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Kishimoto, Hideki

Yu, Yile

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Hideki Kishimoto and Yile Yu

Chapter 6

The syntax of resultative V-V compounds in Chinese

Abstract: The present chapter discusses how the behavioral patterns of resultative verb compounds in Chinese are determined. We argue that the thematic relations of arguments and their syntactic positions are fixed according to how their θ -roles are assigned in the syntax. In particular, with resultative verb compounds, the agent argument of the first verb, which receives an affected theme role from the second result verb, can be realized in what looks like an object position. This is shown to result from the theme argument of the first verb moving into the clause subject position across the agent argument. It is argued that this movement can be instantiated when the theme is identified as an argument closer to tense than the agent, relative to their θ -positions.

Keywords: resultative verb compound, A-movement, locality, θ -role assignment, case, Chinese syntax

1 Introduction

In Chinese, resultative verb compounds are formed quite productively. As Li (1995, 1999) discusses, resultative verb compounds apparently allow a violation of the thematic hierarchy where the agent is ranked the highest because an agent nominal can be realized as a non-subject argument, which is generally believed to be impossible unless certain syntactic operations such as passivization are implemented on the clause. Li (1995, 1999) attempts to account for the fact that the agent of a resultative verb compound is realized in a non-subject position by positing an additional mechanism of the causative hierarchy, alongside the regular thematic

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hierarchy (see also Her 2007). This chapter proposes an alternative syntactic analysis that dispenses with the assumptions about the double thematic hierarchies.

The major objective of the present chapter is to show that exactly how the resultative verb compound construction is interpreted is determined on the basis of its syntax rather than its argument structure, and that the thematic relations of arguments and their possible structural positions are determined according to how they are assigned thematic roles syntactically. We propose that with resultative verb compounds, the agent argument of the first verb, which receives an affected theme role from the second result verb, can be realized in a non-subject position on the basis that the theme argument of the first verb can be identified as an argument closer to T than the agent. It is shown that our proposed analysis not only captures the basic facts of resultative verb compounds, but also can treat some empirical facts which fall outside the purview of Li's previous lexical analysis.

The discussion in this chapter proceeds as follows. Section 2 reviews Li's (1995, 1999) analysis of resultative verb compounds, and discusses some problems with his analysis. In section 3, we propose an alternative syntactic account, and show that our approach has the advantage of accounting for some facts regarding transitive resultative verb compounds that do not directly follow from Li's (1995, 1999) analysis. In section 4, we discuss intransitive resultative verb compounds and resultative verb compounds that involve θ -role suppressions. Section 5 is a conclusion.

2 The issue on resultative verb compounds

As Li and Thompson (1981) illustrates, a resultative verb compound (RVC, hereafter) is composed of two verbs V_1 – V_2 , in which V_2 signals some result of the action denoted by V_1 . In the RVCs where V_1 is transitive, the agent or the theme argument of V_1 is a candidate for serving as the affected theme of V_2 .

- (1) *Taotao zhui-lei le Youyou.*

Taotao chase-tired ASP Youyou

(i) 'Taotao chased Youyou and as a result Youyou got tired'

(ii) 'Taotao chased Youyou and as a result Taotao got tired'

(iii) *'Youyou chased Taotao and as a result Taotao got tired'

(iv) 'Youyou chased Taotao and as a result Youyou got tired'

(Li 1995: 265 (translations added by the authors))

In (1), either the argument in subject position or the postverbal argument can be interpreted as the agent of V_1 .¹ Furthermore, either the agent or the theme of V_1 can be identified as the affected theme of V_2 . This leads us to expect that four interpretations will be available for the RVC in (1). This expectation is not fulfilled, however. In (1), the preverbal DP can be understood to be the agent of V_1 regardless of whether it is construed as an affected theme of V_2 , but the postverbal DP can be understood to be the agent of V_1 only when it is identified as the affected theme of V_2 at the same time. This fact raises one important question of why (1iii), one of the conceivable interpretations, is missing.²

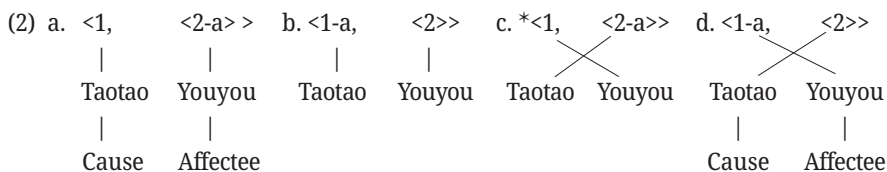
The existence of non-subject agent interpretations in RVC constructions has long been discussed in descriptive studies (see, e.g. Lü [1946] 1980: 530; Ren 2005); RVC constructions are taken to constitute one type of causative construction, where the postverbal DP can represent an agent (see also Cheng and Huang 1994; Cheng 1997; Huang 1997, 2006; Williams 2014; Tham 2015). Li (1995, 1999) suggests that the paradigms on the interpretations observed in (1) should be accounted for by appeal to a causative hierarchy, as well as the usual thematic hierarchy (following Grimshaw's (1990) analysis of English psych-verbs). See also Her (2007), which advances essentially the same solution within the LFG framework.

Specifically, in Li's (1995, 1999) analysis, the agent and the theme roles of V_1 and the affected theme role of V_2 are assigned freely to the two arguments in the clause, which gives rise to the four logical interpretations indicated in (1i–iv). Alongside these thematic roles, Cause and Affectee roles are assigned to the two arguments selectively. According to the rules of causative role assignment defined in Li (1999: 453), the preverbal argument *Taotao* receives the Cause role from the resultative compound if it receives a θ -role only from V_1 , and the postverbal argument *Youyou*,

1 Abbreviations: ASP=Aspect marker; BA= marker of the *ba* construction; CL=classifier, DE=pre-nominal modification marker; marker of the *V de* construction or emphatic marker when used at the end of the sentence; POSS= possessive marker

2 (1) does not have an interpretation in which the affected theme (*Youyou* or *Taotao*) is chased without noticing. The result expressed by the RVC can be either physical or mental. On the physical interpretation, the affectee is physically tired. On the mental interpretation, the affectee is not necessarily tired physically, but is mentally tired of being chased. Both are consonant with the definition of the RVC construction by Li and Thompson (1981), where the RVC is taken to include V_2 which signals some result of the action denoted by V_1 . Although Liu (2021) argues that the reversal linking in transitive RVCs is not productive, we can easily find transitive RVCs that can have the three interpretations, including *qi-si* 'get angry-dead', *da-lei* 'hit-tired', *ma-fan* 'scold-irritated', *xia-hun* 'frighten-dizzy', and *zhui-ni* 'chase-bored'. Note that *qi-si* can only carry the meaning that the result is mental, i.e. it expresses the figurative resultative meaning that the affectee got angry to an extreme degree.

the Affectee role from the resultative compound if it receives a θ -role from $V_2(=R)$ (see Li 1999: 453 for the full descriptions of the rules).



