Original Research

V-V Compounds in Chinese: Syntactic Perspective Revisited

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Abstract
This article revisits the formation of the resultative V-V compounds in Chinese. While presenting evidence to show the inadequacies of the lexicalist approach, we instead argue that these compounds are derived via syntactic operations. Meanwhile, the multiple readings of V-V compounds, once claimed to be the strong argumentation of the lexicalist account, are actually the results of such characteristics of Chinese syntax as the object realization, focalization, and topic-prominence. The evidence provided by the lexicalists thus does not constitute an argument against the syntactic account.

Keywords
V-V compound, lexicalist account, syntactic account, resultative

V-V Compounds in Chinese and Two Competing Approaches

Preliminaries
V-V compounds in Chinese refer to the sequence of two verbal morphemes, which functions as single verbs. The two morphemes involved are interpreted as causally related, with the first denoting an activity while the second a change-of-state (Wang, 2003). Despite the fact that the two morphemes form a lexical unit, they can each maintain a separate and independent relationship with other argument elements in the sentence (D. Shi, 1998). Therefore, in this study, V-V compounds refer to only compound verbs that contain the causative meaning and consist of two predicator-like components such as qi-lei “ride-tired” and chang-ku “sing-cry,” but not those chi-wan “eat-finish,” mai-dao “buy-arrive,” and so on, in which the second verbal morpheme indicates the completeness of the event. However, scholars admit that V-V compounds are hard to distinguish from serial verb constructions (SVCs; cf. Aikhenvald & Dixon, 2006; Altakhaineh & Zibin, 2018; Haspelmath, 2016). An SVC, as is defined in Haspelmath (2016), “is a monoclausal construction consisting of multiple independent verbs with no element linking them and with no predicate–argument relation between the verbs” (p. 296). As far as the surface strings are concerned, V-V compounds and SVCs are indeed similar because both may contain a V-V sequence with no links in between, of which the two morphemes are also closely connected in one way or another. However, in spite of the (superficial) similarity, we believe the V-V compounds and SVCs are essentially linguistic entities of separate category and are dissimilar in even more ways. Here, we will enumerate some of the important differences as follows.

First, although both V-V compounds and SVCs bear some resemblances, they are not the same in terms of the connectedness between the two verbs. The most obvious manifestation for this lies in the possibility of inserting some elements between the verbs (or verb morpheme). It has been shown in the literature that the first verb in an SVC, if it is transitive, can take a noun phrase (NP) object across various languages (Baker, 1989; Foley, 1997; Givön, 1979). Besides, it is often said that the verbs in SVCs must have the same aspectual value; it remains unclear how universal this is (Haspelmath, 2016). Some scholars believe that the two verbs of an SVC can have different value (Dixon, 2011; Muysken & Veenstra, 1995). This is also true of the SVCs in Chinese because the objects and aspect markers can both appear between the two verbs. For example, Chao (1968) points out that in an SVC,
However, it has been a quite different scenario for the V-V compounds in Chinese: The two verb morphemes must be linearly adjacent and no elements can ever occur in between, even if the first verb is transitive. For example (3SG = third person singular; IMPF = imperfective; EXP = experiential; CL = classifier),

(1) a. Olú lu màálú kú. (Yoruba, from Baker, 1989)
   Olú hit bull dead
   “Olú hit the bull dead.”

b. A fáa páu tá túe. (Saramaccan, from Muysken & Veenstra, 1995)
   3SG chop tree IMPF throw
   “He is felling a tree.” (=The tree is falling)

c. Ta na jidan huan qian. (3SG take egg exchange money)
   “He sold eggs for money.”

d. Ta zhan zhe yingjie lingdao. (3SG stand IMPF welcome leader)
   “He welcomed the leader while standing.”

(2) a. *Ta yao sha Zhangsan si. (Intended reading: “He wants to kill Zhangsan.”)
   3SG want kill Zhangsan dead

b. *ta zuotian ku guo shi yikuai shoupa. (Intended reading: “He cried so much that a handkerchief was wet.”)
   3SG yesterday cry EXP wet one-CL handkerchief

With the above examples, we can easily see the crucial differences between V-V compounds and SVCs. For SVCs, the objects or aspect markers can appear after the first verb in SVCs, as shown in (1). However, the ungrammaticality in (2) indicates that no such thing can ever occur in V-V compounds. The V-V compounds function like the single verb and only take, for example, the aspect marker after the second verb.

Second, Haspelmath (2016, p. 309) puts forward 10 generalizations, some of which can be examined to distinguish a V-V compound and an SVC. The most prominent one is the Generalization 7, which says “in all SVCs, all the verbs share at least one argument.” This generalization is also among the most frequently mentioned characteristics of SVCs, at least since Foley and Olson (1985, p. 24). For instance, in the examples of SVC in White Hmong and its Chinese counterparts of (3) below, the agent is shared by the two serial verbs; for V-V compounds in Chinese, things are different because the two verbs (morphemes) may not share any argument at all, as is exemplified in (4) (1SG = first person singular; Perf. = perfective).

(3) a. nws xuab riam txiav nqiaj qaib. (White Hmong, from Jarkey, 1991, p. 63)
   3SG grasp knife cut meat chicken
   “She cut some chicken meat with a knife.”

b. wo na dao qie mianbao. (Y. Li, 2014)
   1SG take knife cut bread
   “I took the knife to cut the bread.”

(4) a. Zhangsan chi-huai-le duzi. (Zhangsan has eaten (something bad. As a result,) his stomach is upset.)
   Zhangsan eat-bad-Perf. stomach

b. Zhangsan chang-ku-le Lisi. (Zhangsan’s singing made Lisi cry.)
   Zhangsan sing-cry-Perf. Lisi

In Example (4a), the first verb chi “eat” has the agent Zhangsan and something implicit as its arguments, while the second verb huai “upset” is intransitive and only has duzi “stomach” as its theme. This is also true of the V-V compound in (4b) because the first verb chang “sing” has Zhangsan as its agent and a song as its implicit patient, while the second verb ku “cry” is intransitive and only has Lisi as its agent. This indicates that the two verbs in V-V compounds are indeed causally related, but they need not necessarily share the argument(s).

