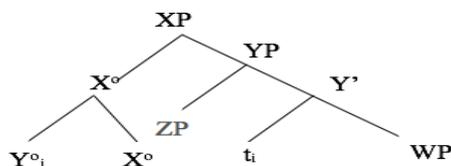
### 4.3 Explanation on syntactic distinctions

In Section 2, we discussed syntactic distinctions between compounding and serial verb resultatives in Chinese dialects: occurrence of aspectual ‘LE’, argument sharing between the two predicates, the internal structure of the postverbal argument and a specificity restriction for the postverbal argument. These characteristics are explained in this section.

First, occurrence of the aspectual marker LE in compounding resultatives supports the Res-to-*v* head movement in this pattern. The perfective aspect LE is analyzed as a strong verbal affix in the lower *v*, and the [S-VERBAL] feature triggers the Res-to-*v* head movement, ending up with a ‘Res+le’ complex. In serial verb resultatives, no overt LE is allowed; the [W-VERBAL] feature on the lower *v* cannot trigger any head movement. Moreover, the resultative predicate is phrasal in nature. In this configuration {Causee, ResP}, ResP stays in its originated node, creating Res as its label after Causee moves out.

Second, argument sharing between two predicates is optional in compounding resultatives, but obligatory in serial verb pattern. Following Matushansky (2006), we suppose the contrast is triggered by a post-syntactic *M-merger* in serial verb but not compounding patterns. Matushansky (2006) assumes a new view of head movement, suggesting a combination of two operations in head movement: a syntactic movement and a morphological merger (i.e., m-merger). To explain Matushansky’s core idea more specifically, just like phrasal movement, head movement targets a specifier position of the attracting head. M-merger happens between the probe and the target of head movement. M-merger is a morphological operation applying after movement in syntactic level. The representation is shown in (14), in which the head  $Y^0$  moves to the specifier of the root, and then the moved  $Y^0$  m-merges to the probe  $X^0$ .

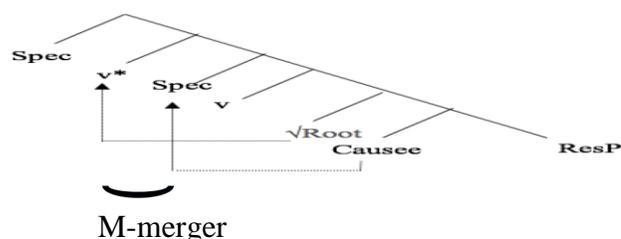
(14) M-merger operation (Matushansky 2006: 81)



We adopt the concept of M-merger, but apply it in a slight different way in this paper. In serial verb resultatives, the postverbal Causee moves out of the configuration {Causee, ResP} to the specifier of Root, triggered by the labeling algorithm (see details in Section

4.2). Head movement Root-to- $v^*$  is triggered by the [CATEGORIAL] feature on the higher functional  $v^*$ . After movement in syntax, we suppose a morphological M-merger applies between the shifted Causee and the ' $v^*$ +Root' complex, resulting in a ' $v^*$ +Root+Causee' complex. The m-merger operation in serial verb patterns requires a monosyllabic nominal, hence the monosyllabic pronoun for Causee. The restricted usage of Causee supports our hypothesis that a m-merger operation applies in this pattern.

(15) M-merger in serial verb patterns



Third, the internal structure of the postverbal argument is different in two patterns. A phrasal constituent is used in compounding resultatives, but a pronoun is exclusively used in serial verb resultatives. Accordingly, the syllabic structure of the postverbal argument is also distinct: multiple syllables in the former, but monosyllabic pronoun in the latter. The less productive postverbal argument in serial verb resultatives is created by the m-merger operation, resulting in the restrictively selected postverbal argument.

Fourth, the specificity asymmetry in these two patterns correlates with two different landing sites of the Causee. In compounding resultatives, Root inherits uninterpretable  $\phi$ -features from  $v$  (cyclically from  $v^*$ ), thus LA takes the shared  $\langle\phi,\phi\rangle$  feature between Root and the moved Causee as the label. The  $\langle\phi,\phi\rangle$  feature pair creates an optional specificity. In Serial verb resultatives, Root does not inherit  $\phi$ -features from  $v$ , thus no label is created at that point. The unlabeled result further merges with a functional  $v$ , and the functional  $v$  and the shifted Causee share a  $\langle\text{SPEC},\text{SPEC}\rangle$  feature pair. LA takes the shared feature as the label. The  $\phi$ -feature-inheritance from  $v$  (cyclically from  $v^*$ ) to Root is motivated by [VERBAL] feature on the functional head  $v$ : it is allowed when the [VERBAL] feature is strong, otherwise no inheritance is permitted.

### 5. Implication to DE-phrasal resultatives

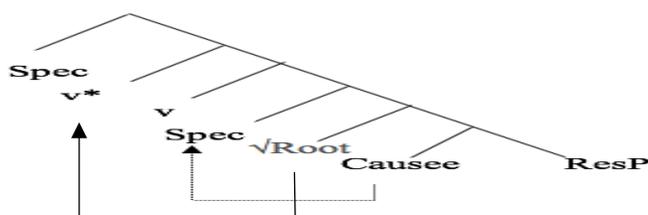
The shared base is further tested by another resultative pattern in Mandarin Chinese, known as DE-phrasal resultatives.

(16) Tamen zha de na pan huashengmi hen cui.  
 they fry DE that plate peanut very crisp

‘They fried that plate of peanuts, and made peanuts very crispy.’

The resultative predicate in DE-phrasal structures is phrasal in nature, supported by the predicate-degree modifier *hen* ‘very’, as seen in (16). In the configuration {Causee, ResP}, the Causee moves out, since there is no shared feature between the postverbal argument and the phrasal ResP. We analyse DE-phrasal resultatives with a similar two-layer-vP structure as before. The [CATEGORIAL] feature and [VERBAL] feature are originated on the phasal head  $v^*$ , but the [VERBAL] feature is inherited from  $v^*$  to  $v$ . The [CATEGORIAL] feature on  $v^*$  triggers the merger of Root to the higher  $v^*$ , creating a verbal category. DE is a participle realized in the lower functional  $v$ . Not being truly verbal,  $v$  cannot inherit  $\langle\phi,\phi\rangle$  features, but does have specificity features inherited from  $v^*$  to  $v$ , then transferred to Root. So the  $\langle$ SPEC,SPEC $\rangle$  feature is shared between Root and the shift Causee. LA takes this shared feature as the label.

(17)



The labeling analysis is supported by the fact that cardinal subjects are not allowed, and only the specific reading is expected in DE-phrasal patterns. The specific reading is created by the  $\langle$ SPEC,SPEC $\rangle$  label.

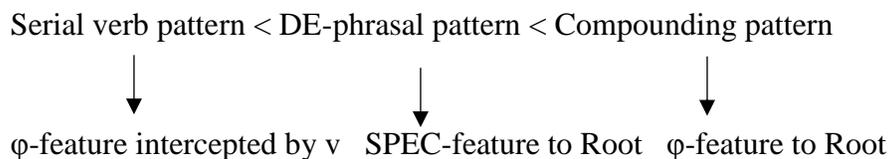
(18) Tamen zha de (\*yi)/na pan huashengmi hen cui.  
 they fry DE one/that plate peanut very crisp  
 ‘They fried that plate of peanuts, and made peanuts very crispy.’

So far DE-phrasal patterns are analyzed in a similar way with serial verb resultatives. Both patterns contain a phrasal ResP, but different landing sites of Causee: specifier of Root in DE-phrasal patterns, and specifier of  $v$  in serial verb patterns. In these two patterns, Roots cannot inherit  $\langle\phi,\phi\rangle$  features from  $v$  (cyclically from  $v^*$ ), due to a weak [VERBAL] feature on  $v$ . Instead,  $\langle$ SPEC,SPEC $\rangle$  features are labeled.

Considering all together, for three resultative patterns together, two landing sites of Causee are proposed: specifier of Root in compounding and DE-phrasal patterns, and specifier of  $v$  in serial verb patterns. The distinction is explained by different degrees of exuberance in multiple feature inheritance. Multiple features are originated on the phasal head  $v^*$ : interpretable [CATEGORIAL] and [VERBAL] features, uninterpretable  $\phi$ -

feature and SPEC-feature. The functional  $v$  becomes easier to inherit uninterpretable  $\phi$ -features from  $v^*$  and then transfer to Root, when the phasal head  $v^*$  is more exuberant to transfer its [VERBAL] feature to  $v$ . Hierarchy on feature-inheritance exuberance is proposed for these three resultative patterns.

(19) Feature-Inheritance Exuberance



These differences in multiple feature inheritance consequently create asymmetric specificity of Causee in three resultative patterns.

**6. Summary**

To sum up, we demonstrated a labeling-based analysis for compounding resultatives and serial verb resultatives in Chinese dialects. The relationship of two predicates and the postverbal argument, and specificity asymmetry in postverbal arguments are made manifest in resultative patterns. The discrepancy of structural characteristics results from multiple feature inheritance distinctions. Furthermore, the labeling-based analysis is also found to account for another resultative pattern, the DE-phrasal resultatives in Mandarin Chinese. Thus a united underlying base is provided to account for three resultative patterns in Chinese dialects.

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## Dependencies between Adverbs and Sentence-Final Particles, in and beyond Mandarin

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In this paper, the feature valuation system of Pesetsky and Torrego (2007) is utilized to explain certain concurrence restrictions between preverbal adverbs and sentence-final particles in Mandarin Chinese. The sentence-finalness of Mandarin's particles is shown to be a consequence of two factors: (i) the need for local valuation of features on the particles by appropriate, interpretable adverbs; (ii) and the general prohibition in Mandarin against head or phrasal movement. Additionally, the proposed analysis of adverb-particle dependency sheds light on heretofore mysterious properties of the second-position particles of Austronesian and Slavic languages.

### 1. Introduction

The lexicon of Mandarin Chinese, like that of many languages of the East Asian *sprachbund*, features a set of monosyllabic, enclitic morphemes, often referred to in the literature as *sentence-final particles*. By generous estimates, the sentence-final particles of Mandarin number about a dozen, and encode such functions as clause-typing (distinguishing interrogatives from declaratives), modality (downgrading assertions to conjectures), aspect (establishing discreteness or overlapping of events) as well as more pragmatic functions (softening statements, conveying enthusiasm). Some examples are listed below

- (1) a. MA: Marks YES/NO Questions  
Ni yao chi fan ma?  
You want eat food MA  
Do you want to eat?
- b. A: Conveys emphasis/enthusiasm  
Hao = OK  
Hao a! = Sure!
- c. BA: Indicates suggestion or conjecture  
Ni shi zhonguoren ba?  
You are chinese BA

You're Chinese, aren't you?

- d. DE: Connected to finiteness and propositional assertion  
 Wo ai ni de  
 I love you DE  
 '(It is a fact that) I love you'

Two particles of particular interest are LE and NE, which are in complementary distribution as concerns their ability to co-occur with a limited set of time-related adverbs<sup>1</sup>. In particular, As shown in (2), the adverbs *yijing* 'already' and *jiu* 'just.then' co-occur with *le* and disallow *ne*, while the adverbs *hai* 'still' and *cai* 'only.then' co-occur with *ne* and disallow *le*.

- (2) LE: Anteriority; 'closer-than-you-think' meaning
- a. Xianzai *yijing* wudian *le* (\**ne*)  
 now already 5.o'clock LE  
 'It's already five o'clock'
- b. Wo mingtian *jiu* qu *le* (\**ne*).  
 I tomorrow just.then go LE.  
 'I'm leaving tomorrow (so there's no way I can accept your invitation)'

NE: Continuity; 'farther-than-you-think' meaning

- c. Ta *hai* xiao *ne* (\**le*).  
 He still small NE  
 He's still young (e.g., so you can't expect him to know that word)
- d. Wo mingtian *cai* qu *ne* (\**le*)

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<sup>1</sup> Apparent counterexamples to this complementary distribution exist, as in (i):

- (i) Meizhun zai dongjing wo jiu dangxuan wei hualian de zhuxi le ne  
 Perhaps in Tokyo I just.then elected as skating.union DE chairman LE NE  
 'Perhaps in Tokyo I'll be elected Skating Union chairman.'

Paul (2013), following Zhu Dexi (1982), claims there are in fact three distinct NEs in Chinese:

LowC *ne* (*continuative aspect*)  
 ForceC *ne* (*question marking*)  
 AttitudeC *ne* (*exaggeration or boasting tone*)

I therefore take a sentence such as (i) to exemplify Paul's *AttitudeC ne*, a particle which itself is plausibly in complementary distribution with *bale* 'and.that's.all,' while the complementary distribution between *le* and *LowC ne* obtains.

I tomorrow only.then go NE  
'I'm not leaving till tomorrow'

I hypothesize that this distribution is a result of the fact that *le* and *ne* are variant spellouts of the same functional head  $\text{Deik}^\circ$  (short for *deixis*), located within the low end of the expanded CP domain. Following Pesetsky's and Torrego's (2007) theory of agreement, I take  $\text{Deik}^\circ$  to be a probe, generated with an unvalued, uninterpretable deixis feature [ $\text{uDeik:}_\_\_$ ]. It searches its C-command domain for a goal with interpretable features that can value it. If the goal it finds is the adverb *jiu* 'just.then' or *yijing* 'already' with the interpretable feature [ $\text{iDeik:proximal}$ ], encoding anterior aspect, then  $\text{Deik}^\circ$  is valued as [ $\text{Deik:proximal}$ ] and spells out as *le*; if that goal is instead the adverb *cai* 'only.then' or *hai* 'still' with the feature [ $\text{iDeik:distal}$ ], encoding continuative aspect, then  $\text{Deik}^\circ$  is valued accordingly as [ $\text{Deik:distal}$ ] and spelled out as *ne*.

As feature valuation is assumed to require C-command, independent restrictions on movement in Chinese (to be outlined in section 3) require that the entire sentence in the scope of the sentence-final particle be raised into the latter's specifier in order for the adverb and the particle to be in the right configuration. Thus the sentence-finalness of sentence-final particles – a puzzle, since antisymmetry suggests that such particles, being C-heads, ought to be sentence initial – receives a straightforward explanation.

