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# Mandarin Resultative Verb Compound Involves VP Complementation

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# Mandarin Resultative Verb Compound Involves VP Complementation

## **Abstract**

Mandarin Resultative Verb Compounds (RVCs) are verbal complexes of the form  $V_1$ - $V_2$ , where  $V_1$  denotes an activity and  $V_2$  the result of that activity. Previous literature either assigns to RVCs a Complex Verb structure [ $V$   $V_1$ - $V_2$ ] (Li 1990, Williams 2012) or a Small Clause structure [ $V_{1P}$   $V_1$  [ $_{SC}$   $V_2$ ]] (Sybesma 1999). In the paper, I will propose a VP Complementation syntax for Mandarin RVC [ $V_{1P}$   $V_1$  [ $V_{2P}$   $V_2P$ ]] (similar to Sybesma 1999 but contra Williams 2011, see (1) (Also, in (1) there are multiple V-to-v movements, see Collins 2002)) and present new data to support it. Specifically, the data involves two types of Event Modifiers Duratives and Locatives, and I will show those event modifiers can modify either  $V_1$  or  $V_2$ , independently; also, the positions of these modifiers determine their interpretations and that certain positions of Duratives are not allowed, all of which are predicted by the VP Complementation syntax.

# Mandarin Resultative Verb Compound Involves VP Complementation

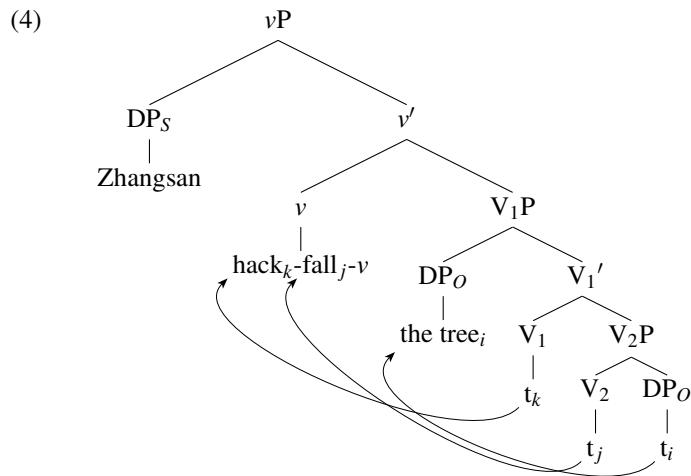
Mingming Liu\*

## 1 Introduction

Resultative verb compounds (RVC) are verbal compounds of the form  $V_1$ - $V_2$ , where  $V_1$  intuitively denotes an activity and  $V_2$  the result of that activity (hence the name resultative, see Thompson 1973). (1), (2) and (3) are given below as examples of typical Mandarin RVCs. As for its syntax, previous literature either assigns to RVC a Complex Verb structure [<sub>v</sub>  $V_1$ - $V_2$ ] (Li 1990, Williams 2011) or a Small Clause structure [<sub>VP</sub>  $V_1$  [<sub>SC</sub>  $V_2$ ]] (Sybesma 1999).

- |  |   |               |       |
|--|---|---------------|-------|
|  | S | $V_1$ - $V_2$ | $O^1$ |
|--|---|---------------|-------|
- (1) Zhangsan **kan-dao** le da shu.  
Zhangsan hack-fall PRF big tree  
'Zhangsan hacked tree and the tree fell as a result.'
- (2) Zhangsan **ku-shi** le shoupa.  
Zhangsan cry-wet PRF handkerchief  
'Zhangsan was crying and his handkerchief got wet as a result.'
- (3) Zhangsan **kan-dun** le fuzi.  
Zhangsan hack-blunt PRF axe  
'Zhangsan hacked something and the axe got blunt as a result.'

In this paper, I argue for a VP Complementation syntax for Mandarin RVC [<sub>VP</sub>  $V_1$  [<sub>VP</sub>  $V_2$ P]] (similar to Sybesma 1999 but contra Williams 2011) and present new data to support it. Specifically, the data involves two sorts of event modifiers *duratives* and *locatives*, and I will show that these event modifiers can modify either  $V_1$  or  $V_2$ , **independently**; also, I will show that the positions of these modifiers determine their interpretations and that certain positions of durative are not allowed, both of which are predicted by the VP Complementation syntax. The syntactic proposal is spelled out in (4 – 6).