Third, while the above two criteria may be used to define SVCs and presumably to distinguish SVCs and V-V compounds across languages, we have also noticed a language-particular aspect which can illustrate the key difference between the two, that is, the phonological size. As far as Chinese is concerned, all the V-V compounds discussed in Chinese are disyllabic, with the first monosyllabic verb morpheme denoting an activity while the second one indicates a change-of-state or result. This can be evidenced by the V-V compound facts presented in the previous literature,
including both the lexical account and the syntactic account (to be discussed in a later section). However, there is no such phonological constraint on the SVCs in Chinese which essentially have nearly all exceeded such a syllabic number.

With all the above discussions, it is believed that the V-V compounds and SVCs in Chinese are linguistic entities of different types and not difficult to be distinguished from each other. Compared with SVCs, the V-V compounds are subject to some restrictive delimitation in some aspects like phonological size and element insertion, but enjoy a relaxation in others such as argument sharing. Next, we will move on to discuss the two competing approaches to such linguistic phenomenon.

**Lexicalist Account Versus Syntactic Account**

In the literature, the derivation of resultative V-V compounds in Chinese has been a subject of heated debate. Two approaches are most influential: lexicalist account and syntactic account. While the syntactic account still finds favor with many syntacticians (L. L.-S. Cheng, 1997; L. L.-S. Cheng & Huang, 1994; C. Shi, 2008; D. Shi, 1998; Sybesma, 1992, 1999; Sybesma & Shen, 2006; Xiong, 2006, among many others), the lexicalist account, with the efforts of Y. Li (1990, 1993, 1995, 1999, 2005), has gained much success during the last two decades.

**Advantages and shortcomings of lexicalist account.** As a representative of lexicalist account, Y. Li (1990) believes that

*V-V compounds enter syntax directly from the lexicon and that the multiple readings of V-V compounds are essentially a case of lexical ambiguity. His explanation relies on two theories: one is the theta identification (Higginbotham, 1985) and the other is the Case Theory. Y. Li (1990) states,*

> When a compound verb heads the VP in a clause, only two structural Cases, nominative and accusative Case, can be assigned to its NP arguments. This means that such a compound can assign theta-roles to no more than two arguments, with one of them receiving Case from the subject position and the other from the object position. Therefore, if the total of the theta-roles of the two component morphemes exceeds two, some of them must be identified to guarantee that each theta-role is eventually assigned to some Case-marked argument, as the Theta Criterion demands. (p. 184)

*Besides, to account for the distribution of legitimate configurations, Y. Li (1990) assumes that the \( \theta \)-grids of the two Vs are structured according to the prominence hierarchy as \("agent > goal > theme \ldots \)\". That is to say, the \( \theta \)-role assigned to the external argument should be higher than the one assigned to the internal argument, and the hierarchy of \( \theta \)-roles of the two verbs must be kept in the result \( \theta \)-grid when they combine to form a V-V compound. Li’s account has shown its power to explain the two readings of *Baoyu qi-lei-le ma* (Y. Li, 1990) and the three readings of *Taotao zhui-lei-le Youyou* (Y. Li, 1995), as shown in (5) and (6), respectively.*

**Lexicalist Account**

(5)  

| Baoyu | qi-lei-le | ma |
| Baoyu | ride-tired-Perf. | horse |
| Reading (a): “Baoyu rode the horse (and as a result the horse got) tired.” |
| Reading (b): “Baoyu rode the horse (and as a result he got) tired.” |

(6)  

| Taotao | zhui-lei-le | Youyou |
| Taotao | chase-tired-Perf. | Youyou |
| Reading (a): Taotao chased Youyou and Youyou got tired. |
| Reading (b): Taotao chased Youyou and Taotao got tired. |
| Reading (c): Youyou chased Taotao and Youyou got tired. |
| *Reading (d): Youyou chased Taotao and Taotao got tired.* |

**Syntactic Account**

Y. Li (1990, 1993, 1995, 1999, 2005) provides a beautiful explanation for the properties of many resultative V-V compounds and presents a possible explanation for the absence of certain interpretation of V-C constructions. However, although Li’s account covers most of the phenomena, exceptions still can be found. Consider the examples in (7–10):

(7)  

| Zhangsan | chi-huai-le | duzi. |
| Zhangsan | eat-bad-Perf. | stomach |
| “Zhangsan has eaten (something bad. As a result,) his stomach is upset.” |

(8)  

| Zhangsan | chang-ku-le | Lisi. |
| Zhangsan | sing-cry-Perf. | Lisi |
| “Zhangsan’s singing made Lisi cry.” |

(9)  

| Zhangsan | chou-guang-le | jiachan. |
| Zhangsan | smoke-empty-Perf. | estate |
| “Zhangsan smoked (e.g., opium. As a result, he) finished all his money.” |
Zhangsan xi-shi-le xiezi.

“Zhangsan was washing (something. As a result,) his shoe(s) got wet.”

An approach, whether it is lexical or syntactic, as long as it is carried out within the generative framework, must be ready to be confronted with the challenges from the θ-criterion and/or the Case Theory. For example, the θ-grids of chi “eat” and huai “bad” in (7) are shown in (11):

\begin{equation}
\begin{align}
\text{chi: } & <1, 2> \\
\text{huai: } & <1'>
\end{align}
\end{equation}

According to Y. Li (1990), because the argument number of the verb component is more than two, these θ-roles must be identified to be assigned to two arguments. Logically, there are two ways:

\begin{enumerate}
\item a. \(<1-1', 2>\)
\item b. \(<1, 2-1'>\)
\end{enumerate}

However, neither of them is applicable to chi huai “eat-bad,” which actually has a θ-grid like (13), with \(<1>\) assigned to the argument which occupies the subject position and \(<1'>\) assigned to another argument which occupies the object position.

\begin{equation}
<1, 1'>
\end{equation}

But which argument is the θ-role \(<2>\) assigned to? Obviously, there is no argument to bear this θ-role. However, if it is not assigned at all, a violation of the θ-criterion will arise.