Crucially, the Cause and Affectee roles are assigned in (2a) and (2d) but not (2b) and (2c) (Li 1995: 270). When no Cause-Affectee role assignment is involved, the usual thematic hierarchy, in which the agent is ranked over the theme, is respected. But once the two arguments receive a Cause or Affectee role, the argument realization may violate the thematic hierarchy as long as the causative hierarchy (Cause > Affectee) is observed (see, e.g. Bresnan and Kanerva 1989; Jackendoff 1972; Levin and Rappaport Hovav 2005). This provides a lexical account for why (2a), (2b) and (2d) are available as possible interpretations for (1), but (2c) is not.

Li's (1995, 1999) analysis can account for the basic fact that three out of four logically possible interpretations are available for the RVC in (1). It is worth mentioning, however, that there is one (potential) conceptual problem with his analysis: The RVC construction in (1) expresses a caused change of state regardless of how the two arguments are interpreted, but under Li's analysis, the two interpretations in (2a) and (2d) involve Cause-Affectee role assignment, but (2b) does not. In Li's analysis, the device of the causative hierarchy is necessary to rule out the unwanted interpretation (2c), while ruling in (2a), (2b), and (2d).

Note, however, that the sentence expresses the same logical meaning in all possible interpretations (see section 3). If the sentence expresses the same logical meaning, we would not expect an asymmetry in Cause-Affectee role assignment, as Li (1995, 1999) postulates. If the causative/affected meaning is encoded via Cause-Affectee role assignment, (2b) should differ from (2a) and (2d) with regard to the presence or absence of a causative meaning, but no such semantic difference is detected. If, on the other hand, the logical meaning remains unvarying regardless of Cause-Affectee role assignment, there arises a question as to what part the Cause-Affectee role assignment plays in the interpretations of the RVC. Under Li's analysis, if Cause-Affectee role assignment is not available, it is not possible to derive all the possible interpretations, while excluding the impossible one. The hypothesized Cause-Affectee role assignment, by its nature, should affect the semantics of the RVC, but the fact of the matter is that no thematic difference arises between the interpretations (2b), on the one hand, and (2a) and (2d), on the other

hand. Given this, we can say, at the very least, that the Cause-Affectee role assignment rule is not well-motivated semantically.

On the empirical side, Li's (1995, 1999) analysis faces a problem in accounting for (3), where the RVC consists of the intransitive *ku* 'cry' and the resultative *xing* 'awake'.

- (3) *Emeng ku-xing le mama.*
 nightmare cry-awake ASP mother
 'The mother cried and as a result she woke up by a nightmare'

In (3), the postverbal DP *mama* 'mother' is the agent of V_1 *ku* 'cry', and the preverbal DP *emeng* 'nightmare' is neither the argument of *ku* 'cry' nor the argument of *xing* 'awake'. In this construction, the agent appears postverbally. Li (1995) claims that this type of argument realization is permitted when the Cause role is assigned to the DP that is not assigned a θ -role by V_2 . But under his analysis, it remains a mystery why the first DP *emeng* 'nightmare' can be introduced, since both **Emeng ku le* 'Nightmare cried' and **Emeng xing le* 'Nightmare awoke' are not acceptable.

In this section, some problems which Li's analysis confronts have been briefly reviewed. In the next section, we shall offer an alternative analysis taking A-movement to be responsible for determining the possible interpretations of RVCs.

3 The syntax of RVC constructions

In this section, we argue that the arguments of the RVC in (1) are interpreted by way of the θ -roles that are assigned to them, and that the agent interpretation on the postverbal DP is derived as a consequence of A-movement, motivated by the EPP requirement of T. We first show that the argument appearing to the left of the complex predicate in the RVC constructions represents the subject of the clause, and then argue that the theme argument can appear in the subject position of the clause (Spec-TP) when it counts as an argument closer to T than the agent.

3.1 The derivation of transitive RVCs

To begin, let us discuss the clause structure of RVCs. Under the split vP hypothesis, a single verb comprises two projections of vP and VP, but some researchers (e.g. Ritter and Rosen 1998, 2000; Ramchand 2008; Travis 2010) suggest that verbal structure should be a little more articulated, reflecting event structure more directly. We

assume, following the latter line of research, that a verb can potentially include three verbal projections that represent event structure: namely, vP accommodating an agent and VP which accommodates a theme (i.e. an argument to which the act of the agent is directed with no entailment of a change of state), as well as RP, which represents its resultant state while accommodating an affected theme. For clause structure in Chinese, we presume that aspect projections are projected over vP (cf. Huang, Li, and Li 2009), and thus we posit the predicate structure (4) for (1), where the first verb *zhui* ‘chase’ describes an activity, and the second verb *lei* ‘tired’ a resultant state.

$$(4) \quad [_{TP} \dots \dots \underbrace{[_{VP} DP_3 v(zhui)_{<Ag>} [_{VP} DP_2 V(\phi)_{<Th>}]}_{V_1 (=causing \text{ event})} \underbrace{[_{RP} DP_1 R(lei)_{<Th[+aff]>}]}_{V_2 (=caused \text{ event})}]$$

In (4), the vP-VP structure representing a causing event (i.e. the “chasing” event described by *zhui* ‘chase’) is projected over RP, which represents a caused event (i.e. the resultant state described by *lei* ‘tired’). As we will discuss below, arguments selected by V_1 can sometimes be suppressed, while the argument selected by V_2 is necessarily realized. Huang (1997) and Lin (2001) propose that lexical verbs are decomposed into several components (see also Huang, Li, and Li 2009). In particular, Lin (2001) argues that in Chinese, lexical verbs are associated with (invisible) light verbs, which allow them to take a variety of objects. In line with this analysis, we propose that when objects are present, they are selected by light verbs, and that V_1 like *zhui* (in *zhui-lei*) consists of a lexical predicate filling *v* plus an inaudible light verb ϕ appearing in *V*, which is selected by the lexical predicate, as illustrated in (4).³ Additionally, it is possible to introduce an unselected causer by projecting CausP (above vP) if an argument slot is made open for it, e.g. by using intransitive V_1 instead of transitive V_2 , or through θ -role suppression (see section 4).