This paper is organized as follows. In section 2, I present the semantics of the aspect-related adverbs and sentence-final particles of Chinese, and motivate the choice of corraling them under the term *deixis*. Section 3 details the proposed mechanism of valuation and shows its usefulness in explaining quirks of Chinese phrase structure and particle order. Section 4 explores the consequences of the analysis, in particular the explanatory power of the ostensibly inelegant notion it introduces of null adverbs and how that can help make sense of the distribution of second position particles in such languages as Tagalog and Czech. Section 5 is the conclusion.

## 2. LE, NE, and deixis: aligning events with reference points, expectation with reality

It was Sybesma (1997, 2007) who first designated Mandarin sentence-final particle *le* as the head of *DeikP*, since the particle does for Chinese something similar to what tense does for Western languages: fixing events in a timeline. (Chinese lacks proper tense, insofar as Speech Time has no morphological reflex (unless Speech Time happens to be equivalent to Reference Time, by default or by designation, i.e., by use of the adverb *xianzai* 'now'). Meanwhile, it is widely understood that *le* also fulfills a "higher" function: in the terms of Li and Thompson (1981), *le* highlights an accompanying proposition as a "currently relevant state"; in the terms of Van den Berg and Wu (2006), *le* marks points of "common ground coordination", i.e., deviations, or solutions to deviations, from the cultural or epistemic common ground underlying any interpersonal interaction. *Deik* (for *deixis*) is therefore a particularly fitting name, since the particle serves to "point out" deviations from expectation both in time and in the discourse. A

very simple example of this non-temporal use of *le* can be observed in the minimal pair in (3):

- (3) a.       Zaijian = Goodbye!  
 b.       Zaijian le = Alright, goodbye! (i.e., I'm now ending our conversation)

*Ne*, for its part, also seems to straddle the boundary between time and discourse. As mentioned above, it expresses continuative aspect, pairing often with adverbs like *hai* 'still', *cai* 'only.then' as well as with the progressive auxiliary *zai* and the durative suffix *-zhe*. Wu (2005) identifies a higher function of *ne* that seems to be quite similar to what others have said of *le*. His catchphrase for *ne* is "hearer engagement," claiming that "by using *ne*, the speaker draws the hearer's attention to the information marked by the particle and urges the hearer to adjust shared common ground (CG) accordingly with regard to the current interaction" (Wu 2005: 47). In light of these conclusions from the functionalist literature, an attempt to classify both *le* and *ne* as instances of the same C-head does not seem far-fetched.<sup>2</sup>

The deep-seated connection between time and expectation in Chinese adverbs, with correspondences in sentence-final particles, is illustrated in Tsai 2013. He first cites Lai (1999), who showed that the adverbs *jiu* and *cai* have four uses: temporal, restrictive, conditional, and emphatic. The relevant examples are repeated below:

- (4) Temporal use of *jiu* and *cai*  
 a.       Zhangsan wu dian   cai       lai.  
           Zhangsan five o'clock only.then come.  
           'Zhangsan did not appear until five o'clock.'  
 b.       Zhangsan wu dian   jiu lai le.  
           Zhangsan five o'clock just.then come LE.  
           'Zhangsan already appeared at (or before) five o'clock.'
- (5) Restrictive use of *jiu* and *cai*  
 a.       Ta chi le   san ge pingguo cai       bao ne  
           he eat PFTV three CL apple only.then full NE.  
           'He became full only after eating three apples.'  
 b.       Ta chi san ge pingguo jiu       bao le.

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<sup>2</sup> It has been brought to my attention that *le*'s appearance in the presence of the adverb *jiu* seems more obligatory, whereas *ne*'s appearance in the presence of the adverb *cai* seems more optional and more a show of emotion, bringing into question whether the two can really be instances of the same functional head, differently valued. This judgment may be the result of the fact that, I cases such as (5b), sentence-final *le* can potentially be the concatenation of Deik° *le* and verb-suffix, *-le*, a marker of internal, perfective aspect, whose presence is a requirement of certain telic verbs and complements. My gratitude to Marie-Claude Paris for pointing out this issue.

he eat three CL apple just.then full LE  
 ‘He became full after only eating three apples.’

(6) Conditional use of *jiu* and *cai*

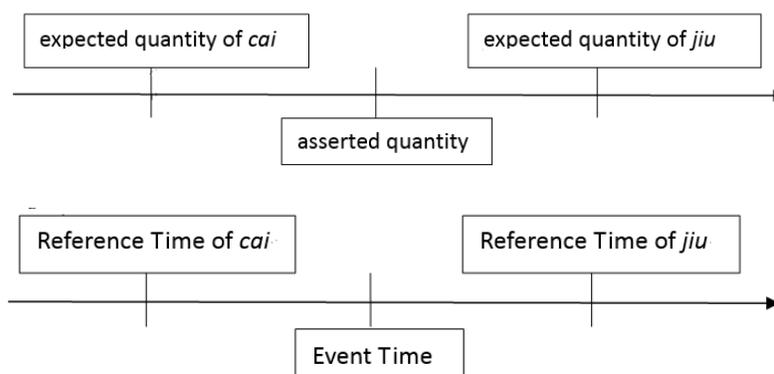
- a. Zhangsan qu Lisi *cai* qu.  
 Zhangsan go Lisi only.then go  
 ‘Lisi will go only if Zhangsan goes.’
- b. Zhangsan qu Lisi *jiu* qu.  
 Zhangsan go Lisi then go  
 ‘Lisi will go (merely) if Zhangsan goes.’

(7) Emphatic use of *jiu* and *cai*

- a. Lisi *cai* shi wo yao zhao de ren.  
 Lisi just be I want look-for COMP person  
 ‘It is LISI who I am looking for.’
- b. Lisi *jiu* shi wo yao zhao de ren.  
 Lisi exactly be I want look-for COMP person  
 ‘Lisi is exactly the person that I am looking for.’

In short, the pattern is as follows: If the expected time, quantity, condition, etc., is in excess of the asserted one, it licenses *jiu* (an adverbial counterpart of *le*). If, on the other hand, what is asserted exceeds what is expected, this licenses *cai* (an adverbial counterpart of *ne*). Tsai represents this visually with the diagrams in (8).

(8) Parallel between temporal and non-temporal uses of *jiu* and *cai* (Tsai, 2013: 17-18)



For the purposes of this analysis, I draw on Tsai’s (2013) findings and collapse aspectual anteriority and closer-than-you-think semantics under the feature [proximal], associated with *le*, and continuative aspect and farther-than-you-think semantics under the feature [distal], associated with *ne*.

### 3. The Analysis and its consequences for Chinese

At the heart of the theory presented here is the claim that presence or absence of certain Chinese sentence-final particles, and indeed the phonetic form of those particles, is the result of agreement between C-heads in the left periphery and pre-verbal adverbs, in the same way that the morphology of determiners and adjectives in Romance is the result of agreement of phi-features between said elements and the nominals they modify. For clarity, we will walk through the derivation of (2a), repeated below as (9).

- (9) Xianzai yijing wudian *le* (\**ne*)  
 now already 5.o'clock LE  
 'It's already five o'clock'

Following Kayne 1994, wherein all syntactic structures are taken to be base generated as right-branching, regardless of what word order eventually surfaces, I assume that the underlying structure of (9) is as in (10):

- (10) [<sub>DeikP</sub> *le* [<sub>uDeik:</sub> \_\_\_] [<sub>TP</sub> *xianzai yijing* [<sub>iDeik:proximal</sub>] *wu dian*]].

Deik°, born high in the left periphery like all complementizers under antisymmetry, requires valuation of its deixis feature. The adverb *yijing* [<sub>iDeik:proximal</sub>] 'already' is capable of valuing it, but must C-command it in order to do so. If we assume that languages avoid unnecessary movement as a matter of course, moving the adverb by itself to [Spec, Deik] would be an efficient means of satisfying this featural requirement, in the same way that wh-arguments and -adjuncts move to [Spec,C] in English wh-questions. Chinese, however, is averse to phrasal movement in general, as evidenced by the fact that Chinese is a wh-in-situ language. As a rule, wh-arguments and -adjuncts remain in their base generated positions:

- (11) Zhangsan xuyao shenme?  
 Zhangsan need what  
 'What does Zhangsan need?'

With overt movement ruled out, one wonders if *covert* movement of the adverb could have instead satisfy Deik's featural requirements and thereby left the underlying word order of the sentence in (9) undisturbed. But consider the sentence in (12). It is well-formed, despite the fact that the wh-word *shenme* located within a complex NP island.

- (12) Akiu kanbuqi [*zuo shenme de ren*]? [Tsai 1999:42]  
 Akiu despises does what REL person  
 '\*What does Akiu despise a person who does (for a living)?'

This suggests that Chinese *wh*-words achieve their sentential scope via operator binding, rather than covert movement to C. With both overt and covert movement of the adverb ruled out, then, the only available choice is pied-piping of the entire TP that contains it, as illustrated in (13), the post-movement version of (10).

(13) [<sub>DeikP</sub> [<sub>TP</sub> *xianzai yijing*[*iDeik:proximal*] *wu dian*] [*le* [*Deik:proximal*] [<sub>TP</sub> ...]]].

This is analogous to how English will pied-pipe an entire DP in order to bring a [*wh*] feature up to C, as it does in (14):

(14) [[Whose father's] book] did you buy?

One prediction made by this theory is that there should be other instances of adverb-C dependency in Chinese apart from DeikP. Pairs such as *hui* 'undoubtedly/will' + *de* (Fin°) and *yinggai* 'probably/should' + *ba* (Epist°) bear this out.

(15)<sup>3</sup> Wo *hui* wangcheng zuoye            *de*.  
I will finish assignment DE  
'I will undoubtedly finish the assignment'

(16) Ta *yinggai* bu zai jia *ba*.  
He probably NEG be.at home BA.  
'He's probably not at home, I would guess.'

To be sure, it is far from obligatory that both elements of an adverb-particle pairs like *yijing+le*, *hai+ne*, *hui+de*, *yinggai+ba* appear together in every instance. Absence of a sentence-final particle is simply a sign that the C-head in question is absent from the numeration. As the adverbs enter the derivation valued and interpretable, an occasionally impoverished left periphery is not a problem for them. Absence of the corresponding adverb when a sentence final-particle is present, on the other hand, would lead to a crash in the derivation when [*uDeik:\_\_\_*] - or [*uFin:\_\_\_*] or [*uEpist:\_\_\_*] for that matter - reached LF unvalued. Yet such sentences are attested:

(17) Xianzai wu dian    *le*  
Now 5 o'clock LE

Therefore, to maintain the theory as it stands, we must conclude that every apparently adverb-less sentence that has a sentence final-particle, actually has a *null* adverb,

<sup>3</sup> For the sake of the discussion, I am calling *hui* 'undoubtedly/will' and *yinggai* 'probably/should' adverbs, though *modal* is perhaps a more appropriate term. But it is the dependency itself that is crucial.

fulfilling the same function as it would if pronounced. While ostensibly inelegant, we will see in the next section how this assumption sheds light on the behavior of particles beyond Mandarin<sup>4</sup>.

### 3. Consequences of the analysis for Tagalog, Czech

The analysis presented here claims in part that the particles of Chinese are in sentence-final position as a consequence of the fact that Chinese is rather impermissive of phrasal movement. This predicts that, in languages without restrictions on phrasal movement, sentential particles should surface in a more transparently left-peripheral position. The Austronesian language Tagalog bears this prediction out. As a language, Tagalog exhibits both head movement (V-to-C raising, as in (18)) and phrasal movement (wh-movement, as in (19))<sup>5</sup>:

(18) B-in-ili ni Maria ang libro **sa tienda** (Aldridge 2004: 119)  
 Perf-buy Erg Maria Abs book at store  
 ‘Maria bought the book at the store.’

(19) **Saan** b-in-ili ni Maria ang libro? (Aldridge 2004: 120)  
 where Perf-buy Erg Maria Abs book  
 ‘Where did Maria buy the book?’

Interestingly, the same complementary distribution between *le* and *ne* in Mandarin has a direct analog in Tagalog. As exemplified in (20), Tagalog Deik<sup>o</sup> is spelled out as *na* when valued as [proximal] and as *pa* when valued as [distal], and consistently occurs in second-position (with the element in first position being either a head-raised verb or topicalized phrase).

- (20) a. Umalis na si-John.  
 PERF-leave NA PTT-John.  
 ‘John has (already) left.’
- b. Maliit pa siya  
 small PA he  
 ‘He is (still) young’
- c. Sa Biernes na ang piesta.  
 on Sunday NA the party

<sup>4</sup> The notion of null adverbs is not unprecedented. Keller’s (1994) argues for a theory of tense that involves so called PRO-ADVs generated in the specifiers of functional heads.

<sup>5</sup> For an argument in favor of head V-to-C head movement in Tagalog, and its role in determining the ordering of second-position clitics, see Tanenbaum 2016.

'The party is next Friday (and there is little time between now and then)

- d. Sa Biernes pa ang piesta.  
 on Sunday PA the party  
 'The party is next Friday (and there is lots of time between now and then)

Also interesting is the fact that, Tagalog has no overt adverbs corresponding to its particles (no *jiu*, *cai*, *yijing*, *hai*). Hence, I posit that here the raising of null adverbs (proADV) is the only available strategy for particle valuation.

Further support for this kind of adverb-C agreement as a general syntactic mechanism is found in Czech. Czech exhibits a cluster of second position particles (or “clitics”). The cluster is for the most part strictly ordered (e.g. interrogatives precede conditionals, which in turn precede pronominals, etc.). The exception to this order is the so-called “fringe” particles, which may appear either at the beginning or at the end of the cluster. The “fringe particle” *už* ‘already’ exemplifies this in (21) (from Franks and King, 2000).

- (21) A ten mi oznámil, že (**už**) jsem si tě (**už**) najal.  
 And he me informed, that (deik:prox) have refl you (already) hired  
 ‘And he informed me, that I already hired you.’

Supposing that *už* marks proximal deixis, the mystery of its mutable position now has a ready solution: *už* optionally spell out either an adverb low in the clause, or the Deik-head high in the clause into whose specifier that adverb’s null variant has raised for feature valuation.