A more linearized version of (4) is (5), and (6) lists crucial features of this syntax.

\*I am grateful to my QP<sub>1</sub> chair Jane Grimshaw, and to other members of that QP committee Veneeta Dayal and Mark Baker, for their discussions and detailed advice. Thanks also go to Roger Schwarzschild, Maria Bitner, Alexander Williams and audiences at PLC 37 for comments and discussions. All errors and inadequacies are mine.

<sup>1</sup>S means the syntactic subject of the RVC, while O means the syntactic object of the RVC. This way of representation follows from Williams 2011.



DurPs can appear both before and after the RVC, but different positions incur different interpretations. See (9) and (10).<sup>5</sup>

- (9)            S                            V<sub>1</sub>-V<sub>2</sub>            O            DurP
- a. *Zhangsan zuotian da-kai le men san xiaoshi*  
Zhangsan yesterday hit-open PRF door three hours  
'Yesterday, Zhangsan opened the door, and the door remained open for 3 hours.'
- b. *Zhangsan zuotian cai zhui-lei le Lisi wu fenzhong*  
Zhangsan yesterday only chase-tired PRF Lisi five minutes  
'Yesterday, Zhangsan chased Lisi, and Lisi was only tired for 5 minutes.'
- c. *Zhangsan zuotian chang-ku le wo yi ge xiaoshi*  
Zhangsan yesterday sing-cry PRF me one CL hour  
'Yesterday, Zhangsan was singing, and I was crying for 1 hour because of his singing.'
- (10)            S                            DurP                            V<sub>1</sub>-V<sub>2</sub>            O
- a. *Zhangsan zuotian san xiaoshi cai da-kai le men*  
Zhangsan yesterday three hour then hit-open PRF door  
'Yesterday, Zhangsan tried to open the door for three hours, and then, the door got open.'
- b. *Zhangsan zuotian wu fenzhong jiu zhui-lei le Lisi*  
Zhangsan yesterday five minutes then chase-tired PRF Lisi  
'Yesterday, Zhangsan chased Lisi for only 5 minutes, and then Lisi got tired.'
- c. *Zhangsan zuotian san fenzhong jiu chang-ku le wo*  
Zhangsan yesterday three minutes only sing-cry PRF me  
'Yesterday, Zhangsan sang for only three minutes and I began to cry as a result.'

For all the cases in (9), where DurPs come after the RVC, they only mean the duration of the resultant state;<sup>6</sup> while for sentences in (10) where DurPs come before the RVC, they can only be interpreted as describing the duration of the process.<sup>7</sup> This justifies the generalization in (7).

Below, I show the generalization in (7) is predicted by the VP Complementation syntax in (4).

First, let's look at the Post-RVC DurPs in (9). The fact that there are Post-RVC DurPs modifying only the resultant state denoted by V<sub>2</sub> is predicted by the VP Complementation syntax. In a VP-complementation structure such as (4) and (5), these Post-RVC DurPs can be analyzed as modifying the lower V<sub>2</sub>P consisting of the result V<sub>2</sub> (and its complement) only (for the assumption that DurP

<sup>5</sup>Some speakers might find (9) not very natural; I think it's because it violates a well-know (perhaps phonological) 'Postverbal Constraint' which prefers only one constituent following the verb in Mandarin Chinese. Thus, moving the object preverbally as in (i) makes (9) perfect, and crucially, the DurP still modifies the V<sub>2</sub> after the object moves, thus not affecting the argument made here.

(i) *Zhangsan yesterday BA door hit-open PRF three hours.*

<sup>6</sup>The result-related meaning of DurP has been described and analyzed by Lin (2008), but he only discusses simple verbs, not RVCs.