As for θ -role assignment, we postulate that a single θ -marking head assigns one kind of θ -role only, i.e. the *v* head assigns an agent role (Ag), the *V* head a theme role (Th), and the *R* head an affected theme role (Th_[+aff]), and further, that a head with an argument structure assigns its θ -role to an argument located in its specifier position; the derivation crashes if any of the θ -roles available in the clause fails

3 Ramchand (2008) suggests that an intransitive clause like *Karena jogged* is derived by filling *Karena* in both *initP* and *procP*. At the first sight, the *init* and *proc* projections look like corresponding to vP and VP in the present analysis, but differ from them, in that the former determine the semantic class of verbs, while the latter are responsible for θ -role assignment. If Ramchand’s theory is to be incorporated into the present analysis, vP, which represents part of a causative event, would be decomposed into *initP* and *procP*.

to be assigned to the arguments (unless they are suppressed in the syntax). We assume that a θ -role is assigned to an argument appearing within the projection of the θ -marking head, since an EPP requirement is imposed on a θ -marking head, and that the EPP requirement can be fulfilled by either base-generating an argument in the projection of the relevant head or by attracting the closest argument to that projection (in a way similar to T with an EPP requirement).

We suggest that the possibility of the interpretations in RVC constructions like (1) can be characterized in structural terms, and that the possible interpretations given in (1i), (1ii), and (1iv) are determined according to how the initial argument in (1), which appears to the left of the verbal complex, is moved to Spec-TP by A-movement. It is shown that (1iii) is not generated as a possible interpretation due to the absence of legitimate A-movement.

Before proceeding, let us first confirm that in (1), the leftmost DP occurring to the left of the RVC counts as the subject, regardless of how it is interpreted. This fact is confirmed, for instance, by looking at reflexive binding, because, as Tan (1991) and Huang, Li, and Li (2009) argue, only subjects can be the antecedent of the reflexive *ziji* ‘self’.

- (5) *Mary_i gaosu John_j Tom_k xihuan ziji_{i/*j/k}.*
 Mary_i tell John_j Tom_k like self_{i/*j/k}
 ‘Mary_i told John_j that Tom_k likes self_{i/*j/k}’ (Tan 1991: 26)

(5) shows that the matrix subject and the embedded subject, but not the matrix object, can antecede the reflexive *ziji* ‘self’, showing that *ziji* can take a subject as its antecedent (under c-command).

In the RVC in (6), it is the leftmost DP *Taotao*, but not the other DP *Youyou*, that serves as the antecedent of the reflexive *ziji* ‘self’ in all the possible interpretations.

- (6) *Taotao_i zai ziji_{i/*j} de yuanzi li zhui-lei le Youyou_j.*
 Taotao at self POSS garden in chase-tired ASP Youyou
 (i) ‘Taotao chased Youyou and as a result Youyou got tired in Taotao’s garden’
 (ii) ‘Taotao chased Youyou and as a result Taotao got tired in Taotao’s garden’
 (iii) *‘Youyou chased Taotao and as a result Taotao got tired in Taotao’s garden’
 (iv) ‘Youyou chased Taotao and as a result Youyou got tired in Taotao’s garden’

Even when the postverbal *Youyou* is interpreted as the agent of V_1 , *Taotao* in the sentence initial position, which counts as the theme of V_1 , serves as the subject of the clause. Moreover, *Youyou* fronted by topicalization does not serve as the antecedent of the reflexive *ziji*.

- (7) *Youyou_j Taotao_i zai ziji_{i/*j} de yuanzi li zhui-lei le.*
 Youyou Taotao at self POSS garden in chase-tired ASP
 (i) 'Taotao chased Youyou and as a result Youyou got tired in Taotao's garden'
 (ii) 'Taotao chased Youyou and as a result Taotao got tired in Taotao's garden'
 (iii) *'Youyou chased Taotao and as a result Taotao got tired in Taotao's garden'
 (iv) *'Youyou chased Taotao and as a result Youyou got tired in Taotao's garden'

The topicalized DP *Youyou* c-commands *ziji*, but cannot be the antecedent of *ziji*, because it does not serve as the subject of the clause. This fact suggests that in (1), even if the postverbal argument is interpreted as the agent of V_1 , the preverbal argument behaves as the subject. This entails that (1) does not involve inversion instantiated by A'-movement, but the preverbal argument appears in TP via A-movement even when it does not count as an agent.

Now, given that an argument located in TP serves as the antecedent of the subject-oriented reflexive, it is fair to state that an argument acquires subject properties if it is raised to TP via A-movement to fulfill the EPP requirement imposed on T in RVC constructions. This assumption is feasible, for unacceptability results if arguments (subjects) do not appear to the left of the predicates.

- (8) **Tiao-fan le Youyou.*
 jump-bored ASP Youyou
 'Youyou jumped and got bored/(Someone caused) Youyou to jump and got bored'

The unacceptability of (8) shows that the EPP requirement is imposed on T in RVC constructions, which entails that RVCs need to have subjects appearing to the left of the predicates.⁴

4 Incidentally, there are cases where no argument appears to the left of the predicates, as in (i).

- (i) a. *Yijing si le hen duo ren le.*
 already die ASP very many person ASP
 'Many people have already died'
 b. *Xia yu le.*
 fall rain ASP
 'It has rained'

The examples in (i) are acceptable even if Spec-TP is not filled. Nevertheless, this fact does not show that the EPP requirement is lacking in all types of clauses, but rather suggests that the EPP requirement is imposed on clauses selectively, i.e. the EPP does not apply to Chinese as it does in English (see, e.g. Li and Thompson 1981; Chao 1968).

One peculiar property of RVCs is that, as noted by Li (1990, 1993, 1995), at most two arguments are allowed to appear in the clause. The reason why the number of arguments available in RVC constructions is limited to at most two has to do with the fact that they represent one type of construction denoting a change of state brought about by an agent or a causer, which is transitive in nature (see Lü [1946] 1980; Ren 2005). Observe that transitive verbs expressing a caused change of state lexically, such as *hua* ‘paint’ and *dong* ‘freeze (trans.)’, takes two arguments – one representing an agent and the other an affected theme. Likewise, since *zhui-lei* ‘chase-tired’ in (1) expresses a caused change of state, the RVC has one argument with an “agent” role and the other with an “affected theme” role.