#### 4. Conclusion

In this paper, I have appealed to the notion of feature valuation à la Pesetsky and Torrego (2007) to shed light on the complementary distribution of the deictic particles *le* and *ne* in Mandarin Chinese, presenting them as spellouts of different feature valuations ([proximal] vs. [distal]) of the same functional head. I argue that valuation of sentence-final particles via features on adverbs extends to particles encoding finiteness and epistemics as well, which explains the prevalence in Mandarin of adverb-particle pairs, as well giving a reason for why Mandarin’s sentence-final particles are sentence-final in the first place. Finally, this way of looking at particles points the way toward a more principled account of the absence of overt deictic, epistemic and other C-related adverbs in Tagalog, and on the *prima facie* unstable position of the so-called “fringe” clitics of Czech.

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## The Typology of Labile Verbs and Chinese

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Labile verbs can be used transitively and intransitively without any overt marking. They are widely seen in Chinese. The lexical semantics of Chinese labile verbs is consistent with the typology of labile verbs. Specifically, change of state is the prototypical meaning of labile verbs, while the contingency between labile verbs and their transitive/intransitive use is sensitive to the likelihood of spontaneous occurrence of the event. This finding can be explained by features of the conceptualization of change-of-state events: they allow two competing strategies of profiling in human construal. Moreover, as an isolating language in which causative/anticausative is not marked, Chinese exhibits an overwhelmingly large group of labile verbs in comparison with other languages.

### 1. Introduction and disputed terminology

Lv (1987) identified a famous phenomenon whereby Chinese verbs (including verb compounds) can alternate between transitive and intransitive use, and allow object deletion. He employed a pair of antonyms, 打胜 *da-sheng* ‘play-win’ and 打败 *da-bai* ‘play-defeat’, as follows:

- (1) a. 中国 队 打 胜 了 韩国 队。  
Zhongguo dui da-sheng-le Hanguo dui.  
China team play-win-LE South Korea team  
‘The Chinese team won over the South Korean team.’ (The Chinese team won.)
- b. 中国 队 打 胜 了。  
Zhongguo dui da-sheng-le.  
China team play-win-LE  
‘The Chinese team won.’
- (2) a. 中国 队 打 败 了 韩国 队。  
Zhongguo dui da- bai- le Hanguo dui.  
China team play-defeat-LE South Korea team  
‘The Chinese team defeated the South Korean team.’ (The Chinese team won.)
- b. 中国 队 打 败 了。  
Zhongguo dui da- bai- le.  
China team play-defeat-LE

‘The Chinese team lost.’

(Lv, 1987)

Example (1) shows that 打胜 *da-sheng* ‘play-win’ allows object deletion, and example (2) that object deletion is prohibited by 打败 *da-bai* ‘play-defeat’. In the same article, Lv also gave the name 第二格局 ‘syntactic pattern 2’ to the phenomenon of verbs like 打败 *da-bai* ‘play-defeat’ being able to alternate between transitive and intransitive use, to contrast with 第一格局 ‘syntactic pattern 1’, as shown in example (1). Syntactic pattern 2 is illustrated in example (3), below.

- (3) a. 中 国 队 打 败 了 韩 国 队。  
 Zhongguo dui da - bai - le Hanguo dui.  
 China team play-defeat-LE South Korea team  
 ‘The Chinese team defeated the South Korean team.’ (The Chinese team won.)
- b. 韩 国 队 打 败 了。  
 Hanguo dui da- bai- le.  
 South Korea team play-defeat-LE  
 ‘The South Korean team lost.’

Therefore, some Chinese verbals (including verbs and verb compounds) including 打败 *da-bai* ‘play-defeat’ only permit transitivity alternation; and some other verbals such as 打胜 *da-sheng* ‘play-win’ only allow object deletion.

A large body of literature has been devoted to discussion of the above phenomenon of transitivity alternation. Accordingly, a considerable number of terms have been adopted to designate relevant words and phenomena, including ‘ergative’ (e.g., Cikoski, 1978; Shen & Sybesma, 2012; Song, 2009; Wu, 2009; Zeng, 2009; L. Zhang, 2009), ‘unaccusative’ (e.g., C.-T. Huang, 1989; Y.-H. Li, 1990; Lv, 1987; Xu, 1999, 2001; S. Yang, 1999; N. Yu, 1995), ‘anticausative’ (e.g., Haspelmath, 1987; Levin, 1993; Nedjalkov & Sil’nickij; 1969/1973; Schafer, 2009) and ‘labile’ (e.g., Dixon, 1994, p. 6; Gianollo, 2014; Haspelmath, 1987, 1993; Heidinger, 2014; Kulikov, 2003; Letuchiy, 2009, 2015; Mcmillon, 2006; Nichols, 1984, p. 195). Among these terms, this paper will use ‘labile’ because unlike other notions that are originally derived from case markers, the word ‘labile’ itself only focuses on the alterable use of verbs, thus more intuitive for the discussion in this paper.

## 2. The typology of labile verbs

Discussion of lability cannot proceed entirely independently of the notion of the anticausative, insofar as the former is frequently taken as a subtype of non-directed inchoative/causative verb alternation systems (cf. Haspelmath, 1987, 1993; Nedjalkov & Sil’nickij, 1969/1973), in parallel with causative alternation and anticausative alternation. In causative alternation, the inchoative verb is basic, and the causative verb is derived by

marking; whereas in anticausative alternation, the causative verb is basic and the inchoative verb is derived by marking. In non-directed alternations, neither the inchoative nor the causative verb is derived from the other. Labile alternation is just one of three specific types of non-directed alternation, and is characterized by the same verb being used both in the inchoative and in the causative sense. The other two types of non-directed alternations are equipollent alternations, in which both verbs are derived from the same stem by means of different marking, and suppletive alternations, in which different verb roots are used. Some examples are shown in Table 1, below.

Table 1.

*Formal types of inchoative/causative verb pairs* (Haspelmath, 1993)

| Subtype       | Language Verb Stem                               | Transitive<br>(Causative) | Intransitive<br>(Anticausative) |
|---------------|--------------------------------------------------|---------------------------|---------------------------------|
| Causative     | French <i>fonder</i> ‘melt’                      | <i>faire fondre</i>       | <i>fondre</i>                   |
| Anticausative | Hindi-Urdu <i>naa</i> ‘open’                     | <i>khol-naa</i>           | <i>khul-naa</i>                 |
| Equipollent   | Japanese <i>atum</i> ‘gather’                    | <i>atum-eru</i>           | <i>atum-aru</i>                 |
| Suppletive    | Russian <i>goret’/zhech’</i> ‘burn’              | <i>zhech’</i>             | <i>goret’</i>                   |
| Labile        | Modern Greek <i>svíno</i><br>‘go out/extinguish’ | <i>svíno</i> ‘extinguish’ | <i>svíno</i> ‘go out’           |

Prior scholars have noted that the selection of alternation types is sensitive to verbal semantics and varies across languages. Nedjalkov & Sil’nickij (1969/1973) investigated 60 languages’ realizations of four alternations – ‘laugh/make laugh’, ‘boil (intr.)/(tr.)’, ‘burn (intr.)/(tr.)’, and ‘break (intr.)/(tr.)’ – i.e., 240 verb pairs; counted the number of languages using a given alternation type for each verb pair; and calculated the ratios of the numbers of anticausative pairs to causative pairs, with the results presented below in Table 2.

Table 2.

*Expression types by verb pairs* (Nedjalkov & Sil’nickij, 1969/1973)

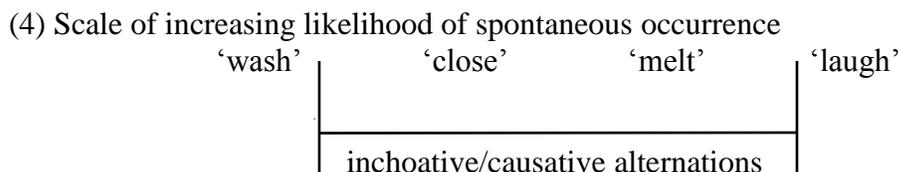
|                        | Total | Anti-<br>causative | Causative | Equipol-<br>-lent | Supple-<br>-tive | Labile | Others | A/C  |
|------------------------|-------|--------------------|-----------|-------------------|------------------|--------|--------|------|
| ‘laugh/<br>make laugh’ | 60    | 0                  | 54        | 6                 | 0                | 0      | 0      | 0    |
| ‘boil’                 | 60    | 2                  | 36        | 5                 | 7                | 9      | 1      | 0.05 |
| ‘burn’                 | 60    | 8                  | 19        | 5                 | 14               | 14     | 0      | 0.42 |
| ‘break’                | 60    | 22                 | 9         | 8                 | 0                | 19     | 2      | 2.44 |
| Total                  | 240   | 32                 | 118       | 17                | 21               | 42     | 3      | 0.27 |

Haspelmath (1993) expanded the scope of this enquiry from four alternations to 31, and generally replicated the previous findings, as shown in Table 3.

Table 3.  
*Expression types by verb pairs (Haspelmath, 1993)*

|                   | Total | Anti-causative | Causative | Equipol-lent | Suppletive | Labile | A/C   |
|-------------------|-------|----------------|-----------|--------------|------------|--------|-------|
| 'boil'            | 21    | 0.5            | 11.5      | 3            | 0          | 6      | 0.04  |
| 'freeze'          | 21    | 2              | 12        | 3            | 0          | 4      | 0.17  |
| 'dry'             | 20    | 3              | 10        | 4            | 0          | 3      | 0.30  |
| 'wake up'         | 21    | 3              | 9         | 6            | 1          | 2      | 0.33  |
| 'go out/ put out' | 21    | 3              | 7.5       | 5.5          | 2          | 3      | 0.41  |
| 'sink'            | 21    | 4              | 9.5       | 5.5          | 0.5        | 1.5    | 0.42  |
| 'learn/teach'     | 21    | 3.5            | 7.5       | 6            | 3          | 2      | 0.47  |
| 'melt'            | 21    | 5              | 10.5      | 3            | 0          | 2.5    | 0.48  |
| 'stop'            | 21    | 5.5            | 9         | 3.5          | 0          | 3      | 0.61  |
| 'turn'            | 21    | 8              | 7.5       | 4            | 0          | 1.5    | 1.07  |
| 'dissolve'        | 21    | 10.5           | 7.5       | 2            | 0          | 1      | 1.40  |
| 'burn'            | 21    | 7              | 5         | 2            | 2          | 5      | 1.40  |
| 'destroy'         | 20    | 8.5            | 5.5       | 5            | 0          | 1      | 1.55  |
| 'fill'            | 21    | 8              | 5         | 5            | 0          | 3      | 1.60  |
| 'finish'          | 21    | 7.5            | 4.4       | 5            | 0          | 4      | 1.67  |
| 'begin'           | 19    | 5              | 3         | 3            | 0          | 8      | 1.67  |
| 'spread'          | 21    | 11             | 6         | 3            | 0          | 1      | 1.83  |
| 'roll'            | 21    | 8.5            | 4.5       | 5            | 0          | 3      | 1.89  |
| 'develop'         | 21    | 10             | 5         | 5            | 0          | 1      | 2.00  |
| 'get lost/lose'   | 21    | 11.5           | 4.5       | 4.5          | 0.5        | 0      | 2.56  |
| 'rise/raise'      | 21    | 12             | 4.5       | 3.5          | 1          | 0      | 2.67  |
| 'improve'         | 21    | 8.5            | 3         | 8            | 0          | 1.5    | 2.67  |
| 'rock'            | 21    | 12             | 40        | 3.5          | 0          | 1.5    | 3.00  |
| 'connect'         | 21    | 15             | 2.5       | 1.5          | 1          | 1      | 6.00  |
| 'change'          | 21    | 11             | 1.5       | 4.5          | 0          | 4      | 7.33  |
| 'gather'          | 21    | 15             | 2         | 3            | 0          | 1      | 7.50  |
| 'open'            | 21    | 13             | 1.5       | 4            | 0          | 2.5    | 8.67  |
| 'break'           | 21    | 12.5           | 1         | 4            | 0          | 3.5    | 12.50 |
| 'close'           | 21    | 15.5           | 1         | 2.5          | 0          | 2      | 15.50 |
| 'split'           | 20    | 11.5           | 0.5       | 5            | 0          | 3      | 23.00 |
| 'die/kill'        | 21    | 0              | 3         | 1            | 16         | 1      | —     |
| Total             | 636   | 243            | 164.5     | 128.5        | 69         | 31     |       |

Both Nedjalkov & Sil'nickij (1969/1973) and Haspelmath (1993) explained the distributions they identified from the perspective of the likelihood of spontaneous occurrence. This can be expressed on a scale, as in the following example:



(Nedjalkov & Sil'nickij, 1969/1973; Haspelmath, 1993)

Haspelmath (1993) elaborated on the sensitivity of alternation-type selection to the likelihood of spontaneous occurrence as follows:

- (5) Verb meanings on the left of this scale (e.g. ‘wash’) are so unlikely to occur spontaneously that they can never or almost never occur in an inchoative/causative alternation. The closest approximation to an inchoative version is a passive (‘is washed’). The next category of verbs (e.g., ‘close’) is somewhat more likely to occur spontaneously, but still normally caused externally. Such verbs show a preference for anticausative expression. Verb meanings further to the right are increasingly more likely to occur spontaneously. In verbs like ‘melt’ there is a preference for causative expression, for which anticausative expression is still possible. Finally, in verb on the right of the scale only causative derivations are possible. (Haspelmath, 1993)

This sensitivity can be explained by a general principle of iconicity: that cognitively marked categories tend also to be structurally marked (Givon, 1991, p. 106). Based on this principle, it is reasonable to conjecture that lability favors verb pairs that stand near the middle of the spontaneity scale: i.e., representing events that are neither so spontaneous as to render causative marking unnecessary, nor so heavily reliant on external force that anticausative marking is not needed either. However, Nedjalkov & Sil'nickij (1969/1973) and Haspelmath (1993) both refrained from drawing conclusions about non-directed inchoative/causative verb alternation systems, possibly due to the lack of clear patterns in their data.