Advantages and problems of syntactic account. Huang (2010) takes a syntactic stance to account for Chinese resultatives. His account has been elaborated by X. Hu (2018, p. 127):

\begin{equation}
\begin{align}
\text{Zhangsan zou-lei le.} \\
\text{Zhangsan walk-tired Perf.}
\end{align}
\end{equation}

“Zhangsan walked so much that he got tired.”

Therefore, to the syntactic account, the derivation of (7) seems not to be a problem, because in the D-structure, both chi “eat” and huai “bad” have their own independent projections. This means that they have separate arguments to bear the θ-roles assigned to them.

According to previous studies (e.g., Sybesma, 1992, 1999) the derivation of V-V compounds is through a syntactic incorporation. It can simply be represented by (16). Note that the formation of huai-le can either be accounted for as through aspect-lowering (e.g., L. L.-S. Cheng & Li, 1991; Zhuang & Liu, 2011) or V-raising (e.g., J. Hu, 2008; Sybesma & Shen, 2006). Within the framework of minimalist program, however, there is no controversy anymore, because it is believed that huai-le is full-fledged when it comes out of the lexicon.

\begin{equation}
\begin{align}
\text{Zhangsan ku-shi le shoupa.} \\
\text{Zhangsan cry-wet Perf. handkerchief}
\end{align}
\end{equation}

“Zhangsan cried so much that his handkerchief got wet.”

Obviously, the syntactic account here is still not fully developed. As far as we are concerned, it is confronted with at least three questions: (a) What the syntactic status small clause (SC) is? (b) Where the object of chi “eat” has gone? and (c) How to account for the two readings of Baoyu qi-lei-le ma (Y. Li, 1990) and the three readings of Taotao zhui-lei-le Youyou (Y. Li, 1995)?

In the current study, we will demonstrate that the syntactic account, with certain hypotheses taken into consideration, can overcome these problems. That is to say, it can not only solve the phenomenon that the lexical account cannot explain but also solve that phenomenon that the lexical account can explain.
By "retreat," we mean that it is merely not mapped in the object of the matrix causative verb—unable to get a Case—verb is grabbed by the subject of the embedded clause. The (accusative) Case that is assigned by the matrix causative verb is an infinite one (Sybesma, 1992, 1999; Sybesma & Shen, 2006) and cannot assign a case to its subject; however, it has to grab the accusative case assigned by the V in V-DE constructions. The reason why both V-DE constructions and V-V compounds can be found in Middle Chinese is that the coexistence of V-DE constructions and V-V compounds satisfies the need to express different emphases. Chinese is an end-focus language, in which the end of a sentence carries the natural focus. Therefore, we can examine the sentences with V-DE constructions first.

Syntactic Account Revisited

Let us get down to the first question: What does the SC in (16) stand for? Is it a complementizer phrase (CP) or a tense phrase (TP) or neither? According to Zhuang (2014), V-DE constructions share the same D-structure with V-V compounds, and they came from the same “V NP V” construction in Middle Chinese. The reason why both V-DE constructions and V-V compounds can be found in Modern Chinese is that the coexistence of V-DE constructions and V-V compounds satisfies the need to express different emphases. Chinese is an end-focus language, in which the end of a sentence carries the natural focus. Therefore, we can examine the sentences with V-DE constructions first.

SC and V-DE Constraint on Object

Passivization provides a piece of evidence that the SC in (16) is a TP. Consider (17):

(17) a. ta ku de wo xiang diao yanlei le 3SG cry DE I want drop tear SFP
   “He cried so (sadly) that I wanted to weep.”

b. wo bei ta ku de t1 xiang diao yanlei le 1SG BEI he cry DE I want drop tear SFP
   “I was made in the mood to drop tears by his (sad) crying.”

c. */yanlei bei ta ku de wo xiang diao t1 le tear BEI he cry DE I want drop tear SFP
   Intended reading: “Made by his (sad) crying, I dropped tears.”

The contrast between (17b) and (17c) can be explained if the V-DE constructions are assumed to have an exceptional Case marker (ECM) structure. That is to say, when the matrix clause passivized, only the subject in the embedded clause is affected. The object in the embedded clause, however, will be licensed by the verb that governs it and will not rise (to the subject position of the matrix clause). This is perhaps a result of the CP reduction. The TP following V-DE is an infinite one (Sybesma, 1992, 1999; Sybesma & Shen, 2006) and cannot assign a case to its subject; however, it has to grab the accusative case assigned by the V in V-DE construction.

Along the same lines, (7–10) can be understood to contain ECM-style structures. The first question is thus solved. That is, the SC in (16) stands for TP.

Of course, the fact that the SC in (16) is a TP, however, does not mean that the SC after DE is always a TP. It may be a CP, as shown below:

(18) erzi de hunshi chou de ta toufa bai le son De marriage worry DE she hair white ASP
   “Her son’s marriage made her worried so much that her hair turned white.”

(19) Wangwu da de Zhaoliu liang tiao tui que le yi shuang.
Wangwu beat DE Zhaoliu two CL leg lame ASP one pair
   “Wangwu beat Zhaoliu so cruelly that both of his legs were lame.”

Because toufa “hair” in (18) and liang tiao tui “two legs” in (19) should be in Spec,TP, the only position for ta “she” in (18) or Zhaoliu in (19) should be Spec,CP. That is to say, the clauses after DE can be a CP. (This also indicates that the assumption that DE is a complementizer by some scholars, for example, Huang, 1982, is not unquestionable.)

The hypothesis that the SC in (16) is a TP explains also the second question, that is, where the object of chi “eat” has gone. The (accusative) Case that is assigned by the matrix causative verb is grabbed by the subject of the embedded clause. The object of the matrix causative verb—unable to get a Case—cannot be realized in situ and has to retreat, although it can be realized through certain roundabout ways, as is shown later. By “retreat,” we mean that it is merely not mapped in the derivation of the V-DE construction onto the object position of ku “cry.” For convenience, this phenomenon will be referred to as V-DE constraints on Objects (VDCO) henceforth. Note that DE can be a zero form. In many languages, causative morpheme is overtly spelled out, while in many other languages (like Old Chinese and English), it is covert. DE in causative/resultative sentences of Modern Chinese is considered to be a clitic-like causative morpheme (Zhuang et al., 2013).