We assume, with Cheng and Huang (1994: 192), that RVCs serve as two-place predicates for Case reasons. Specifically, we assume, in line with Chomsky (2000, 2001, 2004, 2008), that arguments are Case-licensed if Case features are valued by their Case-licensing head, and that T is the licenser of nominative Case, and v, the licenser of accusative Case (when v is selected by T). If RVCs are transitive in nature, the fact that they can have at most two arguments follows from RVCs possessing the ability of Case-licensing one argument with nominative Case and another with accusative Case. This suggests that when there is another way of Case-licensing an argument, RVCs would be able to have three arguments. This is in fact the case, as seen in the *ba*-construction in (9).

- (9) *Taotao ba Youyou chang-wang le yao shuo-de hua.*
 Taotao BA Youyou sing-forget ASP want say-DE words
 ‘Taotao made Youyou forget what she wanted to say by singing’
 (Li 1995: 272)

In the *ba*-construction in (9), *Taotao* is the agent of V_1 and *Youyou* occurring with *ba* counts as an affected theme (or to be more precise, an affected experiencer) of V_2 *wang* ‘forget’, which accompanies an additional argument *yao shuo-de hua* (see Li 1995; Williams 2014). The RVC possesses two Case features, nominative and accusative, and hence can Case-license up to two arguments, but in (9), three arguments are allowed on the grounds that *ba* additionally Case-licenses *Youyou*, perhaps by assigning inherent Case to it.

RVCs do not square with three-place verbs, which express a change of location with an achieved location or a change of possession with a recipient (or a “goal” in a broad sense; cf. Malchukov, Haspelmath, and Comrie 2010).

- (10) *Zhangsan song le dajia shengri liwu.*
 Zhangsan give ASP everyone birthday present
 ‘Zhangsan gave everyone a birthday present’

In (10), *song* ‘give’ takes *dajia* ‘everyone’ as a recipient, *shengri liwu* ‘birthday present’ as a theme, and *Zhangsan* as an agent. A well-formed RVC sentence cannot be constructed from *song* taking three arguments, as (11) illustrates.

- (11) **Zhangsan song-ni le dajia shengri liwu.*
 Zhangsan give-bored ASP everyone birthday present
 ‘Zhangsan gave everyone a birthday present and as a result everyone got bored’

This does not mean that *song* ‘give’ is inherently incompatible with RVCs. When the recipient *dajia* ‘everyone’ is not present, a well-formed RVC clause can be constructed, and it is also possible to have the reverse realization of agent and theme, as in (12).

- (12) a. *Zhangsan song-ni le shengri liwu.*
 Zhangsan give-bored ASP birthday present
 ‘Zhangsan gave a birthday present and as a result he got bored’
 b. *Shengri liwu song-ni le Zhangsan.*
 birthday present give-bored ASP Zhangsan
 ‘Zhangsan gave a birthday present and as a result he got bored’

In (12), *Zhangsan* counts as the agent of V_1 as well as the affected theme of V_2 , and *shengri liwu* is the theme of V_1 . On the other hand, when *dajia* ‘everyone’ instead of *shengri liwu* ‘birthday present’ appears in the clause, ungrammaticality results.

- (13) **Zhangsan song-ni le dajia.*
 Zhangsan give-bored ASP everyone
 ‘Zhangsan gave everyone (something) and as a result everyone got bored’

In (12a), the postverbal argument *shengri liwu* counts as a theme argument of V_1 . *Dajia* ‘everyone’ cannot be so construed, and thus (13) is unacceptable. The difference in acceptability between (12a) and (13) has to do with the fact that *song* can take *shengri liwu*, but not *dajia*, as its theme argument, as (14) illustrates.

- (14) *Zhangsan song le shengri liwu/*dajia.*
 Zhangsan give ASP birthday present/everyone
 ‘Zhangsan gave a birthday present/*everyone’

Likewise, with *jiao-cuo* ‘teach-wrong’ the recipient can be realized if it occurs with a preposition, as the contrast in acceptability between (15a) and (15b) shows.

- (15) a. **Laoshi jiao-cuo le xiaohai Yingyu.*
 teacher teach-wrong ASP children English
 'The teacher taught the children wrong English'
- b. *Laoshi gei xiaohai jiao-cuo le Yingyu.*
 teacher to children teach-wrong ASP English
 'The teacher taught wrong English to the children'

The facts illustrate that recipients do not occur as the indirect objects of the transitive RVC constructions for Case reasons, but that RVCs can be formed on ditransitive verbs if they have alternants with two arguments. When recipients are obliquely marked, they can occur in RVCs with two other arguments. The facts follow from the assumption that the RVC can Case-license only up to two arguments.

In transitive RVCs, V_1 and V_2 , furnish three arguments, but the RVCs can comprise at most two arguments in the clause (excluding oblique arguments). Given this fact, we suggest that transitive RVCs can be formed if two verbs share an argument by way of receiving two θ -roles from two distinct verbs or if some θ -roles that V_1 bears are suppressed syntactically (see section 4.2 for the discussion of the latter cases). To be concrete, we suggest that the RVC in (1) is formed by argument sharing, from which the three interpretations in (1) are derived. Here, we postulate, following Hornstein (1999, 2001) (see also Boeckx, Hornstein, and Nunes 2010), that an argument can receive more than one θ -role by moving from one θ -position to another θ -position. The requirement for θ -role assignment can be satisfied in (1) if one argument is base-generated in Spec-vP or Spec-VP, and the other argument merged in Spec-RP is moved into a θ -position which has not been filled.⁵ Given this, the two derivations in (16) are possible for the purpose of θ -role assignment to arguments.

- (16) a. [_{TP} T [_{vP} DP₂ v [_{VP} _____ V [_{RP} DP₁ R]]]]
- ↑
- b. [_{TP} T [_{vP} _____ v [_{VP} DP₂ V [_{RP} DP₁ R]]]]
- ↑

In (16a), the DP₂ receives an agent role from v, and the DP₁ receives an affected theme role from R and a theme role from V. In (16b), the DP₂ receives a theme role from V, and the DP₁ obtains an agent role from v, and an affected theme role from R.

One question that arises is how the argument can move into Spec vP across DP₁, as in (16b), in apparent violation of the minimality constraint on movement.

⁵ Here, we adopt the commonly-held assumption that only upward movement is allowed.

It is often suggested (e.g. Baker 1988; Chomsky 1995; den Dikken 2007) that locality constraints are relaxed by virtue of head movement. In this light, we propose that head movement makes it possible for an argument to move from Spec-RP to either Spec-vP or Spec-VP for the purpose of θ -role assignment. To make this point, first consider how the surface structure of an RVC like (17) is derived.