<sup>7</sup>There always exists the difficulty of distinguishing whether these Pre-RVC DurPs are modifying V<sub>1</sub> only or they are modifying the entire *causal* event. The former will roughly have the meaning 'doing V<sub>1</sub> for *x* time causes V<sub>2</sub>', while the latter roughly means 'within *x* time, V<sub>1</sub> causes V<sub>2</sub>'. But notice, there might be evidence showing that the idea of DurP modifying V<sub>1</sub> is the correct one. One of the evidence involves Negative Potential Form of RVC like (i).

(i) *Zhangsan shi fenzhong kan- bu- dao da shu*  
Zhangsan 10 minutes hack-NOT-fall big tree

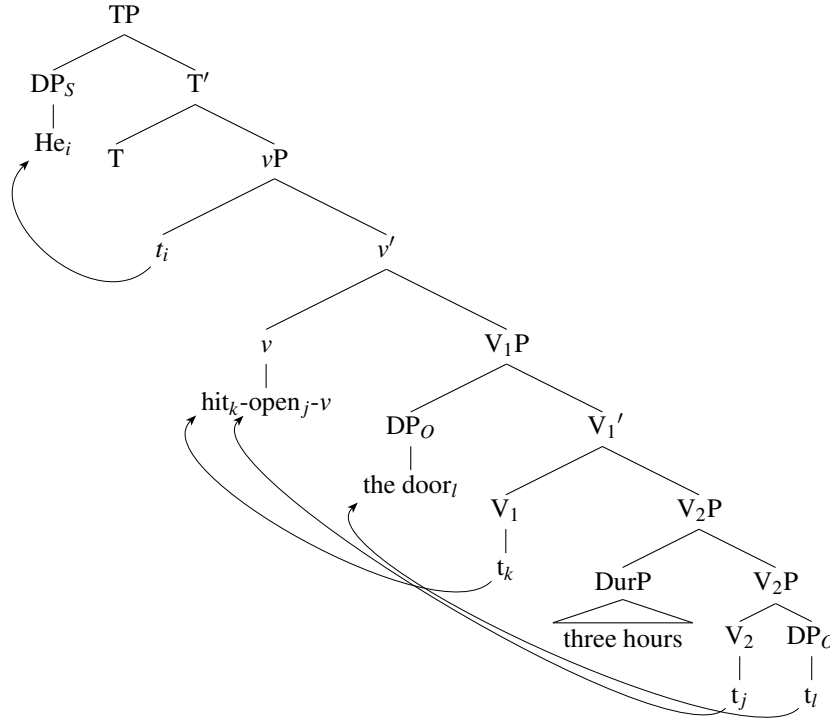
(a) Zhangsan's hacking the tree for 10 minutes cannot make it fall.

(b) Zhangsan can't hack the tree down within 10 minutes.

The (a) interpretation in (i) represents the meaning derived by a DurP-modifying-V<sub>1</sub> analysis, while the (b) interpretation in (i) represents the meaning assigned by a DurP-modifying-Causal-event analysis. The former allows DurP to be generated above the Negation, while the latter requires Negation to be generated higher than the DurP. The second option is not compatible with the fact that Negation seems to be very low in the Negative Potential Form of RVC (as can be seen from its surface position, also see Williams 2005, 2011 for independent evidence showing that negation is generated low in the Negative Potential Form of RVCs.).

adjoins to VP in Mandarin Chinese, see Soh 1998, Lin 2008).<sup>8</sup> Further, the obligatory post-verbal position of R-related DurP is also expected, since they attach to the lowest V<sub>2</sub>P whose head V<sub>2</sub> will eventually move out (to little *v*). This can be shown by (11) and (12) below.

(11) **Post-RVC DurP**



(12) *ta da-kai le men san ge xiaoshi*

He hit-open PRF door three CL hour

‘He opened the door, and the door remained open for three hours.’

[<sub>TP</sub> He<sub>i</sub> T [<sub>vP</sub> t<sub>i</sub> <hit<sub>k</sub>-open<sub>j-v</sub>> [<sub>vP</sub> <the door<sub>l</sub>> t<sub>k</sub> [<sub>vP</sub> <**three hours**> [<sub>vP</sub> t<sub>j</sub>t<sub>l</sub>]]]]]]

Similarly, for Pre-RVC DurPs modifying only the activity denoted by V<sub>1</sub>, they can be analyzed as attaching to the vP, as can be seen by (13).