The inchoative/causative verb alternation on which Nedjalkov & Sil'nickij's (1969/1973) and Haspelmath's (1987, 1993) studies were centered is defined as a pair of verbs that express the same basic situation – generally a change of state, or more rarely a going-on – and that differ only in that the causative verb meaning includes an agent participant who causes the situation, whereas the inchoative verb meaning excludes a causing agent and presents the situations as occurring spontaneously (Haspelmath, 1993). In other words, a change of state is generally assumed in the verb pairs that these authors

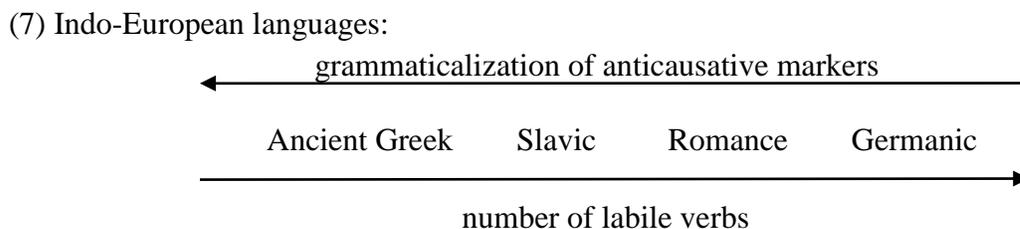
picked for their respective cross-linguistic investigations. It has also been pointed out repeatedly that concepts of actions involving agent-oriented meaning components, such as tools or methods, virtually never occur in inchoative/causative verb alternation (Haspelmath, 1987, 1993). The verb ‘cut’ was cited as an example: it minimally differs from ‘tear’, in that it has the agent-oriented meaning component ‘by means of a sharp instrument’, but while ‘tear (tr.)’ has a corresponding inchoative verb – ‘tear (intr.)’ – ‘cut’ lacks one.

The study of verb lability did not end with Haspelmath’s discussion. It became a consensus that lability does not usually spread to all verbs; rather, it is subject to certain semantic restrictions (Gianollo, 2014; Haspelmath 1987, 1993; Heidinger, 2014; Kulikov, 2003; Letuchij, 2004; Letuchiy, 2009, 2015; Mcmillion, 2006). With specific reference to semantic restrictions, Letuchij (2004) proposed four groups of verbs that are labile more often than others, with the first being phase verbs, corresponding to the English verbs ‘finish’ and ‘begin’; evidence for this was drawn from a range of typologically remote languages including German, Bulgarian, Arabic, and Turkish. It is noteworthy that on Haspelmath’s (1993) spontaneity scale, phase verbs were in the middle. So, the high probability that phase verbs will be labile coincides with the predications of the principle of iconicity: i.e., that verbs denoting caused events are more likely to be anticausative-marked, and those denoting spontaneous events, causative-marked.

Moreover, Letuchiy (2009) found that Indo-European languages including Greek, Russian, and German use more anticausative marking than causative marking, whereas Caucasian languages including Georgian and Lezgian are comparatively more developed in causative marking. After examining verb lability in the major Indo-European and Caucasian languages, she proposed the following contrast:

- (6)
- |                                     |     |                                 |
|-------------------------------------|-----|---------------------------------|
| <u>Indo-European</u> languages:     | Vs. | <u>Caucasian</u> languages:     |
| Grammaticalization of anticausative |     | Grammaticalization of causative |
| “spontaneous” labile verbs          |     | “non-spontaneous” labile verbs  |
|                                     |     | (Letuchiy, 2009)                |

In the Indo-European languages in particular, Letuchiy (2009) found a negative correlation between the degree of grammaticalization of anticausative markers and the number of labile verbs, as shown in example (7).



(Letuchiy, 2009)

Based on these findings, she argued that properties of labile systems depend on areal and grammatical properties. The main grammatical parameter is determined by properties of derivational markers – not only their (non)existence, but also their degree of grammaticalization (Letuchiy, 2009). In other words, the occurrence of verb lability negatively correlates with the degree of grammaticalization of causative/anticausative.

If the hypothesized correlation between labile systems and grammatical properties is correct, then languages with little morphology are presumably rich in verb lability; and this reasoning has been used to account for “the overwhelming preference for labile verbs” in English (Nichols, 1986, p. 57; see also Haspelmath, 1993). However, data from isolating languages have never been included in such analyses, despite being necessary to meaningful testing of this hypothesis, according to Haspelmath (1993) himself.

### 3. Two factors determining verbal lability in Chinese

#### 3.1 Change of state

In discussions of the anticausative, a defining property of the inchoative/causative verb pairs is that they express the same basic situation, which is primarily a change of state (cf. Haspelmath, 1987, 1993; Nedjalkov & Sil’nickij, 1969/1973). Based on this criterion, Haspelmath (1993) extrapolated that three large classes of situations are excluded from the inchoative/causative alternation:

- (8) First, a state cannot be the inchoative member of an inchoative/causative alternation. Second, an action that does not express a change of state (e.g. ‘help’, ‘invite’, ‘cite’, ‘criticize’, ‘read’) cannot be the causative member of such an alternation. Third, agentive intransitive verbs like ‘talk’, ‘dance’, ‘work’, etc. cannot be the inchoative member of an inchoative/causative pair because they are not conceived of as occurring spontaneously. This still leaves us with a large class of transitive verbs such as ‘wash’, ‘build’, ‘cut’, ‘dig’, ‘paint’, etc., which do express a change of state. (Haspelmath, 1993)

Haspelmath’s (1993) above-cited opinion coincides with the causal approach to lexical semantics (cf. Croft, 1991; Leven & Rappaport Hovav, 2005), which was introduced to account for transitivity alternation in English. According to Levin & Rappaport Hovav (2005, p. 117), the causal approach to lexical semantics “takes the facets of verb meaning relevant to argument realization to involve the causal structure of the events denoted”. Tsunoda’s (1981, 1985) simplified hierarchy, which originally organized the semantic classes of two-place verbs according to the likelihood of their members’ transitivity, was adopted by Levin (2009) in the following form:

- (9) Change of state > Surface contact > Perception/cognition

Examples are as follows:

- (10) Change-of-state verbs: break, open, close, warm, dim, cool, flatten, ...  
 Surface-contact verbs: hit, kick, shoot, slap, beat, wipe, rub, scratch, sweep, ...  
 Perception/cognition verbs: hear, see, smell, know, enjoy, fear, hate, ...  
 (adapted from Levin, 2009)

Change-of-state verbs (including change-of-location verbs) are perceived as inherently causative. Citing Croft (1991, 1994, 1998), DeLancey (1984), Langacker (1987), and Talmy (1976), Levin (2009) concluded that “one instantiation of the causal approach models events in terms of individuals acting on individuals, thus involving causal chains, consisting of a series of segments (or ‘atomic events’), each relating two participants in the event” and that “a single participant may be involved in more than one segment”. The transitive form of ‘break’ has been used as an example to illustrate the causal chain, as follows:

- (11) *Harry broke the vase*. Modelled with a three-segment causal chain:  
 (i) Harry acts on the vase  
 (ii) the vase changes state  
 (iii) the vase is in a result state (i.e., broken)  
 (Croft, 1994, p. 38)

Complex event structures can be observed for this kind of verbs.

- (12) break: [ [ x ACT ] CAUSE [ BECOME [ y <BROKEN> ] ] ]  
 (Levin & Rappaport Hovav, 2005, p. 113)

In English, only change-of-state verbs are labile and able to participate in transitivity alternation. In Chinese, the situation is more or less the same, as shown in the following example:

- (13) a. 琳琳 完成 了 论文。  
 Linlin wancheng-le lunwen.  
 Linlin complete-LE paper  
 ‘Linlin completed her paper.’  
 b. 论文 完成 了。  
 Lunwen wancheng-le.  
 paper complete-LE  
 ‘The paper is completed’

Something special about Chinese is the existence of verb compounds. Even if a verb does not inherently encode a change of state, it may combine with a resultative complement to express a change-of-state event. For example:

- (14) a. 琳琳 买好了 礼物。  
 Linlin mai-hao-le liwu.  
 Linlin buy-ready-LE gift  
 ‘Linlin bought a gift.’  
 b. 礼物 买好了。  
 liwu mai-hao-le.  
 gift buy-ready-LE  
 ‘The gift is ready.’

Occasionally, when combined with certain verbs, the aspect marker 了 *le* can imply a change of state:

- (15) a. 琳琳 吃了 蛋糕。  
 Linlin chi-le dangao.  
 Linlin eat-LE cake  
 ‘Linlin ate the cake.’  
 b. 蛋糕 吃了。  
 Dangao chi-le.  
 cake eat-LE  
 ‘The cake is eaten.’

In contrast, agentive intransitive verbs such as 工作 *gongzuo* ‘work’ can never participate in this type of transitivity alternation.

- (16) a. 琳琳 在 工作。  
 Linlin zai gongzuo.  
 Linlin PROG work  
 ‘Linlin is working.’  
 b. \*爸爸 工作 琳琳。  
 Baba gongzuo Linlin.  
 father work Linlin  
 ‘Father caused Linlin to work.’

### 3.2 Spontaneity

A problem remains with regard to the potential correlation between the spontaneity of events and the distribution of verbs. In an attempt to test this correlational

conjecture in Modern Mandarin, I selected as target verbs the Chinese counterparts of six change-of-state verbal characters that differ markedly in spontaneity, according to Haspelmath's (1993) spontaneity scale shown in Table 3<sup>1</sup>. Specifically, these targets were 醒 *xing* 'wake', 停 *ting* 'stop', 完 *wan* 'finish', 丢 *diu* 'lose/be lost', 开 *kai* 'open' and 破 *po* 'break'. Additionally, in consideration of the fact that resultant states in Modern Mandarin can also be implied by the aspect marker 了 *le* being added to some action verbs, 买 *mai* 'buy' and 吃 *chi* 'eat' were also included, as representatives of change-of-state events that absolutely cannot occur spontaneously.

These eight target verbs were searched for in the Modern Mandarin part of Cncorpus. Since the number of tokens for each target verb was immense, 500 tokens of each target were randomly selected for coding, and tokens of their intransitive use enumerated. For each verbal character, the type frequency of the intransitive labile construction (the intransitive use of a labile verb, ILC, henceforth) is presented in Table 4, with its estimated faithfulness<sup>2</sup> shown as a percentage.

Table 4.

*Faithfulness to the intransitive labile construction of verbs differing in spontaneity*

| Verbal character            | Token frequency   | ILC Type Frequency | Faithfulness to ILC |
|-----------------------------|-------------------|--------------------|---------------------|
| 醒 <i>xing</i> 'wake'        | 256               | 211                | 82.42%              |
| 停 <i>ting</i> 'stop'        | 385               | 277                | 71.95%              |
| 完 <i>wan</i> 'finish'       | 433 <sup>14</sup> | 180                | 41.57%              |
| 开 <i>kai</i> 'open'         | 469               | 148                | 31.56%              |
| 破 <i>po</i> 'break'         | 210               | 65                 | 30.95%              |
| 丢 <i>diu</i> 'lose/be lost' | 410               | 114                | 27.80%              |
| 吃 <i>chi</i> 'eat'          | 422               | 39                 | 9.24%               |
| 买 <i>mai</i> 'buy'          | 639               | 45                 | 7.04%               |

*Note.* If the target character occurred in a token's subject or object (including cases in which the character independently occurs as a modifier or in a relative clause), it was not counted for the token-frequency purpose. Data presented in the table include tokens in which target characters play various roles in the predicates (i.e., independent, X of 'XY' compound verbal, or Y of 'XY' compound verbal).

<sup>1</sup> Although this paper acknowledges the fact that events differ in the likelihood of spontaneous occurrence and the overall tendency proposed by Nedjalov & Sil'nickij (1969/1973) and Haspelmath (1993), it needs to be noted that the specific order of events on the spontaneity scale (Haspelmath, 1993) needs to be interpreted with caution. It is hard to say which event is more likely to occur spontaneously among 'boil' and 'freeze'. Essentially, Haspelmath's (1993) finding is based on quantitative analysis of 21 languages. If the sample size increases, there may be some variability. Therefore, the target verbs that I selected are those significantly differ in terms of spontaneity.

<sup>2</sup> The term 'faithfulness' here refers to how often a verb occurs in a certain construction.

The faithfulness of verbal characters to the intransitive labile construction can be graphed, as shown in Figure 1.

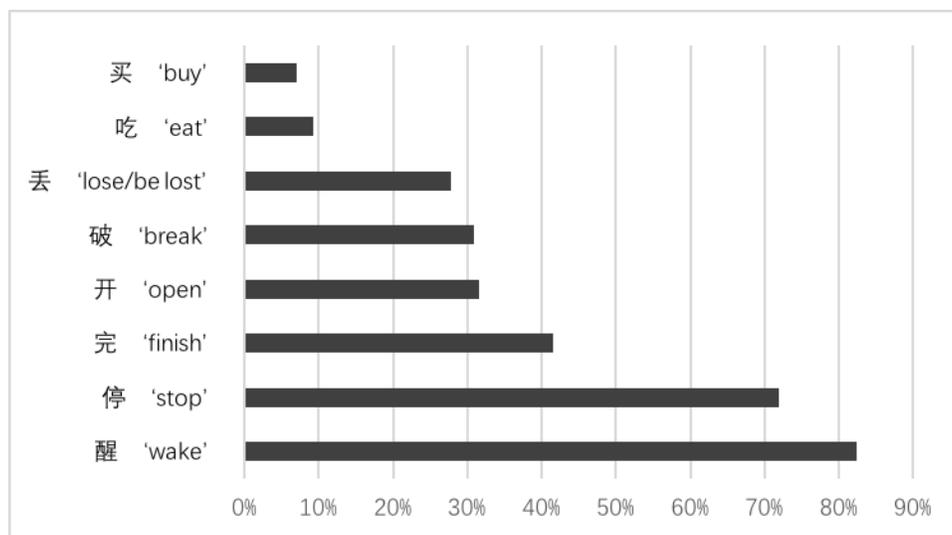


Figure 1.