- (17) *Wo (you) meitian ti-kai na ge men.*
 I have every.day kick-open that CL door
 ‘I (have) kicked the door open every day’

Assuming the split Aspect projections, we suggest that (17) has the structure where the aspectual verb *you* appears in the head position of aspP, acting as a light predicate, and that the verbal complex is moved into the head position of AspP, as in (18).

- (18) [_{TP} *wo* [_{aspP} (*you*) [_{AspP} *meitian* [_{AspP} *ti-kai* [_{vP} . . . *nage men* . . .]]]]]]

The adverb *meitian* ‘every day’ in (17) can be adjoined to the AspP, and thus can appear between *you* and *ti-kai* ‘kick-open’. In a transitive RVC, the complex verb appears to the right of the initial argument and to left of the other argument. Arguments in the verbal structure, including one in Spec-vP, invariably appear to the right of the verbal complex unless they are moved out of vP. This fact suggests that the resultative verb complex resides in a higher position than vP as a consequence of verb raising (Huang, Li, and Li 2009). In the RVC construction, the expected word order, in which the second argument follows the VV complex (with or without *you* ‘have’), is derived if R raises to Asp while picking up the upper verbal heads on the way.⁶

- (19) [_{TP} *T* [_{aspP} (*you*) [_{AspP} *v-V-R-Asp* [_{vP} *v-V-R* [_{VP} *V-R* [_{RP} *R*]]]]]]]]

Given this fact, we propose that *v* can attract either an argument in Spec-VP or an argument in Spec-RP for the purpose of θ -role assignment on the grounds that Spec-VP and Spec-RP are rendered equidistant from *v* via R’s head raising to *v* (cf.

⁶ We assume that the surface order of the V_1 - V_2 sequence of RVCs is derived via right adjunction of a moved head to a higher head through a “tuck-in” operation (see Richards 2001). We also assume that when the verbal complex is raised to Asp, it is left-adjoined to Asp, as in [_{AspP} *v-V-R-Asp(le)* [. . .]]. This adjunction yields the order of the verbal complex where V_1 - V_2 is followed by the aspectual marker *le*. If Asp is exorporated and is right-adjoined to TP, as in [_{TP} [_{AspP} *v-V-R-Asp(le)* [. . .] Asp(*le*)], the aspectual marker *le* appears at the clause end.

Baker 1988; Miyagawa 2001). Since A-movement of one argument across another takes place only when θ -related movement is invoked within the projections of the verbal complex, we suggest that only θ -marking heads (forming a head complex with no intervening non- θ -marking head in the verbal structure) can participate in this domain extension process. Taken together, the relevant notion of equidistance for allowing argument reversal can be defined in (20) (cf. Chomsky 1995).

- (20) a. XP and YP are in the extended minimal complement domain of α if (i) α and β contain a member of the chain CH $\gamma = \{\gamma_1, \gamma_2, \dots\}$ and (ii) β P immediately dominates XP and γ P immediately dominates YP, where α , β and γ are θ -marking heads and $\alpha > \beta > \gamma$ ($\alpha > \beta$ = ' α selects β ').
 b. β P and γ P in the extended minimal complement domain of α are equidistant from α .

Head movement takes place from one head to another head up in a local manner in the clause. Since R's head-raising to v renders Spec-VP and Spec-RP equidistant from v , DP₁ in Spec-RP, which receives an affected theme role from R, can be moved into Spec-vP for receiving an agent role even if DP₂ occupies Spec-VP, as in (16b). On the other hand, DP₁ bearing an affected theta role is moved into Spec-VP for receiving a theme role if DP₂, which receives an agent role, occupies Spec-vP, as in (16a).

In RVC constructions, an EPP requirement is imposed on T. Note that T is not a θ -marking head, and that R does not raise to T. Thus no extension of its complement domain applies to T. This means that Spec-vP, and Spec-VP are not equidistant from T. Accordingly, T normally attracts the closest argument under c-command, i.e. the argument in Spec-vP. Nevertheless, T can attract a lower argument to TP when one argument crosses another argument below vP. In the face of this fact, we propose that the "closeness" pertaining to A-movement to T is assessed with reference to the argument's θ -position. In RVC constructions, the argument assigned an affected theme by R moves to either Spec-vP or Spec-VP via A-movement. When DP₂ is generated in Spec-VP, DP₁ in Spec-RP is moved to Spec-vP, as in (21).

- (21) [T [vP DP₁ [vP DP₂ [RP DP₁]]]]
-

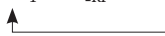
In regard to the question of which argument T can attract when the structure in (21) is derived, observe first that DP₂ c-commands the lower copy of DP₁ in Spec-RP, but is c-commanded by the upper copy of DP₁. Importantly, while only the upper copy is pronounced overtly, the lower and the upper copies of DP₁, both of which appear in θ -positions, are nondistinct in syntactic terms – i.e. they are the same

syntactic entities because they form a chain. This suggests that DP_2 c-commands DP_1 and DP_1 c-commands DP_2 at the same time, and that ambiguity emerges for the assessment of the distance of the two arguments from T. Consequently, it is not possible to determine which argument T can attract. We submit that in such cases, grammar allows either the upper or the lower copy to be chosen as a potential goal to resolve this ambiguity (by making one copy invisible for the purpose of the locality calculation), and that the process of choosing a potential goal is made possible only when an argument receives more than one θ -role by A-movement, i.e. the chain of an argument includes more than one θ -marking position.⁷

- (22) a. $[_{TP} \quad \quad T \quad [_{VP} \quad DP_1 \quad [_{VP} \quad DP_2 \quad [_{RP} \quad \overline{DP_1} \quad]]]]$

 b. $[_{TP} \quad \quad T \quad [_{VP} \quad \overline{DP_1} \quad [_{VP} \quad DP_2 \quad [_{RP} \quad DP_1 \quad]]]]$


In (22a), where the lower copy of DP_1 is made invisible for locality calculation, DP_1 in Spec-VP is identified as an argument to be attracted by T. On the other hand, when the upper copy of DP_1 is made invisible, as in (22b), DP_2 in Spec-VP is identified as the argument to be attracted by T. This indicates that in the configuration (21), T can attract either DP_1 or DP_2 . On the other hand, when DP_2 appears in Spec-VP, DP_1 in Spec-RP is moved to Spec-VP, as in (23).