Notice, this analysis requires that head-movement does not have any semantic effect. This is compatible with Chomsky’s (2000) proposal that head-movement occurs on the phonological branch of the derivation, after Spell-Out.<sup>9</sup>

In the way sketched above, we have shown that under the VP Complementation syntax we are considering, Generalization (7) can be easily explained by (11) and (13). Further, in this account, the only information needed to interpret a DurP is its syntactic sister,<sup>10</sup> thus maintaining a transparent syntax-semantics interface.

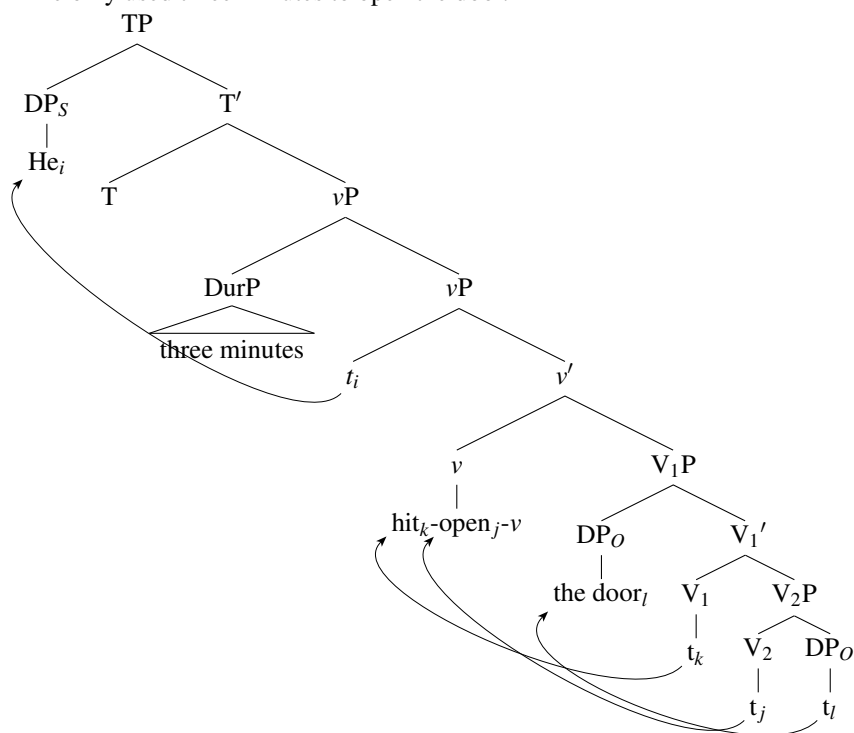
<sup>8</sup>DurP might also be a Specifier of some aspectual projection (Thanks to Jane Grimshaw for pointing this out to me), but this option does not affect my claim that DurP is generated between V<sub>1</sub> and V<sub>2</sub>, thus modifying only V<sub>2</sub>.

<sup>9</sup>Thanks to Veneeta Dayal for asking me to make this explicit.

<sup>10</sup>Here, a potential problem for pre-RVC duratives is: the pre-RVC Process-related durative is not a sister of the V<sub>1</sub>P per se, and actually, it cannot attach to the V<sub>1</sub>P (see Footnote 12). So it seems that I am allowing a DurP to attach to a vP but to modify V<sub>1</sub> only. To solve this problem, I have to assume: 1), head movement does not create semantic effects. 2), vP is an extended projection of the V<sub>1</sub>. Thus, a DurP attaching to vP which itself is an extended projection of V<sub>1</sub>, is still modifying V<sub>1</sub>. An alternative way to see this problem will be looking at the semantic representation of RVC; by the time vP is interpreted, its semantics will be  $\lambda e_1 \exists e_2 [V_1'(e_1) \text{ wedge } V_2'(e_2)]$  (abstracting away individual arguments and see Kratzer 2005); taking Durative as a predicate of events  $\lambda e [\text{Duration}(e) = i]$ , the two predicates can be interpreted by Predicate Modification (Heim and Kratzer 1998); and crucially, only V<sub>1</sub> is accessible for modification, since the event represented by V<sub>2</sub> is always existentially bound.