Faithfulness to the intransitive labile construction of verbs differing in spontaneity

It can clearly be observed from Figure 1 that, as the spontaneity of the event increases, faithfulness to the intransitive labile construction also increases (i.e., the verb is used intransitively more often than used transitively). This strongly supports the hypothesized relation between the spontaneity of a change-of-state event and the lability of the verbal that describes it. It is especially interesting that the faithfulness of the phase verb 完 *wan* 'finish' to the intransitive labile construction is closest to 50% among all eight of the target verbal characters, suggesting that it occurs in the predicates of transitive structures and intransitive structures with roughly equal frequency. In this context, it is worth reiterating that in Letuchij's (2004) cross-linguistic investigation, phase verbs were found to be labile more often than other groups of verbs; and that on Haspelmath's (1993) spontaneity scale, phase verbs occur in the middle. Thus, my finding that the transitive use of 完 *wan* 'finish' is generally as frequent as its intransitive use in Modern Mandarin provides another piece of empirical evidence that phase verbs occupy a central position in the radial category of labile verbs. Centered around 完 *wan* 'finish', this pattern sees 停 *ting* 'stop' and 醒 *xing* 'wake' occur more frequently in intransitive use, whereas 开 *kai* 'open', 破 *po* 'break' and 丢 *diu* 'lose/be lost' are more frequently used transitively. All of this is generally consistent with these verbs' ranks on the spontaneity scale, apart from the fact that the spontaneity differences between 开 *kai* 'open', 破 *po* 'break' and 丢 *diu* 'lose/be lost' are not reflected in their distributions. It

can also be observed that the commonly known transitive verbs 买 *mai* 'buy' and 吃 *chi* 'eat', which definitely cannot happen spontaneously, are indeed predominantly used transitively, although they can imply a change of state when co-occurring with 了 *le*.

### 3.3 The Interaction of Two Factors

In the previous two sections, we have seen that the lability of verbs is sensitive to two factors: the involvement of change/non-change of state in, and the likelihood of spontaneous occurrence of, the events they describe. Based on these two factors, events can be categorized into four types: (i) change of state, spontaneous; (ii) change of state, caused by external force; (iii) non-change of state, but affected by external force; (iv) non-change of state, but spontaneous. Surface-contact verbs (including exertion-of-force verbs) and perception/cognition verbs express events that are affected by external force, but do not involve changes of state. States and agentive intransitive verbs are also non-change-of-state, but can be considered spontaneous (since they are definitely not affected by external forces). They are excluded from the category of labile verbs by the change-of-state factor. Change-of-state events' transitive/intransitive distribution in Modern Mandarin is largely related to their likelihood of spontaneous occurrence: the more likely an event is to occur spontaneously, the more dominant its intransitive use will be, and vice versa. Inasmuch as the factor of spontaneity in verbal semantics is not dichotomous but scalar, and some Chinese action verbs can imply changes of state in the perfective aspect, the abovementioned four types of events are not mutually exclusive, and thus Figure 2 includes a shaded area presenting the prototype of labile verbs. The darker the shade, the more labile the verb is. The percentage in the bracket show how often the verb is used intransitively in corpus data.

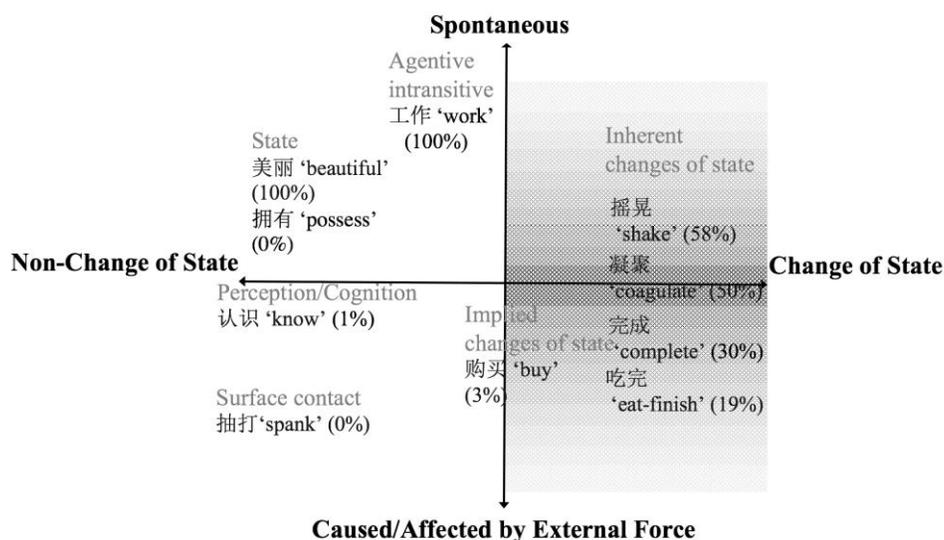


Figure 2. Four types of events based on two factors

#### 4. The prototype of verbal lability and its extension in Chinese

Assuming that there is no clear-cut border between transitive verbs and intransitive verbs, and that labile verbs (and verb compounds) constitute a radial category, its central members and peripheral members in Modern Mandarin can be identified, as follows:

##### 4.1 Prototypical labile verbs

Prototypical labile verbals inherently denote change-of-state events that can commonly happen spontaneously or caused by outside forces. Representative semantic frames include:

(17) a. Phase verbs (change of state in the temporal domain):

开始 *kaishi* ‘start’, 完成 *wancheng* ‘complete’, 结束 *jieshu* ‘finish’, 终结 *zhongjie* ‘end’, etc.

b. Verbs of moving (change of state in the spatial domain):

动 *dong* ‘move’, 抖 *dou* ‘tremble’, 摇 *yao* ‘swing’, 晃 *huang* ‘shake’, 摆 *bai* ‘sway’, 升 *sheng* ‘ascend’, 降 *jiang* ‘descend’, 停 *ting* ‘stop’, 聚 *ju* ‘accumulate’, 散 *san* ‘disperse’, 转 *zhuan* ‘turn’ and compound verbals formed by them that do not contain agent-oriented meaning components.

Prototypical labile verbals feature comparable levels of contingency to the transitive use (including in the disposal structures and cases of object deletion) and the intransitive use. Verbs denoting these types of events are also the most likely to be labile in other languages (cf. Letuchij, 2004; Mcmillon, 2006).

##### 4.2 Transitive-dominated labile verbs

In comparison with prototypical labile verbs, some labile verbs are more frequently used transitively than intransitively. Verbs denoting change-of-state events that are typically caused by outside forces, and actions that bring about changes of state, belong to this group – which in Modern Mandarin is oftentimes expressed by ‘action-resultant state’ compounds. Some common semantic frames are as follows:

(18) a. Verbs of breaking:

毁 *hui* ‘ruin’, 灭 *mie* ‘extinguish’, 破坏 *pohuai* ‘destroy’, 毁灭 *huimie* ‘destroy’, etc.

Resultative compounds 打碎 *da-sui* ‘break’, 打破 *da-po* ‘break’, 弄坏 *nong-huai* ‘break’, etc.

b. Creation verbs:

做 *zuo* ‘make’, 制 *zhi* ‘make’, 造 *zao* ‘produce’, 写 *xie* ‘write’, 作 *zuo* ‘make’, 画 *hua* ‘draw’, 唱 *chang* ‘sing’, 建 *jian* ‘build’, etc.

Resultative compounds 做完 *zuo-wan* ‘do-finish’, 画好 *hua-hao* ‘draw-complete’, 创作完成 *chuangzuo-wancheng* ‘create-complete’, 唱错 *chang-cuo* ‘sing-wrong’, etc.

V+VP, V+PP or descriptive complement structures 写成论文 *xie-cheng lunwen* ‘write up as a paper’, 写得精彩 *xie-de jingcai* ‘is written wonderfully’, 建在市中心 *jian-zai shizhongxin* ‘be built at downtown area’, etc.

c. Transfer verbs:

买 *mai* ‘buy’, 卖 *mai* ‘sell’, 给 *gei* ‘give’, 送 *song* ‘deliver’, 传 *chuan* ‘pass’, 放 *fang* ‘put’, 运 *yun* ‘carry’, etc.

Resultative compounds 买来 *mai-lai* ‘buy-come’, 卖完 *mai-wan* ‘sell-finish’, 卖掉 *mai-diao* ‘sell-out’, 送还 *song-huan* ‘deliver-return’, 放下 *fang-xia* ‘put-down’, etc.

VP, V+VP, V+PP or descriptive complement structures 授予琳琳 *shouyu Linlin* ‘award/be awarded to Linlin’, 送给琳琳 *song-gei Linlin* ‘give to Linlin’, 放在桌子上 *fang-zai zhuozi-shang* ‘put on the table’, etc.

Along this direction on the periphery of the radial category of lability lie verbals denoting change-of-state actions in which the theme and the agent are the same in terms of animacy, especially when both are human beings. These include compound verbals structured around 打 *da* ‘hit’, 骂 *ma* ‘scold’, 杀 *sha* ‘kill’, 表扬 *biaoyang* ‘praise’, 批评 *piping* ‘criticize’, 邀请 *yaoqing* ‘invite’ and 帮助 *bangzhu* ‘help’. Although resultant states can be expressed by compounding, sentences are usually ambiguous when these verbals are used intransitively. Readings of object deletion and of transitivity alternation are both allowed, as shown in the famous example:

(19) 鸡 不 吃了。

Ji bu chi-le.

chick NEG eat-LE

‘The chick does not eat (anything). / The chick will not be eaten.’

(Chao, 1959)

Signaling that the only overt argument is the theme, 被 *bei* is frequently used as a device for eliminating this ambiguity. By definition, if the intransitive use of a verbal is marked, it can no longer be treated as labile.

Compared to other lability-attested languages, Chinese has an exceptionally rich repertoire of transitive-dominated labile verbs. In languages that are more morphologically developed, the intransitive use of transfer verbs, creation verbs and other action verbs tends to be marked as anticausative or passive.

### 4.3 Intransitive-dominated labile verbs

Some Chinese labile verbs tend to be used intransitively more often than transitively. Verbs that fall into this group include those indicating change-of-state events that typically happen spontaneously. Intransitive-dominated labile verbs do not often take prototypical themes, since spontaneity is related to agentivity (Cysouw, 2008). Specifically, if an event only involves one participant, it being spontaneous means the participant acts volitionally, in the sense that it deliberately instigates the action and has control over it, which makes it an agent (cf. O'Grady, 2013, p. 46). It is also known that agentive intransitives such as 工作 *gongzuo* 'work' are never used transitively in Modern Mandarin, so the subjects of intransitive-dominated labile verbs when used intransitively are neither prototypical agents nor prototypical themes. The following are some common semantic frames:

(20) a. Uncontrolled process:

沉 *chen* 'sink', 熔 *rong* 'melt', 化 *hua* 'melt', 醒 *xing* 'wake up', 干 *gan* 'dry', etc., and compounds formed by them that do not involve agent-oriented meaning components, e.g., 化开 *hua-kai* 'melt-open= dissolve', 沉没 *chen-mo* 'sink-submerge = sink', 溶解 *rongjie* 'dissolve', etc.

b. Change of location (controlled):

来 *lai* 'come', 到 *dao* 'arrive', 去 *qu* 'go' and 回 *hui* 'return'

Along this direction of intransitive dominance, the peripheral labile verbs are 坐 *zuo* 'sit', 站 *zhan* 'stand' and 躺 *tang* 'lie'. On the one hand, they denote volitional actions, but on the other, they can also express modes of existence, which are stative. The transitive use of them is normally referred to as locative inversion, if locative inversion is considered as a transitive structure.

(21) a. 床 上 坐 着 一 个 人。

Chuang-shang zuo-zhe yi-ge ren.  
bed above sit-ZHE one-CL person  
'There is a person sitting on the bed.'

b. 一 个 人 坐 着。

Yi-ge ren zuo-zhe.  
One-CL person sit-ZHE  
'There sits a person'.

### 5. Change of state: the cognitive base of verbal lability

A change of state means that something exists in a different way than it did before, entailing an initial state and a final state. A change of state can occur spontaneously or result from external force, and in human languages is typically

expressed by verbs (the term verb is used in cognitive linguistics for any expression that profiles a process: e.g., Langacker, 2008, p. 354). So, change-of-state verbs inherently feature complex event structures; as Croft (1991, p. 173) put it, “the prototypical event type that fits this model is unmediated volitional causation that brings about a change in the entity acted on (i.e. the manifestation of the transmission of force)”. This can be represented by the following diagram, in which ‘AG’ signifies agent, and ‘TH’, theme:

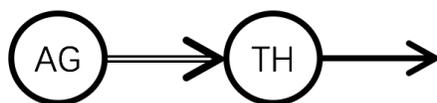


Figure 3. The complex event structure of change-of-state verbs

This complex event structure automatically gives way to two competing strategies of profiling in human construal: **agent orientation** and **theme orientation**. According to Langacker (2008, p. 355), since it is difficult to attend to a complex occurrence in a global and wholly neutral fashion, attention, as a limited resource, has to be allocated. As a matter of focal prominence, **trajector** and **landmark** are the primary and secondary focal participants in a profiled relationship, and subject/object relations are grammatical manifestations of trajector/landmark alignment. A subject is a nominal that codes the trajector of a profiled relationship, and an object is one that codes the landmark. It should be noted, however, that (i) different allocations are possible for a given structure, and (ii) the choice of trajector is a pivotal factor in canonical alignment. The key difference between the two major profiling strategies is that one aligns the trajector with the agent, and the other aligns it with the theme.

- (22) Agent and theme attract focal prominence because each has a kind of cognitive salience that sets it apart from other semantic roles in its experiential realm. Agents belong to the “active” realm – that of action, change, and force, of mobile creatures acting on the world. Here a willful human actor stands out as a paragon with respect to other active roles (like instrument, experiencer, or natural force). On the other hand, themes belong to the “passive” realm of settings, locations, and stable situations, where objects with particular properties are arranged in certain ways. The world thus constituted defines our circumstances, presents both problems and opportunities, and serves as the platform for human activity. (Langacker, 2008, p. 370)

In the complex event structure of a change of state, both participants have a chance of being profiled as the trajector, which means that each of them can be the subject of a clause: lability arises. In this sense, lability inherently hinges on change-of-state events.

Correspondingly, in a state or in an agentive intransitive event, because only one participant is involved, no alternative method of profiling is available. Meanwhile, in an

event depicted by a surface-contact verb or a perception/cognition verb (without any complement), the theme does not undergo any change – and sometimes is not even affected – so the focal prominence is naturally assigned to the agent, which starts this process. However, the presence of verb compounds makes the situation more complicated in Chinese. Some surface-contact verbs and perception/cognition verbs can be endowed with lability by verb complements, which themselves are typically stative or change-of-state, insofar as these theme-oriented elements increase the chance of the theme being profiled as the trajector.