- (23) $[_{TP} \quad \quad T \quad [_{VP} \quad DP_2 \quad [_{VP} \quad DP_1 \quad [_{RP} \quad DP_1 \quad]]]]$


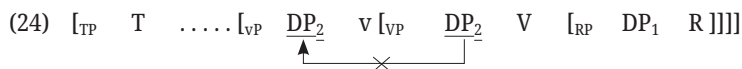
In (23), DP_2 unambiguously c-commands DP_1 whether the upper or the lower copy of DP_1 is chosen as a potential goal, because DP_2 c-commands both the upper and the lower copies of DP_1 . Consequently, T can attract only DP_2 . In this analysis, which argument can be attracted by T is calculated on the basis of the copies of arguments appearing in θ -positions, while only the uppermost copy of the chain is pronounced.

Even though, in Chinese, arguments do not manifest case marking morphologically, an argument needs to be Case-licensed to function as the subject or object of a sentence. For Case licensing, we assume that a verbal head (v) that is first associated

⁷ McGinnis (2004) argues that long A-movement of an argument across another argument is not possible if it is EPP-driven. The Chinese fact suggests that this restriction can be lifted if an argument forms a chain with multiple θ -marked copies.

with T (with no intervening verbal head) has the ability to Case-license an object, i.e. the licenser of accusative Case is a verbal head selected by T (see also section 4). For the RVC in (1), if T is the licenser of nominative Case, and v, the licenser of accusative Case, and if T and v value the Case features of arguments under local c-command, it is easy to see that in the transitive RVCs, the argument in Spec-vP has its Case feature valued as nominative by T, while the other argument, which may be located in Spec-VP or Spec-RP, has its Case feature valued as accusative by v. A single argument may not be doubly Case-marked even if it can receive more than one θ -role, as discussed by Hornstein (1999), which suggests that Case features cannot be valued twice (by distinct heads). We assume that arguments are Case-licensed after all instances of A-movement take place within the verbal structure, but before an argument is attracted to Spec-TP. This means that T Case-licenses an argument appearing in Spec-vP by movement, as in (21) or by base-generation as in (23), and v Case-licenses an argument appearing in Spec-VP by movement, as in (23) or by base-generation, as in (21).

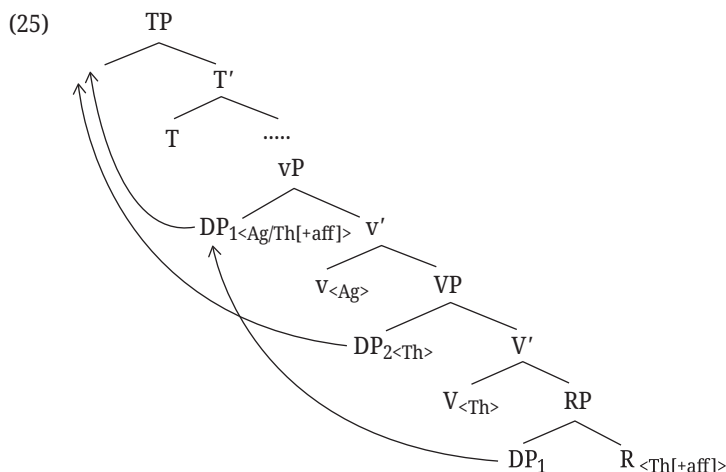
Before proceeding, it should be noted that in (1), it is *not* possible for one argument to be assigned both agent and theme roles by V_1 , with the other argument receiving an affected role from V_2 .



If this way of θ -role assignment were possible, (1) would have the interpretation that Taotao chased Taotao with the result that Youyou got tired or the interpretation that Youyou chased Youyou with the result that Taotao got tired.

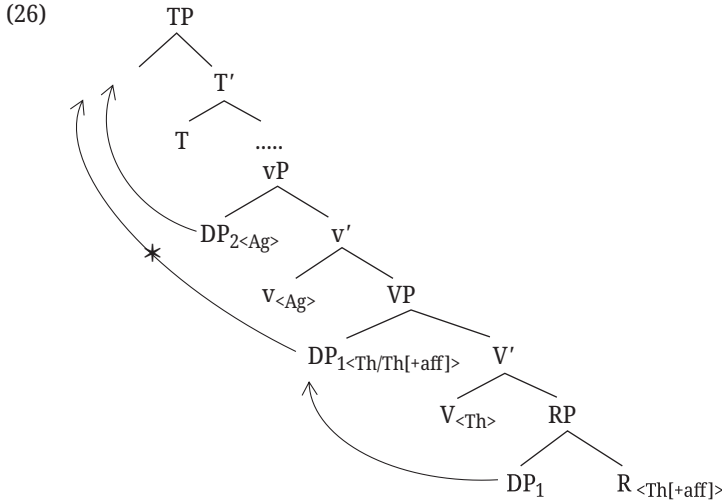
The possibility of moving an argument from Spec-VP to Spec-vP would be permitted if an intransitive verb can have a reflexive interpretation. One candidate is found in an English sentence like *Mary dressed*, which is interpreted reflexively ('Mary dressed herself'). In this sentence, the verb is unergative, which does not have to Case-license an argument in VP. If so, the sentence can be derived by *Mary* first appearing in Spec-VP to receive a theme role, and then undergoing movement to Spec-vP to receive an agent role (Hornstein 1999). The argument is Case-licensed if its Case feature is valued by T. This derivation of *Mary dressed* is suspect, however, since this construction is likely to involve an unspecified object deletion rather than A-movement. Besides, there are no Chinese counterparts of English reflexive verb constructions. In the present perspective, then, it is reasonable to state that a thematic constraint is imposed on Chinese that a single argument cannot receive two θ -roles from the same lexical verb. (Note that in the resultative construction, the sequence of v plus V is realized as a single verb). If this is the case, the fact that an argument in Spec-VP cannot be moved to Spec-vP follows straightforwardly.

Theoretically, all the possible combinations of thematic interpretations assigned to the arguments in RVC constructions are created by the mechanisms of Case and θ -role assignment, combined with the syntactic raising of R to v. To lend concreteness, let us illustrate how the interpretations available for (1) are constructed. First, given that the argument DP_1 is merged with RP to receive an affected theme role, two options are available for generating the other argument DP_2 , which does not appear in RP. One option is to base-generate DP_2 in Spec-VP to receive a theme role. If this option is chosen, two derivations are available, as illustrated in (25).