(13) **Pre-RVC DurP**

*ta san fenzhong jiu da-kai le men*  
 He three minute only hit-open PRF door  
 'He only used three minutes to open the door.'



**3 Support 2: \*V+ Durative phrase + Object**

In this section, I will present another argument involving the position of DurP with respect to RVC's direct object to show that the VP Complementation analysis makes the right prediction.

As observed previously (Soh 1998, Lin 2008, etc.), Chinese Post-verbal DurP can appear at two positions: between the verb and its object, or after the object. The two orders can be schematized as V + DurP + Object and V + Object + DurP, and can be illustrated by (14) and (15) below.

(14) V + DurP + Object

- a. *wo (yijing) kai ershi nian jichengche le*  
 I (already) drive twenty years taxi PRF  
 'I have (already) driven taxi for twenty years.' (Lin 2008)
- b. *wo (yijing) kan le liang ge xiaoshi zhe ben shu le*  
 I (already) read PRF two CL hour this CL book PRF.  
 'I have (already) read this book for two hours.'
- c. *wo (yijing) xiang le san tian zhe ge wenti le*  
 I (already) think PRF three day this CL question PRF.  
 'I have (already) thought about this question for 3 days.'

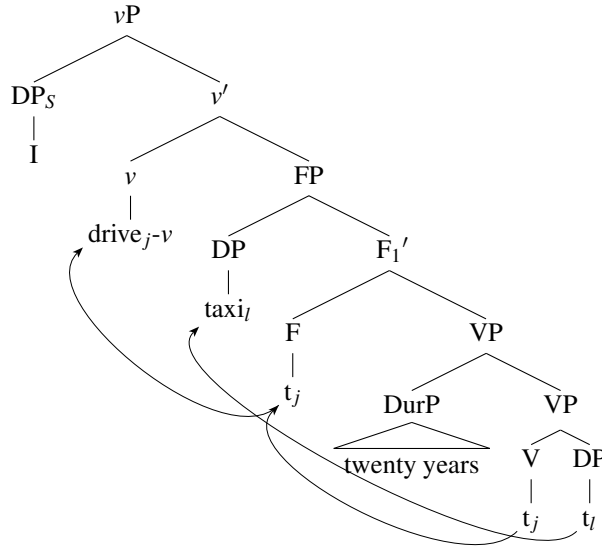
(15) V + Object + DurP

- a. *wo (yijing) kai jichengche ershi nian le*  
 I (already) drive taxi twenty years PRF  
 'I have (already) driven taxi for twenty years.' (Lin 2008)
- b. *wo (yijing) kan le zhe ben shu liang ge xiaoshi le*  
 I (already) read PRF this CL book two CL hour PRF.  
 'I have (already) read this book for two hours.'

- c. *wo (yijing) xiang le zhe ge wenti san tian le*  
 I (already) think PRF this CL question three day PRF.  
 'I have (already) thought about this question for 3 days.'

The V + DurP + Object in (14) and V + Object + DurP in (15) usually do not involve a meaning difference (Soh 1998). I will follow Soh (1998) in treating the V + DurP + Object as the underlying order and derive the V + Object + DurP order via *object scrambling*. Reasons of why object scrambling happens include various prosodic and discourse factors and it is assumed to be optional (see Soh 1998 for details). See (16).<sup>11</sup>

(16) **Object Scrambling**



Now turning to RVC, interestingly RVC does not allow the V + DurP + Object order. Compare (17) and (18).

(17) RVC + Object + DurP

- a. *Zhangsan da-kai le men san fenzhong*  
 Zhangsan hit-open PRF door three minutes  
 'Zhangsan has opened the door and the door opened for three minutes.'
- b. *Zhangsan chang-ku le Lisi san fenzhong*  
 Zhangsan sing-cry PRF Lisi three minutes  
 'Zhangsan had sung, and Lisi cried for three minutes as a result.'
- c. *Zhangsan shuai-kai le Lisi shi fenzhong*  
 Zhangsan throw-away PRF Lisi ten minutes  
 'Zhangsan got rid of Lisi for ten minutes.'