It is necessary to note that in derivation of resultative V-DE constructions, the cliticization of DE onto a verb will affect its argument structure in the following way:

(20) V <Agent, Theme>/<Experiencer> → V-DE <Cause, Effect>
As shown in (20), the cliticization of the causative morpheme DE affects the θ-roles(s) that the base verb assigns. The resultative V-DE construction actually reflects the relationship called causality. As is well known, causality is the relationship between two events: one is the cause and the other the effect. The effect is understood as a consequence of the cause. Therefore, the two θ-roles the resultative V-DE construction assigns should be Cause and Effect. As both of

(21) Zhangsan zui de zhan-bu-qilai.
    Zhangsan drunk DE cannot-stand-up
    “Zhangsan was so drunk that he couldn’t stand up.”

(22) Zhangsan jidong de shuo-bu-chu hua lai.
    Zhangsan excited DE cannot-speak-out words come
    “Zhangsan was so excited that he couldn’t speak a word.”

(23) zhe ping jiu zui de de Zhangsan zhan-bu-qilai.
    this bottle alcohol drunk DE Zhangsan cannot-stand-up
    “This bottle of alcohol got Zhangsan so drunk that he couldn’t stand up.”

(24) zhe jian shi jidong de Zhangsan shuo-bu-chu hua lai.
    this CL matter excited DE Zhangsan cannot-speak-out words come
    “This matter got Zhangsan so excited that he couldn’t speak a word.”

According to Huang (1988), Zhangsan in (21) and (22) is an experiencer, while in (23) and (24), it is a causee, with zhe ping jiu “this bottle of alcohol” and zhe jian shi “this matter” being their respective causers. This kind of analysis is faced with severe problems concerning θ-role assignment. As is well known in linguistic studies, θ-roles are encoded in the lexical entry of predicates. This means that the θ-roles that a verb can assign are determined before they enter the syntactic operation. Therefore, zui de “drunk-DE” in (21) and (23) should assign the same θ-roles (the same is true for jidong de “excite-DE” in (22) and (24)). They should not change in the way as Huang describes.

The problem raised above actually can be avoided in the present analysis. As there exists a reason–result inference between the two verbs of V-V compounds in (21–24), and they are linked by de, we propose that the two θ-roles, Reason and Result, are assigned to clauses, that is, in both (21) and (23), the Reason is assigned to Zhangsan zui “Zhangsan was drunk,” and the Result is assigned to the event (Zhangsan) zhan bu qilai “Zhangsan couldn’t stand up.” While in both (22) and (24), the Reason is assigned to Zhangsan jidong “Zhangsan was excited,” the Result is assigned to the event (Zhangsan) shuo bu chu hua lai “Zhangsan couldn’t speak a word.” However, this solution will be faced with the question as to where zhe ping jiu “this bottle of alcohol” in (23) and zhe jian shi “this matter” in (24) come from. It seems that they are from implicit arguments, which can be illustrated by English verbal passives (Ouhalla, 1999, p. 172):

(25) The ball was kicked (by Mary).

(26) The room was unoccupied (*by Mary).

According to Ouhalla (1999), the role of the by-phrase in (25) specifies the identity of the individual who performs the act described by the verb, that is, the external argument. (When the by-phrase is missing, the external argument is said to have an arbitrary interpretation, roughly paraphrased as “[some] one or other.”) The fact that understanding (25) involves an external argument implies that this external argument is an implicit one (in contrast, understanding the adjectival passive in (26) does not involve one).

In a similar way, in (21) and (23), the Cause argument is (yinwei zhe ping jiu) Zhangsan zui “because of this bottle of alcohol, Zhangsan was drunk,” and in (22) and (24), the Cause is assigned to (yinwei zhe jian shi) Zhangsan jidong “because of this matter, Zhangsan was excited.” In (21) and (22), these implicit arguments are suppressed (or suspended), while in (23) and (24), they are spelled out. The position they occupy in the structure should be the Specifier of the topic phrase (Spec,TopP).

It seems that the semantic frame of a verb in many languages in the world can be changed by a causative morpheme in such a way as an external cause appears as the subject. For example, in Konso, a language in Southern Ethiopia, unaccusative intransitive verbs can be changed by the causative morpheme -sh into transitive verbs (27) and an external causer may be added to other verbs (29), as shown below (cited from Mous, 2004):

(27) a. j’aqqal b. j’aqqal-sh
    stick (intr) stick (tr)

(28) salá kaarkurtaa quda j’aqqalshé
    manure beehive around stick:CAUS:PF
    “He sealed the beehive with manure.”

(29) a. keer b. keer-sh
    run (intr) drive, ride (cattle, car, bicycle)
The same is true of (30) and (31) in which the spelled-out implicit arguments are obviously the objects of the V in V-DE constructions.

(30) ta de hua ting de wo xin-jing-dan-zhan.
he De word hear DE I tremble-with-fear
“He’s words got me so scared that my heart beat with terror.”

(31) zhe dun fan chi de Lisi yi-mao-bu-sheng.
this CL meal eat DE Lisi one-dime-not-left
“This meal got Lisi completely broke (after eating it).”

They retreat from their object positions because of VDCO but are realized before the V-DE constructions.

The Realization of Retreated Objects

The third issue is concerned with the realization of the retreated objects. It cannot be answered, however, until one hypothesis as well as characteristics of Chinese are taken into consideration, namely, the Split CP hypothesis and topic-prominence and focalization of Chinese.

Split CP hypothesis. In recent generative linguistic studies, a renewed interest has arisen in the roles of such notions as topic and focus in the syntax of various languages (Culicover & L.McNally, 1998; Frascarelli, 2000; King, 1995; Reinhart, 1995, 1996; Rizzi, 1997, 2001, 2004; Soh, 1998; Zubizarreta, 1998). Among them, the most influential one is the Split CP hypothesis (Rizzi, 1997, 2001, 2004).