This also sheds additional light on the factor of spontaneity. A position high on the spontaneity scale generally means that a situation is not likely to be caused by external force in the human world; it thus also indicates a low chance of the agent bearing the focal prominence in construal. Conversely, a low spontaneity-scale position suggests a high probability of focal prominence being placed on the agent. This explains the reason why we saw, in section 3.2, that as the spontaneity of a change-of-state event increases, the faithfulness of verbs to the intransitive labile construction also increases.

## 6. Summary

Prior cross-linguistic investigation of lability suggested (i) that it functioned as a substitute for the causative or anticausative, depending on which of the two is not morphologically marked in a given language (Haspelmath, 1993); and (ii) that in human languages, some groups of verbs are more frequently labile than others (Letuchij, 2004). Based on quantitative data on the realizations of a number of causative/inchoative verb pairs in more than twenty languages, Haspelmath has also suggested that lability is related to change-of-state events and a spontaneity scale. However, isolating languages that lack grammaticalized causative/anticausative markers have, until now, been completely left out of this discussion.

This paper has identified an overwhelmingly large group of labile verbs in Chinese, supporting the conjecture that languages not rich in morphology are presumably rich in verbal lability (e.g., Nichols, 1986, p. 57; Haspelmath, 1993). Nevertheless, some verbs in Chinese are more labile than others. Differing degrees of verbal lability are reflected in verb-construction contingency: verbs that are more labile, such as phase verbs, display comparable levels of faithfulness to the transitive structure and the intransitive structure; whereas verbs that are less labile have a main use and a peripheral use in respect to transitivity and intransitivity. Consistent with previous cross-linguistic findings, this chapter has shown that the degree of verbal lability in Chinese is determined by two factors: change of state and spontaneity of the event. Of these two factors, (non)change of state is the more basic, as the complex event structure it represents gives way to two competing strategies of profiling in human construal, agent orientation and theme orientation, which in turn lead to the transitive and intransitive use of a verbal, respectively. Therefore, a change of state can be described as inherent to verbal lability, and is the prototypical function of the transitive and intransitive

constructions formed by labile verbs. Built upon the change-of-state factor, the contingency between labile verbs and their transitive/intransitive use is sensitive to the likelihood of spontaneous occurrence of the events they express. If the event is more likely to occur spontaneously, the verb will be more faithful to the intransitive use, and vice versa.

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## When Speaker-Oriented Adverb also Functions as Focus Particle -- Syntax and Semantics of Mandarin Chinese *pianpian*

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In this study, we identify and analyze a frequently used adverb *pianpian* 偏偏 in Mandarin Chinese and claim that it is a speaker-oriented adverb as well as a strictly scalar exclusive focus particle. The analysis is based on data from CCL corpus. *Pianpian* is special as a speaker-oriented adverb in that it evaluates a pair or a group of related propositions on the scale of surprise or undesirableness and it is special as a focus particle as the scalar feature of *pianpian* is non-optional and does not depend on the lexical specification of the focus. In addition, the negation of the more expected alternatives by *pianpian* gives rise to interesting interactions with surprisal, speaker-orientedness etc.

### 1. Introduction

Previous studies have noticed the speaker-oriented adverb (hereinafter SOA) function of *pianpian* (Yang 2007, Hong 2012, Guo 2014 and Zhang 2014). Most of them classifies it into the sub-class of evaluative adverb (Yang 2007, Hong 2012, Guo 2014, and Zhang 2014), but some others state it is a modal adverb (Chen 2008 and Yu 2013).

For the subjective meaning *pianpian* expresses: some researchers argue it is associated with surprise (Ding 2005 and Yu 2013), some say it is associated with discontent (Hong 2012 and Xu 2013), others that *pianpian* can express both meanings (Fan 2009 and Hu 2009).

Literature from perspectives of both Mandarin focus particles and SOA pays no or little attention to focus particle function of *pianpian* (see for instance Lü 1980, Hou (ed.) 1998, Paris 1998, Hole 2004). Liu (2008), Guo (2014) and Zhang (2014) label *pianpian* as focus particle though without detailed analysis.

Guo (2014) states that *pianpian* is a modal adverb as well as a focus-sensitive operator. Zhang (2014) argues that *pianpian* is an evaluative adverb which could express the meaning of surprise and desire and the pragmatic functions of *pianpian* are information focus salience, presupposition indication and referent restriction.

- (1) 校长偏偏也想去。  
xiaozhang pianpian ye xiang qu.  
The principal *pianpian* also wants to go.

- (2) 偏偏校长也想去。  
*pianpian xiaozhang ye xiang qu.*  
*Pianpian the principal also wants to go.*

In (1) *pianpian* marks ‘wants to go’ as the focus<sup>1</sup>, while in (2) *pianpian* marks ‘the principal’ as the focus.

From the perspective of discourse, Zhang (2014) argues that *pianpian* functions as a conjunct to add exceptional information which forms supplementary relationship with preceding clause.

I propose *pianpian* to be a SOA (to be more specific, an evaluative adverb) as well as an exclusively scalar exclusive focus particle, which means:

- a. It does not contribute to the truth-conditional meaning of a proposition but adds the speaker’s evaluative judgment to the content of the proposition.
- b. It disallows the alternative(s) (explicit or implicit) to be possible answers for the open sentence (what the speaker takes as the Current Question) in the scope of the particle and displays only scalar reading of the sentence unlike *only*-like exclusive particles.
- c. The scale *pianpian* induces to the understanding of the sentence is constant in the direction of ordering and complex as to the parameter of dimension - ranking focus element at higher level of ordering with the scale of surprise or undesirability.

## 2. Syntactic properties of *pianpian*

*Pianpian* is a SOA expressing speaker’s evaluation towards a proposition. It does not affect the truth-value of the proposition it appears in. In a sentence like “Laotian *pianpian* xiaqi le xue (It *pianpian* has started to snow)”, *pianpian* is used to evaluate the whole proposition “It has started to snow” (i.e. committing the speaker’s attitude) and at the same time maintains the truth-conditional content of the proposition. *Pianpian* can occur in both realis and irrealis sentences to express evaluative meaning. Like other evaluative adverbs, *pianpian* has a higher position in the syntactic hierarchy and usually appears in front and mid positions in a sentence.

*Pianpian* expresses speakers’ evaluation in realis<sup>2</sup> sentences:

Generally, the focus proposition of *pianpian* is an event which happens or exists in the actual world, and the speaker uses *pianpian* to evaluate this realis event. For instance:

<sup>1</sup> Focus is the part in a sentence which introduces alternatives. (See König 1991 etc.)

<sup>2</sup> Mithun (1999) describes the distinction of realis modality and irrealis modality as “The realis portrays situations as actualized, as having occurred or actually occurring, knowable through direct perception. The irrealis portrays situations as purely within the realm of thought, knowable only through imagination” (See also Palmer 2001).

- (3) 眼看该上班了，可，老天偏偏下起了雪。<sup>3</sup>  
 yankan gai shangban le, ke, laotian pianpian xiaqi le xue.  
 It is almost time to go to work, but, it pianpian has started to snow.
- (4) 这些不起眼而又容易做到的事，文明的张家港人偏偏做好了。  
 zhexie buqiyan er you bu rongyi zuodao de shi, wenming de Zhangjiagang  
 ren pianpian zuohao le.  
 These tiny though difficult things, the civilized citizens of Zhangjiagang  
 pianpian have done them well.

In these two sentences, “It has started to snow” and “the civilized citizens of Zhangjiagang did them well” are typical realis events. And *pianpian* represents speakers’ evaluation towards these propositions without changing their truth-conditional level of meanings. This argument is supported by the fact that the truth-conditional content of a *pianpian* sentence remains the same when we remove *pianpian* from the sentence. The above two examples (3) and (4) are re-marked as 0 and (6) after deleting *pianpian* from the original versions:

- (5) 眼看该上班了，可，老天 Ø 下起了雪。  
 yankan gai shangban le, ke, laotian xiaqi le xue.  
 It is almost time to go to work, but, it has started to snow.
- (6) 这些不起眼而又容易做到的事，文明的张家港人 Ø 做好了。  
 zhexie buqiyan er you bu rongyi zuodao de shi, wenming de Zhangjiagang  
 ren zuohao le.  
 These are tiny difficult things. The civilized citizens of Zhangjiagang have  
 done them well.

Comparing (3) and 0 , (4) and (6) respectively, we can see that the truth-conditional content of focus proposition maintains: “It pianpian has started to snow” and “It has started to snow” truth-conditionally both express that snowfall happened in the near past and will continue for some time; and “the civilized citizens of Zhangjiagang pianpian did well” and “the civilized citizens of Zhangjiagang did well” both represent same truth-conditional semantic content that people in Zhangjiagang did something well.

*Pianpian* expresses speakers’ evaluation in irrealis sentences:

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<sup>3</sup> Our data is from CCL Contemporary Chinese Corpus. We retrieved 3740 *pianpian* sentences from the CCL Contemporary Chinese Corpus, among which we extracted 500 random sample sentences with preceding context and following context. We then precluded 68 *pianpian* sentences either because *pianpian* in those situations mean intentionally or context information is missing. In total, we annotated 432 random *pianpian* sentences for this study.

*Pianpian* could also occur in irrealis sentences other than realis situations we have mentioned before. For instance, *pianpian* could appear in some interrogatives and the antecedents of conditional:

- (7) 这是我万万没有想到的，我刚到这儿几个月，他们为什么偏偏选择了我这个“外人”来担此重任呢？

zhe shi wo wanwan meiyou xiangdao de, wo gangdao zheer jige yue, tamen weishenmo pianpian xuanze wo zhege wairen lai dan ci zhongren ne?

I would never have expected something like this. I only came here for a few months. Why have they *pianpian* chosen me – an outsider to take this heavy responsibility?

- (8) 如果你偏偏是一个胆怯的人，只是不得已才过上独身生活，那你就更容易感受到芸芸众生施于你的压力了。

ruguo ni pianpian shi yige danqie de ren, zhishi budeyi cai guoshang le dushen shenghuo, na ni jiu geng rongyi danshou dao yunyun zhongseng shiyu ni de yali le.

If you *pianpian* are very timid and you only live by yourself unavoidably, then it would be easier for you to feel pressure more people around you.

After removing *pianpian* in these two examples, We re-label them as (9) and (10).

- (9) 这是我万万没有想到的，我刚到这儿几个月，他们为什么  $\emptyset$  选择了我这个“外人”来担此重任呢？

zhe shi wo wanwan meiyou xiangdao de, wo gangdao zheer jige yue, tamen weishenmo xuanze wo zhege wairen lai dan ci zhongren ne?

I would never have expected something like this. I only came here for a few months. Why have they chosen me – an outsider to take this heavy responsibility?

- (10) 如果你  $\emptyset$  是一个胆怯的人，只是不得已才过上独身生活，那你就更容易感受到芸芸众生施于你的压力了。

ruguo ni shi yige danqie de ren, zhishi budeyi cai guoshang le dushen shenghuo, na ni jiu geng rongyi danshou dao yunyun zhongseng shiyu ni de yali le.

If you are very timid and you only live by yourself unavoidably, then it would be easier for you to feel pressure more people around you.

In (9), what is under question is still the same as (7) – the reason why I as outsider have been chosen to be the leader of the group. Similarly, (8) and (10) have the same antecedent of conditional – you are timid.

From these two examples, we can see that in irrealis situations *pianpian* does not affect the truth-conditional level of meaning. *Pianpian*, interrogative markers and conditional markers (and other irrealis modality markers) are separate operators act on

the truth-conditional content. The existent of irrealis markers does not affect the function of *pianpian*.

The fact that *pianpian* does not influence the truth-conditional contents of both realis sentences and irrealis sentences illustrates that *pianpian* is a subjective adverb which commits the speaker's attitude or evaluation to either a realis event or an irrealis event.

*Pianpian* is higher in the syntactic hierarchy and usually occurs before negatives adverbs, modal adverbs and degree adverbs etc. in a sentence.

*Pianpian* occurs before negative adverbs:

*Pianpian* could only occur before negative adverbs *bu* (not) and *meiyou* (not), and never occur after them. For example:

- (11) 他偏偏没有去北京。  
 ta pianpian meiyou qu Beijing.  
 He pianpian didn't go to Beijing.
- (12) \*他没有偏偏去北京。  
 ta meiyou pianpian qu Beijing.  
 \*He didn't pianpian go to Beijing.

(11) is grammatical, (12) is ungrammatical because negative adverb *meiyou* (not) appears before *pianpian*. The speaker's evaluation *pianpian* conveys cannot be negated. This is different from fact-based content which contrarily can be negated. But there is of course some device to challenge or disagree with some subjective information. For (12), a legal way to express disagreement or distinct evaluation is to say "I don't find it surprising at all".

The following are two examples to show that in negative sentences, *pianpian* always appears before negative adverbs *bu* (not) and *meiyou* (not). Reversed order is not grammatical: neither "mei pianpian xueguo youyong (havn't pianpian learned how to swim)" nor "bu pianpian tongyi (don't pianpian agree)" are acceptable.

- (13) 但可悲的是，掉下水的偏偏没学过游泳。  
 dan kebei de shi, diaoxia shui de pianpian mei xueguo youyong.  
 But what is pathetic is that those who fell into the water pianpian haven't learned to swim.
- (14) 可刚的父母偏偏不同意。  
 kegang de fumu pianpian bu tongyi.  
 Kegang's parents pianpian don't agree.  
*Pianpian* occurs before modal adverbs:
- (15) 而当我们无端担心害怕它时，它却偏偏会找上门来。  
 er dang women wuduan danxin haipa ta shi, ta que pianpian hui zhaoshang men lai.

But when we are worried with no reason, it *pianpian* would happen.

- (16)“天上掉馅饼”的事情少之又少。不过对于在德国高校求学的大学生而言，就偏偏能碰上这样的好事——因为那里不收学费。

tianshang diao xianbing de shiqing shaozhiyoushao. Buguo duiyu zai Deguo gaoxiao qiuxue de daxuesheng eryan, jiu pianpian neng pengshang zheyangde haoshi – yinwei nali bushou xuefei.

It is very rare to have free lunches. But college students in Germany are lucky enough to have them as colleges do not charge tuition fees there.