(18) \*RVC + DurP + Object

- a. \**Zhangsan da-kai le san fenzhong men*  
 Zhangsan hit-open PRF three minutes door  
 'Zhangsan has opened the door and the door opened for three minutes.'
- b. \**Zhangsan chang-ku le san fenzhong Lisi*  
 Zhangsan sing-cry PRF three minutes Lisi  
 'Zhangsan had sung, and Lisi cried for three minutes as a result.'
- c. \**Zhangsan shuai-kai le shi fenzhong Lisi*  
 Zhangsan throw-away PRF ten minutes Lisi  
 'Zhangsan got rid of Lisi for ten minutes.'

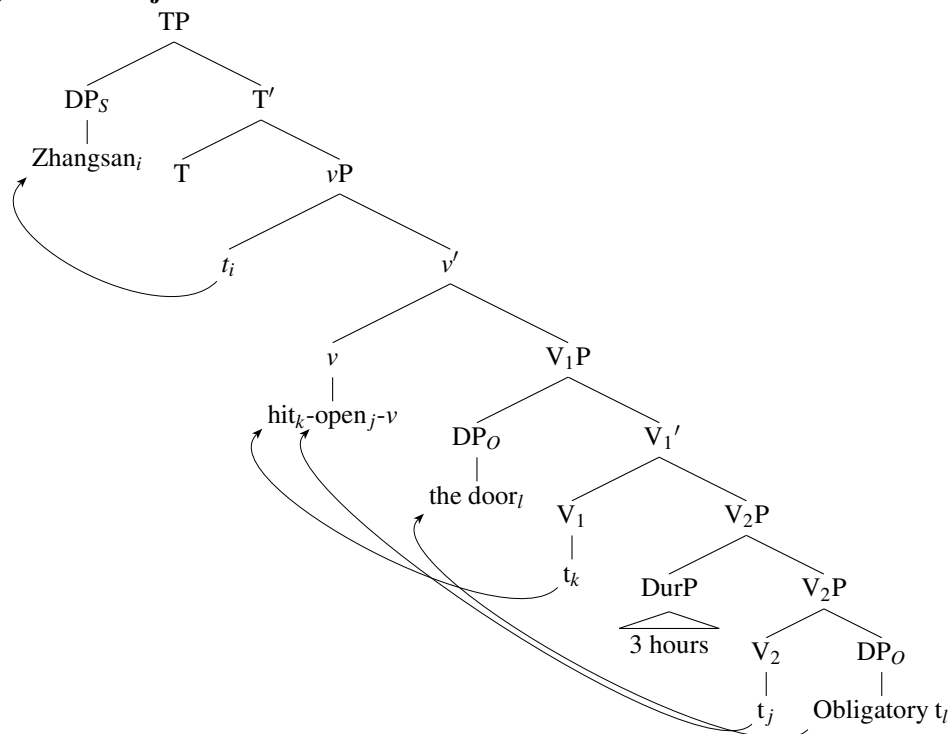
Below, we will show that our VP Complementation syntax offers a ready explanation for (18).

<sup>11</sup>F is the functional projection Soh (1998) posits whose Spec is the scrambled position.



First, remember the V + DurP + Object is the default order and the V + Object + DurP order is derived by object scrambling (Soh 1998). Then, if we look at the structure in (19) we notice (remember (4)) that the object DP<sub>O</sub> **obligatorily** scramble out of the lower V<sub>2</sub>P because it cannot get Case (and a theta role from V<sub>1</sub>) from there. Thus, it is easily understood that it is the obligatory scrambling of the object DP<sub>O</sub> that results in the default order V + DurP + Object always not surfacing. This can be clearly illustrated by (19).