For many years before the Split CP hypothesis was put forth, syntactic analyses were carried out under CP hypothesis. It is successful in analyzing left peripheries of most sentences, except those illustrated by (32) (Radford, 2004, p. 328).

(32) (I am absolutely convinced) *[CP [C that [CP no other colleague [C would] [TP he [T t would] [VP [V turn] [PP [P to] tno other colleague]]]]]

It is obvious that CP hypothesis can be applied to analyze (32), in which no other colleague stays in Spec,CP, and would occupies the head of CP. However, once CP hypothesis is extended to (32), one problem arises then: if would is positioned under C, then there is no place for that, which, being a complementizer, usually occupies C; if that is assumed to be located under C, then which position will would be in? (Note that it is higher than TP.)

To solve this problem, Rizzi (1997, 2001, 2004) splits CP into ForceP (Force Phrase), TopP (Topic Phrase), FocP (Focus Phrase), and FinP (Finiteness Phrase), and posits, according to Kayne’s (1994) LCA (Linear Correspondence Axiom), that TopP and FocP must be positioned to the left periphery of a sentence. Accordingly, the structure of (32) can be shown as (33) (Radford, 2004, p. 328):

(33) ForceP
   Force
   Spec
   FocP
   Foc’
   no other colleague
   Foc would
   he t would turn to t no other colleague

Where should TopP be positioned? Let us look at (34):

(34) “He had seen something truly evil—prisoners being ritually raped, tortured and mutilated. He prayed that atrocities like those, never again would he witness.” (Radford, 2004, p. 329)

According to Radford (2004), that in (30) occupies the head of ForceP; atrocities like those, the proposed object of verb witness, is the topic of the sentence; and the negative constituent never again is focused. As a result of the focalization, auxiliary inversion is triggered, and would is raised to the head of FocP—The difference between focus and topic, according to Radford (2004, p. 329), is that a focus represents new information, while Topic represents given information. The structure of the that-clause in (34) is thus shown as (35):

(35) ForceP
   Force
   Spec
   TopP
   Top’
   atrocities like those
   Top
   Spec never again
   FocP
   Foc’
   never again
   he t would turn to t never again
Note that in (35), only three functional projections are presented, namely, ForceP, TopP, and FocP, while FinP is not included in the tree diagrams. However, this does not mean that it is invalid. The only reason that we do not put it in the tree diagrams is that whether there is Fin in Chinese is still a controversy (see Pan & Hu, 2001; Xu, 1985–1986).

The proposal of a Split CP hypothesis—being a new way to solve the syntactic problems in many languages—has been applied widely in cross-linguistic study, for example, Italian (Frascarelli, 2000), Bellunese (Munaro, 2003), German (Newmeyer, 2005, 2009), Japanese (Munakata, 2006), Persian (Darzi & Beyraghdar, 2010), Cantonese (Wakefield, 2011), and so on. In English, for instance, it has been successfully applied to explain the “Directional/Locative Inversion” and the “Preposing around Be” structures, such as (36) (Frascarelli, 2000, p. 130):

(36) a. Into the room walked John.
    b. Sitting in front of her was Bill.

According to Frascarelli (2000), “these structures serve to realize the in situ focusing of SUBJ constituents” (p. 131). This can be shown in two steps:

Step 1: The verb raises to Foc⁰ to check the [+Foc] feature.

(39) jia li lai le keren.
    home inside come Perf. guest
    “To (my) home came (an unexpected) guest.”

(40) tai shang zuo zhe zhuxituan
    stage on sit Impf. presidium
    “On the stage sit the presidium.”

(41) [TopP [VP jia li [FocP lai le [AgrSP t’VP [AgrSP keren [AgrS t’V tVP ]]]]] [+Foc]

(42) [TopP [VP tai shang [FocP zuo zhe [AgrSP t’VP [AgrSP zhuxituan [AgrS t’V tVP ]]]]] [+Foc]

Similar to that of English, the in situ focusing of SUBJ constituents in Chinese can be realized in two steps: first, the verbs lai le “come-Perf.” in (41) and zuo-zhe “sit-Impf.” in (42) raise to Foc⁰ to check the [+Foc] feature; then jia li “in (my) home” in (41) and tai shang “on the stage” in (42) are extraposed to realize the focusing of SUBJ constituents in situ, that is, keren “guest” and zhuxituan “presidium.”

Characteristics of Chinese

Topic-prominence in Chinese. C. N. Li and Thompson (1976, p. 461), according to a number of criteria, establish the following typological table, as in (43).

(43) Subject-Prominent Languages

| Indo-European   | Niger-Congo   | Finno-Ugric | Semitic | Dyirbal (Australian) | Indonesian | Malagasy |

| Chinese       | Lahu (Lolo-Burmese) | Lisu (Lolo-Burmese) | :       | :                   | :         | :        |

At this stage, [+Foc] is still not visible, because two maximal projections, that is, John at Spec,AgrS, and the PP into the room, can possibly serve as complements of the verb in Foc⁰. Therefore, into the room must be extraposed.

Step 2: VP is extraposed, as shown below (Frascarelli, 2000, p. 131):

(38) [TopP [VP into the room [FocP walked v [AgrSP t’VP [AgrSP John [AgrS t’V tVP ]]]]] [+Foc]

It is important to note that Frascarelli (2000) provides evidence to show that it is not the PP that is extraposed in this construction but the whole VP (pp. 131–132). (According to Cinque, 1990, VP extraposition is allowed in English.) Because topicalization of the PP or the VP means no difference to the discussion here, we will not go into details of her evidence.

The SUBJ NP thus serves as the only complement of the proposed verb “walk” and is thus assigned Focus.

It seems that the “Directional/Locative Inversion” in Chinese can be derived in the same way. For example, the derivation of (39) and (40) is shown in (41) and (42), respectively (Impf. = Imperfective).
Subject-Prominent and Topic-Prominent Languages
Japanese
Korean

Neither Subject-Prominent nor Topic-Prominent Languages
Tagalog
Ilocano

Chinese is treated as topic-prominent because its “topic is always in initial position” (C. N. Li & Thompson, 1976, p. 467).