In (25), T Case-licenses DP_1 in Spec-vP and v Case-licenses DP_2 in Spec-VP. If DP_1 , which has $\langle Ag/Th_{[+aff]} \rangle$, is moved to Spec-TP, (1) has the interpretation in (1ii). If, on the other hand, DP_2 with $\langle Th \rangle$ is moved to Spec-TP, (1) has the interpretation in (1iv). When DP_1 , which is Case-valued by T, is moved to Spec-TP, DP_2 , whose Case feature is valued by v, remains in the postverbal position of Spec-vP. This derivation yields the interpretation (1iv), and in this case, the order of the agent argument and the theme argument of V_1 is reversed via A-movement. This argument reversal is possible because the relative distance of DP_1 and DP_2 to T may be assessed in reference to DP_2 in Spec-VP and the copy of DP_1 left in Spec-RP. In this case, the agent argument of V_1 appears in a position following the verbal complex.

Another option of deriving the sentence in (1) is to generate DP_2 in Spec-vP to receive an agent role from v. The derivation proceeds as in (26).



In (26), the DP_1 in Spec-RP bearing $\langle Th_{[+aff]} \rangle$ moves into Spec-VP to receive a theme role. Thus, DP_2 is identified as the only argument to be attracted by T on the grounds that DP_2 in Spec-vP c-commands both DP_1 in Spec-VP and its copy in Spec-RP. In (26), T Case-licenses DP_2 in Spec-vP, and v Case-licenses DP_1 in Spec-VP. (Note that when v is merged, DP_1 is located in VP.) If DP_2 in Spec-vP (that has received $\langle Ag \rangle$) is moved to Spec-TP, (1) has the interpretation (1i). If DP_1 is moved to Spec-TP instead, (1) would have the interpretation (1iii). But this interpretation is not possible because DP_1 does not qualify as an argument to be attracted by T, i.e. no copy of DP_1 in θ -marking position c-commands DP_2 . This shows that in (1), the construal needed for establishing the interpretation (1iii) cannot be constructed.

As an alternative analysis, one might argue that the argument of RP is realized as PRO/pro controlled by a DP in a higher position, obtaining the control construal like [_{TP} T [_{VP} DP_2 [_{VP} DP_1 [_{RP} PRO/pro]]]]. (See Huang 1992 for a control analysis for resultative clauses, positing “pro”.) In the present perspective, this analysis would be less restrictive, in the sense that the argument of RP is identified as one of the two arguments (DP_1 or DP_2) via control (often without requiring a c-command relation). Moreover, since arguments with control relations are “distinct” entities, and form two distinct chains rather than a single chain, DP_1 cannot be a candidate for attraction by T. Then, the control analysis will predict that T can attract only the agent DP_2 generated in Spec-vP. If this is the case, (1) can only have the interpretations (1i) and (1ii), where the preverbal argument is taken to be an agent, and not (1iii) and (1iv). But the fact is not keeping with the control analysis. In light of these

considerations, it should be apparent that the movement analysis is chosen over the control analysis to account for the interpretive facts of (1).⁸

3.2 Some variants of transitive RVCs

Under our proposal, syntactic head raising provides a key to understanding why an RVC like (1) can have the three interpretations (1i), (1ii), and (1iv). These interpretations are derived on the basis that the argument in RP can be A-moved across the other argument in apparent violation of a local c-commanding constraint. In our proposal, this A-movement is made possible by the syntactic head raising of R to v, which results in the formation of the verbal complex v-V-R. This in turn predicts that the kind of A-movement that renders (1ii) and (1iv) as possible interpretations for (1) will not be allowed when a non- θ -marking head intervenes between V and R. This prediction is borne out. In addition, the possible interpretations for the RVC are affected when some syntactic operations apply to them. In this section, we will provide new data on *bu*-negation and topicalization.

A first set of new data comes from the negative potential form of an RVC construction. An example like (27) provides a case in point.

- (27) *Zhangsan zhui-bu-lei Lisi.*
 Zhangsan chase-can.not-tired Lisi
 (i) ‘Zhangsan cannot make Lisi tired by chasing Lisi’
 (ii) *‘Zhangsan cannot make Zhangsan tired by chasing Lisi’
 (iii) *‘Lisi cannot make Zhangsan tired by chasing Zhangsan’
 (iv) */?’Lisi cannot make Lisi got tired by chasing Zhangsan’

In (27), the negator intervenes between V₁ and V₂. Interestingly, (27) allows only one interpretation, which is given in (27i). This fact follows if the NegP projection accommodating the negative *bu* is placed above RP.

- (28) [_{TP} [_{AspP} v-V-bu-R-Asp [_{VP} v-V-bu-R [_{VP} V-bu-R [_{NegP} bu-R [_{RP} R]]]]]]]

⁸ Under the movement theory of PRO (Hornstein 1999, 2001, and others), movement of PRO does not necessarily target the position which c-commands a copy of PRO left by movement. This postulation is necessary due to the fact that some control construals can be established without a c-command relation.

In the configuration in (28), all the verbal heads and the Neg-head move up to Asp. Note that Spec-VP and Spec-RP are not equidistant from *v* because *R* occurs in a head position below the non- θ -marking head *bu*. Given that the presence of an intervening non- θ -marking head prevents the extension of a minimal complement domain, DP_1 merged with *R* cannot be moved across DP_2 appearing in Spec-VP. Accordingly, the only option available for (27) is to place DP_2 in Spec-vP, which makes DP_1 in Spec-RP move to Spec-VP, as in (29).

- (29) [TP _____ T ... [vP DP_2 [vP DP_1 [NegP [RP DP_1]]]]]
-

In (29), since DP_2 unambiguously c-commands DP_1 , only DP_2 can be moved to Spec-TP. Consequently, the only interpretation available for (27) is (27i), where the preverbal argument is interpreted as the agent of V_1 and the postverbal argument as the theme of V_1 as well as the affected theme of V_2 . Note that Li's (1995, 1999) analysis cannot provide an account for the fact that (27) has only one interpretation, since the arguments in (27) are selected by *zhui* or *lei* in the same way as those arguments in (1).

The only interpretation available for (27) is (27i). No ambiguity arises in (27), since the negator *bu* appears between V_1 and V_2 . (30) shows that three interpretations out of four logically possible interpretations are available if *mei* 'not' appears in a higher position as a clausal negator.

- (30) *Zhangsan mei (you) zhui-lei Lisi.*
 Zhangsan not (have) chase-tired Lisi
- (i) 'The event that Zhangsan chased Lisi and as a result Lisi got tired didn't happen'
 - (ii) 'The event that Zhangsan chased Lisi and as a result Zhangsan got tired didn't happen'
 - (iii) *'The event that Lisi chased Zhangsan and as a result Zhangsan got tired didn't happen'
 - (iv) 'The event that Lisi chased Zhangsan and as a result Lisi got tired didn't happen'

This fact suggests that DP_1 , which is generated in Spec-RP, can be moved to Spec-vP across DP_2 generated in Spec-VP, and that DP_1 is moved to Spec-VP when DP_2 appears in Spec-vP. The presence of the three interpretations for (30) is naturally expected, since Neg appears above the V-V complex.