(19) **RVC + Object + DurP**



In (19), the object DP<sub>O</sub> has to move out of V<sub>2</sub>P (a bare VP) to get Accusative Case from the upper little *v*, so RVC + Object + DurP is obligatory.<sup>12</sup> On the other hand, in (16) for simple transitive verbs, the object DP can either receive Accusative Case in-situ, or be optionally scrambled out to a higher position (Sepc of FP in Soh 1998), so both V + DurP + Object and V + Object + DurP can be observed. The crucial difference between the two is that the former is syntactic in nature, while the latter is discourse-related.

This analysis relies on the following two assumptions (20).

- (20) a. Accusative Case is assigned by little *v*.  
 b. V<sub>1</sub> selects for a bare VP (V<sub>2</sub>P) as its complement in an RVC.

(20a) has been proposed in the literature (Chomsky 1995:352, Kratzer 1996:126), and I will adopt it. I further assume transitive and unergative verbs always have little *v* (Chomsky 1995:352). This makes it possible for a simple transitive verb to assign Accusative Case via little *v* to its in-situ

<sup>12</sup>This analysis also requires that DurP should not attach to V<sub>1</sub>P. Here I am following Lin 2008 in assuming DurP has to satisfy a *homogeneity* condition which forbids it to attach an event of change, and I assume V<sub>1</sub>P is an event of change. This assumption finds support from *frequentives*, which do not require the homogeneity condition and thus can appear between RVC and its object. An example is given in (i). The attaching site of this frequentive is supposed to be V<sub>1</sub>P.

- (i) *Zhangsan zuotian da-kai le liang ci men*  
 Zhangsan yesterday hit-open PRF two time door  
 ‘Yesterday, Zhangsan opened the door twice.’

complement; then it follows that the object of simple transitive verb does not have to obligatorily move (for Case), and optional scrambling of object in (16) is observed.

On the other hand, (20b) is just the syntax I am proposing for RVC. If (20b) holds,  $V_2P$  will be a bare VP without its own little  $v$ ; then it follows from (20a) that the DP argument can never get a Case within  $V_2P$ , and obligatory scrambling of this DP (to get Case) would be observed.

In simple words: if we assume that Accusative Case is assigned by little  $v$ , the DP arguments of those VPs lacking a little  $v$  must move up. Combining this result with (20b), we get the obligatory scrambling of the object O of RVC.

We can also find independent evidence to support assumption (20b). One piece of evidence involves the *aspectual* restrictions on possible  $V_2$  of RVCs, as can be shown by (21).

(21) Aspectual restrictions

Stative $V_2$	<i>pao-lei</i> (run-tired) <i>xie-kun</i> (write-sleepy) <i>xiao-hun</i> (laugh-unconscious)
Achievement $V_2$	<i>pao-dao</i> (run-arrive) <i>da-pao</i> (hit-run.away) <i>kan-dao</i> (hack-fall.off)
*Activity $V_2$	* <i>pao-tiao</i> (run-jump) * <i>xie-shui</i> (write-sleep) * <i>xiao-chuan</i> (laugh-breath.heavily)
*Accomplishment $V_2$	* <i>shuo-kan</i> (tell-read) * <i>da-sha</i> (hit-kill) * <i>pian-ni</i> (lie-drown)

(21) shows  $V_2$  can be stative and achievement verbs, but not activity and accomplishment verbs. This fact can be derived from assumption (20b) that requires  $V_2P$  to be a bare VP. Assuming activity/accomplishment verbs always have a little  $v$ , they can never be complement of  $V_1$  in an RVC; and assuming stative and achievement verbs do not have a little  $v$ , they can always be the complement of  $V_1$  by being a bare VP.

#### 4 Further Support: Locatives

In this section, I show behaviors of another type of modifiers—*locatives*—to strengthen my point that there are modifiers independently modifying  $V_1$  or  $V_2$  and that this phenomenon is robust. The analysis of these locatives is similar to the analysis presented in Section 2 for duratives. Just like examples given there, these cases show again that Mandarin RVCs have a VP complementation syntax.

To be more specific: post-RVC locative phrases can only modify  $V_2$  and have a Result-related meaning (see (22)), while pre-RVC locative phrases can be regarded as modifying  $V_1$  and having a Process-related meaning (see (23)).