In fact, before C. N. Li and Thompson (1976), Chao (1968) has already pointed out, “the grammatical meaning of subject and predicate in a Chinese sentence is topic and comment, rather than actor and action” (p. 69). That is to say, “The subject in Chinese is actually the topic” (Shen, 2013).

If their observations are correct, then it should not be venturesome to say that of a Chinese sentence, the first constituent can almost always be taken as the topic. That is to say, even though there is no requirement for (in situ) focusing of SUBJ constituents shown in (41) and (42), the topic position in Chinese still needs to be filled.

Focalization in Chinese. Focalization is essentially one of the ways of focusing. Generally speaking, there are two kinds of focusing in Chinese: natural focus (also known as conventional focus) and contrastive focus.

Usually, the natural focus in Chinese is the end of a sentence (D. Liu & Xu, 1998; B. Zhang & Fang, 1996, p. 73). A more detailed discussion can be found later in the article.

The contrastive focus, in contrast, relies on some specific measures: phonological or syntactic. For example, (44) shows the phonological measure (cited from D. Liu & Xu, 1998) (the stressed parts are in bold):

(44) a. Lao Wang shangwu jiegei Lao Li yixie qian.
   Old.Wang morning lend Old.Li some money
   “It was Old Wang who lent Old Li some money this morning.”

b. Lao Wang shangwu jiegei Lao Li yixie qian.
   Old.Wang morning lend Old.Li some money
   “It was Old Li to whom Old Wang lent some money this morning.”

In the literature, many studies can be found on syntactic focusing (e.g., R. L. Cheng, 1983; Chiu, 1993; Ernst & Wang, 1995; Huang, 1982; M. Li, 2007; Paris, 1979, 1998; Paul, 2002, 2005; D. Shi, 1994; Shyu, 1995, 2001; Teng, 1979; Tsai, 2000; N. Zhang, 1997). All scholars admit that there are two ways of syntactic focusing, namely, focus marking and focalization. Focus marking is shown in (45) (D. Liu & Xu, 1998):

(45) ta (shi) zuotian xiawu jin de cheng.
   he be yesterday afternoon enter De city
   “It was yesterday in the afternoon that he entered the city.”

Focalization differs from focus marking in that it involves syntactic movement, as X. Liu (2004) states:

The linear sequence in Chinese is a plate that is abstract, where there are certain positions which are pre-set for the focus. In the generation of sentences, adjusting word order (the linear sequence of constituents) can make certain constituents occupy the positions pre-set for the focus. This is called focalization. (p. 237)

However, the syntactic status of focus has evoked heated discussion. When it comes to the landing site of the focalized phrase, until now, at least three kinds of hypotheses can be found: (1) In Spec of FocP, which is between TP and AspP (Shyu, 1995, 2001); (2) In Spec of AspP (M. Li, 2007, p. 25); (3) Under an inner TopicP (internal topic, lower than IP; Paul, 2002, 2005). These hypotheses are correct in some aspects, but once faced with (46), all of them are problematic.

(46) a. Zhangsan, laoshi ta dang de hao.
   Zhangsan teacher he work DE good
   “As for Zhangsan, a good teacher he is.”

b. Zhangsan, laoshi ta meiyou dang hao.
   Zhangsan teacher he have-not work good
   “As for Zhangsan, a good teacher he isn’t.”
Split CP hypothesis, however, can accommodate the phenomenon illustrated by (46) better. Suppose Zhangsan in (46) is the topic (positioned in Spec,TopP), and ta “he” is the subject (positioned in Spec,IP), then there is not much doubt that laoshi “teacher” should be positioned in Spec,FocP. One may think that ta “he” can be in Spec,VP. However, (46b) excludes this possibility, because meiyou “have-not” occupies a position higher than VP, namely, NegP (cf. Zhuang & Liu, 2011).

If all the above analyses are along the right lines, then let us now move on to explain the readings of Baoyu qi-lei-le ma (Y. Li, 1990) and the readings of Taotao zhui-lei-le Youyou (Y. Li, 1995), as shown in (47) and (48), respectively (“#” in Reading (47c) is to indicate that the reading is grammatically possible but semantically unacceptable).

**A Syntactic Perspective on Baoyu qi-lei-le ma and Taotao zhui-lei-le Youyou**

(47)  
Baoyu  
qi-lei-le  
ma  
Baoyu ride-tired-Perf. horse  
Reading (a): “Baoyu rode the horse (and as a result the horse got) tired.”  
Reading (b): “Baoyu rode the horse (and as a result he got) tired.”  
#Reading (c): “The horse rode Baoyu (and as a result it got) tired.”  
*Reading (d): “The horse rode Baoyu (and as a result Baoyu got) tired.”

(48)  
Taotao  
zhui-lei-le  
Youyou  
Taotao chase-tired-Perf. Youyou  
Reading (a): Taotao chased Youyou and Youyou got tired.  
Reading (b): Taotao chased Youyou and Taotao got tired.  
Reading (c): Youyou chased Taotao and Youyou got tired.  
*Reading (d): Youyou chased Taotao and Taotao got tired.

In the model of the present study, Reading (a) and Reading (b) in (47) are derived in (49) and (50), respectively (note that DE in (49c) is a zero form).

(49)  
a. Lexicon: Baoyu, qi, ma, lei, le . . .  
CAUSE (QI (Baoyu, ma), LEI (ma))  
b. DS: Baoyu qi ma CAUSE ma lei le.  
c. VDCO: Baoyu qi ma (DE) ma lei le.  
d. VR: VP  
e. SS: Baoyu qi-lei-le ma.  
f. PF: Baoyu qi-lei-le ma.