In the above two sentences, the subjective adverb *pianpian* positions before modal adverbs *hui* (would) and *neng* (could). If we change the relative order into “*hui pianpian zhaoshang men lai* (would *pianpian* come to us)” and “*neng pianpian have this kind of luck*”, then sentences become ungrammatical.

*Pianpian* occurs before degree adverbs:

- (17)可是，他现在 28 岁，正是成家立业最需要钱的时候，而此时偏偏最没有现金，还负债！

keshi, ta xianzai 28 sui, zheng shi chengjialiyue zui xuyao qian de shihou, er cishi pianpian zui meiyou xianjin, hai fuzhai.

He is 28 years old now. He needs money to get married and start up his career urgently. However he *pianpian* doesn't have any money now, on the contrary, he is in debt!

- (18)当天却偏偏有些多云，我不免有些担心。

dangtian pianpian youxie duoyun, wo bumian youxie danxin.

But that day it *pianpian* was a bit cloudy. So I was a bit worried.

In (17) and (18), subjective adverb *pianpian* occurs before *zui* (most) and *youxie* (to some degree), but when it appears after them, we find the two expressions become unacceptable: “\**zui pianpian meiyou xianjin* (*pianpian* is quite poor)” and “\**youxie pianpian duoyun* (it is *pianpian* a bit cloudy)”.

### 3. Exclusiveness of *pianpian*

Exclusiveness of *pianpian* means that it excludes (or negates) the alternative proposition of the focus proposition *pianpian* occurs in. For instance, if someone says, “*Banli de henduo tongxue yiqi qu kao yanjiusheng, pianpian Xiaoli kaoshang le* (A large number of students in our class have participated in the graduate school entrance examination, *pianpian* Xiaoli passed the exam.)”, we know that other students didn't pass the exam, i.e. the proposition that other student passed the exam is false. However, if the speaker has not used *pianpian* in the utterance, and only says, “*Banli de henduo tongxue yiqi qu kao yanjiusheng, Xiaoli kaoshang le* (A large number of students in our class have

participated in the graduate school entrance examination, Xiaoli passed the exam.)”, then as hearers we are not sure whether other classmates have succeeded in the exam or not. This simple test shows the exclusiveness of *pianpian*.

In the following part, we further discuss alternative propositions which are related to the *pianpian* clause based on corpus data. We mainly discuss about two points: a) whether we have observed or inferred the alternative propositions of the *pianpian* sentence; b) how do we judge *pianpian* has excluded the alternative proposition or not.

Focus proposition and alternative proposition of *pianpian* clause:

As we have discussed above, *pianpian* does not change the truth value of the sentence it appears in, for instance, the sentence “Laotian *pianpian* xiaqi le xue (It *pianpian* has started to snow)” in (19) maintains true if *pianpian* is deleted. However, this does not mean that *pianpian* does not contribute any information on the truth-conditional level at all. *Pianpian* commits to the truth-value of the focus proposition and at the same time judges the alternative proposition as false, i. e. *pianpian* requires or restricts a possible world *w* where focus proposition is true and alternative proposition is false. So, strictly speaking, *pianpian* does contribute some information from the truth-conditional content’s perspective though the truth-conditional content of the original proposition maintains, for instance, in the utterance “It *pianpian* has started to snow”, *pianpian* commits to the truth of focus proposition “It has started to snow” and judges the implicit alternative proposition “It won’t snow” as false, i.e. it excludes an implicit contradictory proposition: “It won’t snow”. This implicit proposition can be made explicit in the context:

- (19)眼看该上班了，（我觉得不会下雪了），可，老天偏偏下起了雪。  
 yankan gai shangbanle, (wojuede buhui xiaxue le), ke, laotian pianpian xiaqi le xue.  
 It is almost time to go to work, (I thought it won’t snow), however, it *pianpian* has started to snow.

*Pianpian* informs us that the focus proposition “it has started to snow” is true, and the alternative proposition “It won’t snow” is false. The contradiction between the two propositions is further marked by the contrastive maker *ke* (however). The predicate “Has started to snow” is the focus of *pianpian* sentence. This type of focus is the most frequent one among all the possible focus types in a *pianpian* sentence.

Alternative propositions can also explicitly occur in the discourse, for example,

- (20)本来，它应该在 14 年前就名震全国的，可偏偏命运多舛，使它成了我国石化行业里经历最坎坷的企业。  
 benlai, ta yinggai zai 14 nian qian jiu mingzhenquanguode, ke pianpian mingyunduochuan, shi ta chengle woguo shihua hangye li jingli zui kanke de qieye.

It is expected to get famous nationwide 14 years ago, but it *pianpian* has languished and became the bumpiest company in the petrochemical industry.

“The process of its development is full of setbacks” is the focus proposition, which contrasts with the explicit alternative proposition “It became successful nationwide” in the preceding context. Focus proposition is true and alternative proposition is false, i.e. alternative proposition is excluded.

Among our 432 sample sentences of *pianpian*, 204 examples (47.22%) have explicit alternative proposition in the discourse; 107 examples (24.77%) contain negated components or contradiction triggering expressions in the focus propositions from which we can infer alternative propositions; the left 121 examples (28.00%) require contextual information to infer alternative propositions. That is, about half of the data show explicit alternative propositions and the other half either requires information from focus propositions or information from context to infer alternative propositions.

In CCL corpus, focus proposition of *pianpian* sentence appears in current context; expectation of alternative proposition appears in preceding context; evaluation of focus proposition being more surprising than alternative proposition appears either in preceding context or current context and the evaluation of focus proposition being more undesirable than alternative proposition appears in preceding context, current context or following context.

*Pianpian* excludes explicit alternative propositions:

In the 204 *pianpian* sentences where alternative proposition appear in the context, 94 items (48.04%) at the same time explicitly mark the contrast between the focus proposition and the alternative proposition. For instance,

(21) 印尼队赛前被看成热门队，可偏偏成为了马来西亚队的手下败将。  
yinnidui saiqian bei kancheng remen dui, ke pianpian chengwei le Malaixiya de shouxiabaijiang.

Team Indonesia was expected to win before the game, however it *pianpian* has lost to Team Malaysia.

In this example, the focus proposition *pianpian* appears in – “Indonesian national team has lost to Malaysian national team” has an explicit alternative proposition in the preceding context – “Indonesian national team would win”. The focus “Has lost” and the alternative “would win” form a contradictory relation. It is true that Indonesian national team has lost to Malaysian national team while it is false that Indonesian national team would win, i.e. the proposition “Indonesian national team would win” is excluded.

(22) 有些你以为一辈子都不会碰见的人，偏偏就在你眼前这样走过。  
youxie ni yiwei yibeizi dou buhui pengjian de ren, pianpian jiuzai ni yanqian zheyang zouguo.

Some people, who you thought you wouldn't meet them in your whole life, pianpian went by before your eyes.

Focus proposition of this example is “they just pass by you in front of your eyes”, and in preceding context, we find its alternative proposition - “you would never meet them”. The focus “Passing by you” and the alternative “never meeting them” are contradictory. It is true that you they have passed by you and it is false that you have never met them, which means that alternative proposition is excluded.

*Pianpian* excludes implicit alternative propositions:

1) Implicit alternative propositions inferred from focus propositions

When focus propositions include contrast triggering expressions like negative components, degree components, components related to the meaning of deficiency, the self-contained exclusiveness of some propositions, corresponding alternative propositions can be inferred.

Contrast triggered by negative components in focus propositions:

(23) “青州下面有六个郡，五个郡都有党人，怎么平原偏偏会没有？”

qingzhou xiamian you liu ge jun, wu ge jun dou you dangren, zenmo Pingyuan pianpian hui meiyou?

“There are six cities under Qingzhou. And communists exist in five of the cities. How come pianpian there is no communist in Pingyuan?”

In the above example, the focus proposition *pianpian* occurs in contains a negative component “meiyou (does not have)”, which triggers a contrastive item “you (have)” and forms an implicit alternative proposition “Pingyuan you dangren (There are communists in Pingyuan)”. The focus proposition is true and the alternative proposition is false, i.e. alternative proposition is excluded. The implicit proposition can be inserted into the discourse:

(24) 五个郡都有党人，（平原也应该有党人，）怎么平原偏偏会没有？

wu ge jun dou you dangren, (Pingyuan ye yinggai you dangren,) zenmo pingyuan pianpian hui meiyou?

Communists exist in five of the cities. (Communists are also expected to appear in Pingyuan.) How come pianpian there is no communist in Pingyuan?

The interpretation remains the same with the only difference being the implicit alternative proposition becoming explicit.

Contrast triggered by degree components in focus propositions:

(25) 因为我是南方人，所以原来一直怕冷。不巧的是，导演偏偏选的是北京最冷的时候来拍这部《西楚霸王》，因此吃了不少苦。

yinwei wo shi nanfang ren, suoyou yuanlai yizhi paleng. Buqiao de shi, daoyan pianpian xuan de shi Beijing zui leng de shihou lai pai zhe bu Xichubawang, yinci chile bushao ku.

I'm from the south, so I not very used to the cold weather. Unfortunately, I suffered a lot as the director pianpian chose to shoot the film The Great Conqueror's Concubine during the coldest days in Beijing.

In the focus proposition of this example, we find degree component “zui leng (the coldest)”. It triggers contrasting items “not so cold, a little bit cold, warm...” and forms implicit alternative propositions “The director chose to shoot the movie when it is not so cold”, “The director chose to shoot the movie when it is a bit cold”, “The director chose to shoot the movie when it is warm”...The focus proposition is true and alternative propositions are false. The alternative propositions are then excluded or negated.

Contrast triggered by components of deficiency meaning in focus propositions:

(26)真可惜，目前出现的某些自称为中国画创新之作，偏偏缺乏这种富于独特个性的重要因素。

zhen kexi, muqian chuxian de mouxie zicheng wei zhongguohua chuangxin zhi zuo, pianpian quefa zhezhong fuyu dute gexing de zhongyao yinsu.

Unfortunately, nowadays some so called creative Chinese painting pianpian do not demonstrate the important character of being distinctive.

In this example, the focus proposition *pianpian* occurs in contains a component “quefa (in short of)” which belongs to the semantic type of deficiency. “Quefa (in short of)” would trigger a contrastive item “juyou (possess)” and form the alternative proposition “Some of the creative Chinese paintings demonstrate this important character of being distinctive”. The focus proposition is true and the alternative proposition is false, i.e. the alternative proposition is excluded.

Contrast triggered by the original exclusiveness of focus propositions:

(27)可偏偏此时，即吃过饭仅 3 小时，那张 86 元的账单不见了。

ke pianpian cishi, ji chiguo fan jin 3 xiaoshi, na zhang 86 yuan de zhangdan bujian le.

But pianpian now – three hours after dinner, the 86 yuan bill is gone.

The focus proposition in this item is “Cishi zhangdan bujianle (The bill is gone in this moment)”. The event “the bill is gone” only happened at one time point - 3 hours after dinner. The alternative proposition is “Zhangdan zai qita shijian bujianle (The bill is gone at other moments)”. A given event can only happen at a given time but not other time points, which means that the focus proposition itself in this example is exclusive. So we can infer that the alternative proposition is excluded.

2) Implicit alternative propositions inferred from context

Other than obviously occurring in the discourse or being inferred from focus proposition, alternative proposition can also be inferred from context information. For example (28) and (29):

(28) 眼看该上班了，可，老天偏偏下起了雪。

yankan gai shangban le, ke, laotian pianpian xiaqi le xue.

It is almost time to go to work, but, it pianpian has started to snow.

(29) 常常有这样的情况，好容易有一点空闲，她打算为丈夫和孩子做一顿可口的晚饭，尽一尽作为妻子和母亲的义务，可这时候却偏偏有人找上门来谈案子。

changchang you zheyang de qingkuang, hao rongyi you yidian kongxian, ta dasuan wei zhangfu he haizi zuo yidun kekou de wanfan, jinyijin zuowei qizi he muqin de yiwu, ke zheshihou que pianpian you ren zhaoshang men lai tan an zi.

This kind of thing happens to her often: when she finally can have one or two days off and thinks of making dinner for her husband and children and taking the responsibility of being a wife and a mother.

In (28), there is neither explicit alternative proposition in preceding or following context of *pianpian* sentence nor components in the focus propositions that can infer alternatives which form alternative propositions. However, based on contextual information, at the time the speaker needs to go to work, he or she has not wished it to snow as it would be troublesome for the traffic. However, undesirable event “xiaqi xue le (it has started to snow)” has happened and the alternative proposition “It won’t snow” becomes is excluded. Similar situation is found in (29). Based on the discourse information in this example, at the days off, “Youren zhao shang men lai tan anzi (Someone came to discuss about legal cases)” is not what the speaker predicted or wished to happen. But the surprising event has happened and the related alternative proposition “Meiyou ren zhao shang men lai tan anzi (No one came to discuss about legal cases)” is excluded. In both examples, alternative propositions are false and focus propositions are true, i.e. alternative propositions are excluded.

#### 4. The surprise and undesirableness scales of *pianpian*

##### 4.1 The surprise scale of *pianpian*

From the perspective of the related events in the context, the focus proposition which *pianpian* appears in is more surprising for the speaker than the alternative

proposition. The focus proposition and the alternative proposition are on the same scale<sup>4</sup> of surprise. The alternative proposition is what the speaker predicted and the focus proposition disconfirms the speaker's prediction, i.e. the speaker is unsurprised if the alternative proposition is true and is surprised that the focus proposition has happened or existed. We present this contrast as:

Surprise: focus proposition ><sup>5</sup> alternative proposition

For instance, “*Ta pianpian qu Beijing le* (He pianpian went to Beijing)”, compared with “*Ta qu Beijing le* (He went to Beijing)”, contains the same semantic information load on the truth-conditional level, but the former sentence conveys another level of meaning that the speaker thinks that “He went to Beijing” is more surprising than some specific alternative proposition.