(22) Post-RVC locatives modifying  $V_2$

- | S  | $V_1$ - $V_2$           | O         | Locative Phrase  |
|----|-------------------------|-----------|--|
| a. | <i>Zhangsan da-sui</i>  | <i>le</i> | <i>beizi zai di-shang</i><br>Zhangsan hit-broken PRF cup on floor-surface<br>'Zhangsan broke the cup and the broken cup is on the floor.'            |
| b. | <i>Zhangsan tui-dao</i> | <i>le</i> | <i>Lisi zai di-shang</i><br>Zhangsan push-fall PRF Lisi on ground-surface<br>'Zhangsan push Lisi, and Lisi fell on the ground as a result.'          |
| c. | <i>Zhangsan ti-fei</i>  | <i>le</i> | <i>qiu zai ban kongzhong</i><br>Zhangsan kick-fly PRF ball in half air<br>'Zhangsan kicked the ball, and the ball flew away in the air as a result.' |

- (23) Pre-RVC locatives modifying V<sub>1</sub>:  
 S Locative Phrase V<sub>1</sub>-V<sub>2</sub> O
- a. *Zhangsan zai chufang da-sui le beizi*  
 Zhangsan in kitchen hit-broken PRF cup  
 ‘Zhangsan broke the cup in the kitchen.’
- b. *Zhangsan zai jiaoshi tui-dao le Lisi*  
 Zhangsan in classroom push-fall PRF Lisi  
 ‘Zhangsan pushed Lisi in the classroom, and Lisi fell as a result.’
- c. *Zhangsan zai qiuchangshang ti-fei le qiu*  
 Zhangsan on playground kick-fly PRF ball  
 ‘On the playground, Zhangsan kicked the ball, and the ball flied away as a result.’

Analyses for (22) and (23) are similar to (9)–(11) and (10)–(13) discussed in Section 2.

## References

- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, Mass.: MIT Press.
- Chomsky, Noam. 2000. Minimalist inquiries: The framework. In *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, ed. R. Martin, D. Michaels, and J. Uriagereka, 31–54. Cambridge: Walter de Gruyter.
- Heim, Irene, and Angelika Kratzer. 1998. *Semantics in Generative Grammar*. Oxford: Blackwell.
- Kratzer, Angelika. 1996. Severing the external argument from its verb. In *Phrase Structure and the Lexicon*, ed. J. Rooryck and L. Zaring, 109–137. Dordrecht: Kluwer.
- Kratzer, Angelika. 2005. Building resultatives. In *Events in Syntax, Semantics, and Discourse*, ed. C. Maienborn and A. Wöllstein-Leisten, 177–212. Tübingen: Niemeyer.
- Li, Yafei. 1990. On V-V compounds in Chinese. *Natural Language & Linguistic Theory* 9:177–207.
- Li, Yafei. 1995. The thematic hierarchy and causativity. *Natural Language & Linguistic Theory* 13:255–282.
- Li, Yafei. 1999. Cross-componential causativity. *Natural Language & Linguistic Theory* 17:445–497.
- Lin, Jimmy. 2004. Event Structure and the Encoding of Arguments: The Syntax of the Mandarin and English Verb Phrase. Doctoral dissertation, MIT.
- Lin, Jo-wang. 2008. Event decomposition and the syntax and semantics of durative phrases in Chinese. In *Event Structures in Linguistic Form and Interpretation*, ed. J. Dölling, T. Heyde-Zybatow, and M. Schäfer, 31–54. Berlin: Walter de Gruyter.
- Parsons, Terence. 1990. *Events in the Semantics of English*. Cambridge, Mass.: The MIT Press.
- Soh, Hooi Ling. 1998. Object Scrambling in Chinese. Doctoral dissertation, MIT.
- Sybesma, Rint. 1999. *The Mandarin VP*. Dordrecht: Kluwer.
- Vendler, Zeno. 1957. Verbs and times. *The Philosophical Review* 66:143–160.
- Williams, Alexander. 2005. Complex Causatives and Verbal Valance. Doctoral dissertation, University of Pennsylvania.
- Williams, Alexander. 2011. On V-V compounds in Chinese. *Natural Language & Linguistic Theory* Accepted with minor revisions.

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