(50)  
a. Lexicon: Baoyu, qi, ma, lei, le . . .  
CAUSE QI (Baoyu, ma), LEI (Baoyu))  
b. DS: Baoyu qi ma CAUSE Baoyu lei le.  
c. VDCO: Baoyu qi ma (DE) Baoyu lei le.  
d. VR: VP  
e. SS: Baoyu qi-lei-le ma.  
f. PF: Baoyu qi-lei-le ma.
e. Object-realization: Baoyu qi-lei-le ma Baoyu.
f. Pro-drop: Baoyu qi-lei-le Baoyu.
g. SS: Baoyu qi-lei-le ma.
h. PF: Baoyu qi-lei-le ma.

Baoyu in (50f) is suppressed. It seems that this phenomenon can be accounted for in this way: The reason for Baoyu to drop is that it cannot get a Case from V1. We would call it a Pro-drop. It is necessary to note that the Pro here could be a pro or a PRO or a zero topic or none of them (but surely a phonetically empty), waiting for a substantial justification (see also Huang et al., 2009).

If we apply these derivations to (51) and (52), we will not get Reading (51b) nor (52b).

(51) Taotao tiao-fan-le Youyou.
Taotao jump-bored-ASP Youyou
Reading (a): “Taotao jumped and as a result Youyou got bored.”
Reading (b): *“Taotao jumped and as a result Taotao got bored.” (Y. Li, 1993)

(52) Taotao da-si-le Youyou.
Taotao beat-die-ASP Youyou
Reading (a): “Taotao beat Youyou and as a result Youyou died.”
Reading (b): *“Taotao beat Youyou and as a result Taotao died.”

In fact, the explanation for the exclusion of Reading (51b) is simple: tiao “jump” in (51), different from qi “ride” in (47), is intransitive. The reason why (52b) is excluded is that it is a matter of common sense that Taotao da Youyou “Taotao beat Youyou” should not cause that Taotao si le “Taotao die.” Reading (52b), therefore, is not acceptable.

Generally speaking, a verb can assign at the most one accusative Case to its right. Note, again, that V1 is the only verb that can assign a Case to it because, according to Sybesma and Shen (2006), the T (the lower one) is infinite; thus, it cannot assign a Case. It seems that dative shift verbs such as “give” are exceptions. According to Chomsky (1981), these verbs have the ability to assign a “secondary” Case to the second (non-adjacent) NP and a “primary” Case to the first (adjacent) NP. However, Baker (1988, Chapter 4) argues that dative shift is actually a type of Preposition Incorporation, namely, one of the Case is actually assigned by the preposition. Besides, Larson’s (1988) Double Object Construction also denies the possibility of secondary accusative Case.

It is necessary to point out that the derivation in (47) shows only one of the ways for the object to be realized. Besides, there are some other ways, as shown in (53–56):

(53) Baoyu qi ma qi-lei-le
    Baoyu ride horse ride-tired-Perf.
(54) ma Baoyu qi-lei-le
    horse Baoyu ride-tired-Perf.
(55) Baoyu ma qi-lei-le
    Baoyu horse ride-tired-Perf.
(56) ma qi-lei-le Baoyu
    horse ride-tired-Perf. Baoyu

As is shown, ma “horse” in (53) is in a verb-copying construction, in (54) as a topic, and in (55) as a focus. What is the structure of (56)? Very possibly, it is derived from (54), whose structure is shown as (57):

(57) TopP
   | NP
   | ma
   | Top
   | TP
   | Spec
   | T
   | Baoyu
   | V

   | Spec
   | T
   | qi-lei-le
   | TP
   | VP

   | Spec
   | T
   | V

Recall that there is still another projection between TopP and TP, namely, FocP (Rizzi, 1997). If there is a [+Foc] in FocP attracting the constituent below to rise, it is not venturesome to assume that qi-lei-le “ride-tired-Perf.” can be further moved up to the head of FocP. This idea has been applied by Zhuang (2013) to explain the derivation of the construction Wangmian sile fuqin “Wangmian’s father died.” Therefore, the derivation of (56) can be shown as (58):
This also explains the phenomena in (23–24) and (30–31) above, which obviously can be derived through focalization. It is shown in (59):

(59) ForceP

With the discussion above, it is no longer difficult to explain all the readings of (48) except Readings (c) and (d) whose structures are shown as (60) and (61), respectively. As discussing Reading (c) of (47) seems unnecessary, here we discuss that of (48), whose derivation is shown as (60):

(60) ForceP

(60) shows the derivation of the reading “Youyou chased Taotao and Youyou got tired” and that in this case Taotao is topicalized while zhu-lei-le is focalized. One of the two Youyou’s left at the end of the sentence is then omitted through a process called “haplology,” which is a mechanism of sound change involving the loss of a syllable (or word) when it is next to a phonetically identical (or similar) syllable (or word).

The reading (48d), however, cannot be derived via a similar way as shown in (61). The reason is that in this case Taotao cannot be dropped or topicalized—According to Empty Category Principle, the Pro in this place must be bound by Youyou in Spec,TP.

(61) ForceP
Resultatives are syntactically different from embedded clauses. For one thing, the resultative clause is governed by the causative verb (V-DE), and an NP in the resultative clause is assigned an accusative Case, while the embedded clause is governed by C, and no constituent in it can be assigned a Case by the verb c-commanding it; further, if there is a Pro in the resultative clause, its binding condition is different.

Let us consider (62):

(62) 他骂Pro_{1i/j}得Pro_{2i}不想信了。

\[
\begin{align*}
ta & \quad ma \quad Pro_{1i/j} \quad de \quad Pro_{2i} \quad bu \quad xiang \quad xie \quad xin \quad le.
\end{align*}
\]

The two Pros (Pro_{1} and Pro_{2}) are different in essence. Pro_{1} is very much like a pronoun, which is free in its governing category, pointing to ta or an individual outside of the sentence, while Pro_{2} can have only one reading, that is, ta ziji “himself” bound by ta “he.”

It has been shown that Pro_{1} is actually the object of the verb in a V-DE construction. It has to retreat because of VDCO. Now the question arises: What is the nature of Pro_{2}? In accordance with the four types of empty categories defined in Chomsky (1982), namely, variable, NP-trace, PRO, and pro, it must be either a PRO or a pro. However, Pro_{2} cannot be a PRO due to the fact that it is properly governed, as discussed earlier. However, Pro_{2} is not as free as Pro_{1}. Pro_{1} in (62) may refer to ta or some individual outside of the sentence, depending on the context, while Pro_{2} has only one reading: ta ziji “himself,” referring to ta “he” in Spec,TP. This is further confirmed by the following examples:

(63) a. Zhangsan_{1} shuo Lisi_{1} ma Wangwu_{k} ma de Pro*_{i/j/*k} bu xiang xie xin le.