In our data, 377 of 432 sentences (87.27%) explicitly show that the focus proposition is un-surprising compared with alternative proposition. The following are the types of markers for surprise in the corpus (from strong to weak):

Markers expressing obvious surprise :

*meixiangdao* 没(有)想到, *meicengxiangdao* 谁曾想到, *shichuyiwai* 事出意外, *buliaoxiang* 不料想, *jingran* 竟(然), *jurán* 居然... (“unexpectedly, surprisingly, out of one's expectation”);

(30)他们根本没想到丁凡会动这个念头, 论资历、论经验, 他差远了, 可他偏偏就[动了这个脑筋]<sub>F</sub>。

tamen genben meixiangdao Ding Fan hui dong zhege niantou, lun zili, lun jingyan, ta cha yuan le, ke ta pianpian jiu dong le zhe ge naojin.

They have never expected that Dingfan would have thought about that as he is not even qualified according to his sonority and experience. But he pianpian has thought about it.

Surprise: Ding Fan has thought about that > Ding Fan has not thought about that

(31)可事出意外, 偏偏车主来了[不少]<sub>F</sub>。

ke shichuyiwai, pianpian chezhu lai le bushao.

But out of expectation, pianpian a lot of car owners came.

Surprise: Many of the car owners have come > Not so many car owners come

Markers expressing prediction and contrast:

<sup>4</sup> Scale is a set of degree values. This group of degree values is metric values of points or intervals about a specific property (for instance height, temperature, price etc.). And these degree values form a ranking relation (See Kennedy 2001, Kennedy and MacNally 2005 etc.).

<sup>5</sup> We use “proposition A > proposition B” to represent that proposition A is more surprising than proposition B (For the dimension of undesirability, we also use this representation).

*anlishuo.....keshi/danshi.....* 按理说 ..... 可是 / 但是 ..... ;  
*benlaiyinggai.....keshi/danshi.....* 本来应该.....可是/但是..... (“it is supposed to..., however...”);

- (32) 产品打入东南亚、西欧市场，按说该满足了，但他们却偏偏[“人心不足蛇吞象”]<sub>F</sub>。

chanpin da ru dongnanya, xiou shichang, anshuo gai manzu le, dan tamen que pianpian renxin bu zu she tun xiang.

They were expected to be satisfied as their products have been exported to markets in Southeast Asia and Western Europe. However they are not satisfied with their success.

Surprise: They are not satisfied with their success > They are satisfied with their success

- (33) 本来，它应该在 14 年前就名震全国的，可偏偏[命运多舛]<sub>F</sub>，使它成了我国石化行业里经历最坎坷的企业。

benlai, ta yinggai zai 14 nian qian jiu mingzhenquanguo de, ke pianpian mingyunduochuan, shi ta cheng le wo guo shihua hangye li jingli zui kanke de qiye.

It is expected to get famous nationwide 14 years ago, but it pianpian has languished and became the bumpiest company in the petrochemical industry.

Surprise: The process of its development is with ups and downs > It became successful nation-wide

Markers expressing contrast :

*keshi* 可是, *danshi* 但是, *que* 却..... (“but,however”);

- (34) 南非的电话费可以在邮局交，但偏偏邮政业的效率令人[不敢恭维]<sub>F</sub>。

nanfei de dianhuafei keyi zai youju jiao, dan pianpian youzhengye de xiaolv ling ren bugangongwei.

People can pay their phone bills in post offices in South Africa; however the efficiency of the postal service is not satisfactory.

Surprise: The efficiency of the postal service in South Africa is not satisfactory > The efficiency of the postal service in South Africa is satisfactory

- (35) 常常有这样的情况，好容易有一点空闲，她打算为丈夫和孩子做一顿可口的晚饭，尽一尽作为妻子和母亲的义务，可这时候却偏偏[有人找上门来谈案子]<sub>F</sub>。

changchang you zheyang de qingkuang, hao rongyi you yidian kongxian, ta dasuan wei zhangfu he haizi zuo yidun kekou de wanfan, jinyijin zuowei qizi he muqin de yiwu, ke zheshihou que pianpian you ren zhaoshang men lai tan an zi.

This kind of thing happens to her often: when she finally can have one or two days off and thinks of making dinner for her husband and children and taking the responsibility of being a wife and a mother.

Surprise: Someone came to discuss about a legal case > No one came to discuss about legal cases

Markers expressing difficulty to explain:

*lingrenbujiede* 令人不解的, *lingrenfeijiede* 令人费解的, *guaishi* 怪事(“it is difficult to explain that...”).

(36)更令人不解的是, 不了解中国法律的原告, 却还偏偏要请同样[不懂中国法律、不懂中国语言的外国律师]<sub>F</sub>来进行诉讼代理。

geng lingrenbujie de shi, bu liaojie Zhongguo falv de yuangao, que hai pianpian yao qing tongyang bu dong Zhongguo falv, bu dong Zhongguo yuyan de waiguo lvshi lai jinxing susong daily.

It is difficult to understand why the prosecutor who is not familiar with Chinese laws *pianpian* has hired a foreign lawyer who also not familiar with Chinese laws and Chinese language for legal representation.

Surprise: The accusers who are not familiar with Chinese laws hire lawyers who are also not familiar with Chinese laws and Chinese language to conduct litigation > The accusers who are not familiar with Chinese laws don't hire lawyers who are familiar with Chinese laws to conduct litigation

(37)天下就有这样的怪事, 你越是想去排斥和压抑它的东西, 人们偏偏[要接近它、喜爱它]<sub>F</sub>。

tianxia jiu you zheyang de guaishi, ni yue shi xiang qu paichi he yayi ta de dongxi, renmen pianpian yao jiejinta, xiai ta.

Though being odd, it happens that people try to access and like what they want to repel and suppress.

Surprise: People try to access and like what they want to repel and suppress > People try to avoid and hate what they want to repel and suppress

#### 4.2 The undesirableness scale of *pianpian*:

Except the surprise interpretation, we also noticed that in our data 236 examples (54.63%) show the meaning of undesirableness or negativity, i.e. *pianpian* tends to

appear in negative events but it is not limited to be only used in negative events. We found three types of markers for negativity in our sample data:

Negative emotion words :

*taiyihanle* 太遗憾了 “regretful”, *buxingde* 不幸的 “unfortunate”, *kebeide* 可悲的 “pathetic”, *zhenkexi* 真可惜 “unfortunate”, *daomeide* 倒霉的 “unlucky”;

(38) 可电话里偏偏传来一个[不幸的消息]<sub>F</sub>: 妻子在武汉难产。

ke dianhua li pianpian chuanlai yige buxing de xiaoxi: qizi zai wuhan nanchan.

Undesirableness: A sad news came that his wife was having a difficult labor in Wuhan > some other news came

(39) 但可悲的是, 掉下水的偏偏[没学过]<sub>F</sub>游泳。

dan kebei de shi, diaoxia shui de pianpian mei xueguo youyong.

But what is pathetic is that those falling into the water have never learned to swim.

Undesirableness: Those who fell into the river have never learned how to swim > Those who fell into the river have learned how to swim

Entities loaded with negative emotion:

*beiju* 悲剧 “tragic”, *sunshi* 损失 “loss”, *weihai* 危害 “harm”, *mafan* 麻烦 “trouble”;

(40) 防汛的重点在防, 可我们偏偏就有那么一些城市有河却[不设防]<sub>F</sub>。

fangxun de zhongdan zai fang, ke women pianpian jiu you namo yixie chengshi you he que bu shefang.

The emphasis of flood prevention is preventing, but some cities *pianpian* do not prevent even though there are rivers in these cities.

Undesirableness: Those cities that have rivers never prevent floods > Those cities that have rivers prevent floods

(41) 然而这一场完全可以避免的悲剧偏偏[发生了]<sub>F</sub>!

raner zhe yi chang wanquan ky bimian de beiju pianpian fasheng le.

However this tragedy which is absolutely avoidable *pianpian* has happened.

Undesirableness: this tragedy has happened > this tragedy has not happened

Negative events :

*shengbing* 生病 “being sick”, *chushi* 出事 “having an accident”, *shiqu jihui* 失去机会 “losing an opportunity”, *niangcheng zhezhong jieju* 酿成这种结局 “causing a bad consequence”

- (42) 而现在，偏偏在一次重大失败后就[失去了]<sub>F</sub>再实践的机会。  
 er xianzai, pianpian Zia yici zhongda shibai hou jiu shiqu le zai shijian de jihui.  
 However now they have lost the chance to try again after the major defeat.

Undesirableness: They have lost the chance to try again > They have not lost the chance to try again

- (43) 可事情偏偏[酿成了这种结局]<sub>F</sub>。  
 ke shiqing pianpian niangcheng le zhezhong jieju.  
 However it has caused a bad consequence.

Undesirableness: It has caused a bad consequence > It has not caused a bad consequence

Most of the *pianpian* sentences show both unexpectedness and negativity evaluations. This is consistent with the frequent co-occurrence of surprise and negativity (unfortunateness) in the studies of language and emotion (Gendolla & Koller 2001, Lin & Yao 2016). We classify *pianpian* sentences into three groups: first group with only surprise interpretation, second group with only undesirableness interpretation and last group with both surprise and undesirableness interpretation. Below, we show some examples of each group.

*Pianpian* sentences with only surprise meaning:

- (44) 那么多人参加比赛，偏偏[我]<sub>F</sub>得了一等奖。  
 namo duo ren canjia bisai, pianpian wo de le yidengjiang  
 So many people participated in the competition, I *pianpian* won the first prize.

Surprise: I won the first prize > Someone else won the first prize

*Pianpian* marks 我 *wo* (“I”) as the focus as well as the maximal level of prediction disconfirmation of the fact that the speaker won. It renders the alternatives (a person other than me winning) ranked as more likely (or less improbable). This is a case showing only-surprise-dimension scale.

- (45) 这些不起眼而又容易做到的事，文明的张家港人偏偏[做好了]<sub>F</sub>。

zhexie buqiyan er you bu rongyi zuodao de shi, wenming de Zhangjiagang ren pianpian zuohao le.

Those tiny though difficult things, the civilized citizens of Zhangjiagang pianpian have done them well.

Surprise: Citizens of Zhangjiagang have done these things well > Citizens of Zhangjiagang haven't done these things well

*Pianpian* marks “did something well” in the clause it occurs in as the focus. The focus proposition “the civilized citizens of Zhangjiagang have done them well” shows that the speaker’s attitude towards the current event is positive. On the other hand, the surprise interpretation can be inferred: based on the fact that these things are tiny and difficult, the speaker infers that people usually cannot do those things well. Then it follows the prediction that people from Zhangjiagang cannot do these things well, while the speaker finds fact to be the contrastive with what he or she predicts, he feels surprised by the mismatch.

*Pianpian* sentences with only undesirableness meaning:

(46)不早不晚, 电脑偏偏[这时候]<sub>F</sub>坏了。

bu zao bu wan, diannaobao pianpian zheshihou huai TAM

Neither one minute earlier, nor one minute later, the computer broke now right at this (critical) moment.

Undesirableness: The computer broke at this moment > The computer broke at some other moment

*Pianpian* in this example is associated with the focus 这时候 zheshihou (“this (critical) moment”). The sentence asserts the fact that the computer broke now and also implies that it did not break at any other time points. And the scale *pianpian* induces in this sentence is only of negativity as the computer is equally likely to break at any time points, however the speaker finds it very unfortunate that the computer stopped working now. The scalar expectation here is that this particular time point is the worst time for the computer to breakdown (compared with all the possible time points).

(47)陈奶奶小时候家里穷, 特别想读书, 但偏偏[读不上]<sub>F</sub>。

chennainai xiaoshihou jiali qiong, tebie xiang du shu, dan pianpian du bu shang.

Grandma Chen grew up in a very poor family. She wants to go to school so much when she was young, but her family pianpian cannot afford school.

Undesirableness: Grandma Chen can afford school > Grandma Chen cannot afford school

*Pianpian* marks 读不上 *dubushang* (“cannot afford school”) as the focus of the sentence. 读书 *dudeshangshu* (“can go to school”) is the corresponding alternative. The focus proposition “Chennainai cannot afford school” is true. And this could be logically inferred from the fact that her family was really poor, i.e. the focus event that she cannot afford school accords to our prediction. However, this contrasts with her wish that she can go to school. So this is an example where only undesirableness interpretation is displayed.

*Pianpian* sentences with both Surprise and undesirableness meanings:

- (48) 这么重要的面试,他偏偏[搞砸了]<sub>F</sub>。  
 zhemo zhongyao De mianshi, ta pianpian gao za TAM  
 This interview is so important, he pianpian blew it.

Surprise: He blew the interview > He didn’t blow the interview

Undesirableness: He blew the interview > He didn’t blow the interview

Sentence (48) exemplifies the focus being the predicate and the scalar reading being of both surprise and undesirableness. To be specific, 搞砸了 *gaozale* (“blow (something)”) is the focus element in this sentence. The related alternatives are “did great (in the interview)” etc. Not doing well in a very important interview is evaluated as surprising and undesirable by the speaker.

- (49) 算你们运气,人家也当兵,一茬一茬的复员了,都没有赶上打仗,偏偏让你们这一茬的[赶上了]<sub>F</sub>。  
 suan nimenn yunqi, renjia ye dangbing, yichayichade fuyuan le, dou meiyou ganshang dazhang, pianpian rang nimen zheyichade ganshang le  
 It is so unlucky of you. Other people also served in the army. Year after year, they have all been demobilized and have not encountered any war; pianpian you have encountered the war.

Surprise: You have encountered the war > You haven’t encountered the war

Undesirableness: You have encountered the war > You haven’t encountered the war

“Ganshangle (encountered the war)” is the focus associated with *pianpian* in this case, which is contrasted with its alternative “Meiganshang (haven’t encountered the war)”. From the irony “suan nimen yunqi (it is lucky for you to have encountered the war)”, we can see that the speaker’s evaluation is negative towards the event that they encountered war. Based on the context information that year after year soldiers have not encountered war, the speaker predicts that the audience would not encounter either. However, when he finds out the contrastive fact, he expresses the surprise feeling by using the marker

*pianpian*. This is an example showing both negative and surprise meaning of *pianpian* sentences.

### 5. Conclusion

To summarize, the scalar property of *pianpian* is non-optional and does not depend on the lexical specification of the focus, but must be associated with the contextually stipulated scale. Furthermore, the negation of the more expected/positive alternatives by *pianpian* gives rise to interesting interactions with the contrary to expectation modality and speaker-orientedness. This study provides evidence for the exclusive and strict scalar focus particle category and shows one possible way of how subjective adverbs could have multi-dimensional meanings.

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