“Zhangsan said that Lisi cursed Wangwu so much that Lisi didn’t want to write the letter.”

b. Zhangsan_{1} shuo Lisi_{1} ma Wangwu_{k} ma de ta ziji*_{i/j/*k} bu xiang xie xin le.

“Zhangsan said that Lisi cursed Wangwu so much that Lisi didn’t want to write the letter.”

c. Zhangsan_{1} shuo Lisi_{1} ma Wangwu_{k} ma de ta bu xiang xie xin le.

“Zhangsan said that Lisi cursed Wangwu so much that Zhangsan/Lisi/Wangwu/someone else didn’t want to write the letter.”

Pro_{2}, therefore, must be treated as an anaphor, to be more specific, a reflexive, although it is null.

Reexamining Li’s Evidence Against a Syntactic Account

Li provides two pieces of evidence to argue against a syntactic account. The first is from duration phrases which can occur freely inside the embedded clause of the V-DE construction but are completely incompatible with resultative compounds, as shown below (Y. Li, 2005):

(64) a. Li Kui lei-de [ku-le liang-tian].

“Li Kui was so tired he wept for two days.”

b. Lu Zhishen bei dou de [xiao-le yi ge shichen].

“Lu Zhishen was so amused that he laughed for two full hours.”

(65) a. Li Kui lei-ku-le (*liang-tian).

Intended reading: same as (58a)

b. Lu Zhishen bei dou-xiao-le (*yi ge shichen).

Intended reading: same as (58b)
In fact, this is not difficult to explain. As is known, duration phrases in many languages are represented by PPs. For example, in English, a preposition (e.g., for) is often employed to introduce a duration phrase, as shown in (66) (cited from Zhuang & Zhang, 2017):

(66) a. Jessica Simpson says she cried for five minutes after proposal.
b. I laughed for a long time when Steve . . . c. Mr. Li has taught us Chinese for three years.

Suppose that every duration phrase, in order to be visible to get a θ-role (Visibility Hypothesis), must get a Case—It might be an oblique Case, as shown in (66), or an accusative Case. In English, a duration phrase usually appears in a PP, where it can receive an oblique Case and a θ-role. However, accusative Case cannot be excluded: As shown in the sentence He taught us three months of French, the accusative Case to be assigned to French (by the verb taught, following Chomsky’s, 1981, suggestion, or by an incorporated preposition in the framework of Baker, 1988) is grabbed by the duration phrase, that is, three years. Therefore, Chinese has to resort to a preposition of to get an oblique Case. (Another example, He studied three years of French, where three years has consumed the accusative Case assigned by studied and forces French to appear in a PP.) In Chinese, however, duration phrases never appear in PPs. It means that a duration phrase does not get a Case from a proposition but from a verb directly. That is to say, once the verb moves away, the duration phrase is not able to get a Case anymore.

Another piece of evidence against a syntactic account is from Li (1997, 2000). Li argues that while most V-V compounds have corresponding V-DE constructions, a few of them do not. For example, (66) is perfect, while (68) is very unnatural:

(67) ta nian-hui-le zhe shou shi.
she read-know-Perf. this CL poem
“She read that poem (many times and she) remembered that poem.”

(68) ?ta nian de hui le zhe shou shi.
she read DE know Perf. this CL poem
Intended reading: same as (67).

This contrast can be explained by information structure. Nowadays, increasingly more scholars accept the idea that “some language-specific phenomena, such as focus and topic, concern information structuring” (Schwabe & Winkler, 2007, p. 1). Some of them even try to integrate these phenomena into the formal study of languages. Following this line of thought, some scholars explore the left periphery of the sentence (e.g., É. Kiss, 1998; Rizzi, 1997), while some the right periphery (Feng, 2003), that is, natural focus. Most languages, including Chinese, have the natural focus at the end of a sentence (D. Liu & Xu, 1998; B. Zhang & Fang, 1996, p. 73), which is different from certain languages, such as Japanese, Hungarian, and so on. In the latter, the constituent that precedes the verb at the end of a sentence immediately bear the natural focus (more detailed discussion can be found in Harlig & Bardovi-Harlig, 1988; Kim, 1988; and many others).

(69) Laoshi jiao-hui-le Youyou yingyu.
teacher teach-know-Perf. Youyou English.
“The teacher taught Youyou (English and Youyou came to) know English.”

Y. Li (1990) proposes that “when a compound verb heads the VP in a clause, only two structural Cases, nominative and accusative Case, can be assigned to its NP arguments” (p. 184). However, in (63), the V-V compound jiao-hui “teach-know” obviously assigns three Cases and four θ-roles (with both jiao “teach” and hui “know” assigning two θ-roles), and three of them are assigned to Case-marked arguments. The present account offers an explanation as this: one of θ-roles, namely, Patient assigned by jiao “teach” is absorbed by the causative morpheme, and the rest are assigned to three arguments, namely, Zhangsan, Lisi, and yingyu “English.” The derivation of (63) is straightforward, as shown in (64) (Note that Zhangsan may move to Spec,TP or Spec,TopP, depending on one’s theory. In this study, for consistency, it is assumed to move to Spec,TopP):
Conclusion

On the derivation of resultative V-V compounds in Chinese, there have been two approaches in the literature: the lexicalist approach and the syntactic approach. This article argues against the lexicalist one and proposes that all V-V compounds are derived via syntactic operations. It is also shown that the multiple readings of V-V compounds are actually results of object realization, focalization, and topic-prominence.

To study the V-V compounds, one needs to consider many factors, such as the Economy Principle, Information Structure, and oblique Case. Taking all these into account, we conclude that the evidence provided by the lexicalists does not constitute an argument against syntactic account.

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