- (31) [_{TP} T [_{NegP} *mei* [_{aspP} [_{AspP} v-V-R-Asp [_{vP} v-V-R [_{VP} V-R [_{RP} R]]]]]]]]

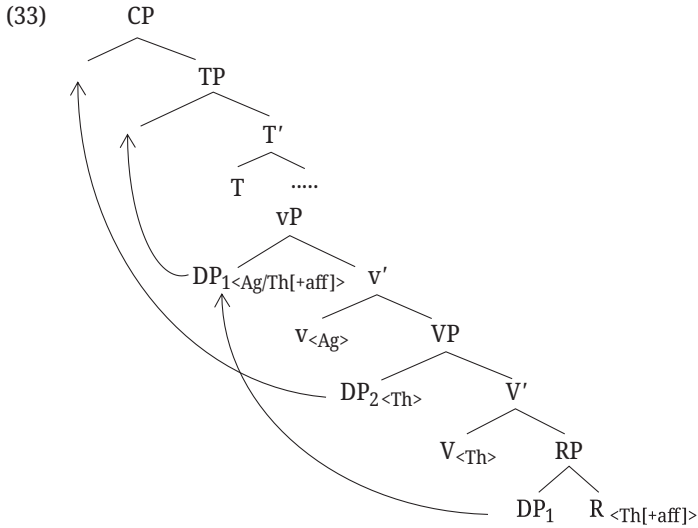
In (31), NegP is projected over aspP, so nothing prevents the verbal complex from raising to AspP. If R is moved to v (and further to Asp), (31) has the configuration in which Spec-VP and Spec-RP are equidistant from v by virtue of R's movement to v. Accordingly, the negative RVC in (30) can have the three distinct interpretations in (30i), (30ii), and (30iv).

A second set of new data concerns topicalization. Topicalization also affects the possibility of interpretations in RVCs, which suggests, again, that some of the interpretations obtained in the ordinary RVC are rendered unavailable due to the absence of R's movement to v. To be concrete, observe that the topicalized sentence in (32) allows only two interpretations.

- (32) *Youyou, Taotao zhui-lei le.*
 Youyou, Taotao chase-tired ASP
 (i) 'Taotao chased Youyou and as a result Youyou got tired'
 (ii) 'Taotao chased Youyou and as a result Taotao got tired'
 (iii) *'Youyou chased Taotao and as a result Taotao got tired'
 (iv) *'Youyou chased Taotao and as a result Youyou got tired'

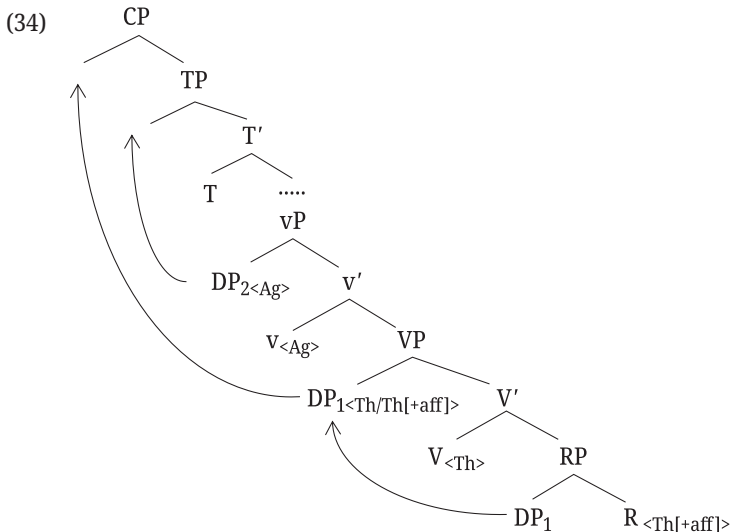
The interpretation (32iv), which is available for (1), is not obtained for (32). This fact follows naturally, given that topicalization at issue targets an object, i.e. an argument in Spec-VP.⁹ To be concrete, in (32), the topic is located in a higher position than the subject in Spec-TP (and topicalization involves A'-movement to Spec-CP). If topicalization invokes the fronting of the argument in Spec-VP, the argument raised to Spec-TP via A-movement is one located in Spec-vP, to which an agent role is assigned, so that the preverbal argument in Spec-TP is necessarily interpreted as the agent of V₁. There are two structural positions from which the argument in Spec-TP could originate. In the first place, the postverbal agent argument can start from within RP, as represented in (33).

⁹ Subject topicalization is possible only when a resumptive pronoun is placed in Spec-TP (see Huang, Li and Li 2009). In this case, the possible interpretations on RVC constructions are not affected.



The derivation gives rise to the interpretation (32ii), where the postverbal agent is identified as the affected theme of V_2 , and the topicalized argument is assigned a theme role by V . In (33), v Case-licenses DP_2 in Spec-VP (under local c-command before topicalization), and T Case-licenses DP_1 in Spec-vP, which is moved from Spec-RP. In (33), the theme does not move into Spec-TP, so the interpretation (32iv) is not available, although this interpretation is obtained in the non-topicalized RVC in (1).

Another possible derivation is that the agent is base-generated in Spec-vP, while the affected theme argument moves into Spec-VP, as represented in (34).



The topicalized DP₁, which is moved from Spec-RP to Spec-CP via Spec-VP, receives a theme role from V and an affected theme role from R. In this case, T Case-licenses DP₂ in Spec-vP, and v Case-licenses DP₁ in Spec-VP moved from Spec-RP. This derivation yields the interpretation (32i) (Needless to say, the interpretation (32iii) is not obtained in the non-topicalized sentence as well as the topicalized sentence because, in both cases, T cannot attract an argument counting as the theme of V₁ as well as the affected theme of V₂).¹⁰

The present syntactic analysis can provide a ready account for the fact that object topicalization eliminates one of the possible interpretations obtained for transitive RVCs like (1), despite the fact that the lexical meanings conveyed by the RVCs do not differ between topicalized and non-topicalized sentences. Obviously, Li's lexical analysis falls short of accounting for the fact that topicalization brings about the change in the possible interpretations of the RVC construction.

One different syntactic analysis has been proposed by Sybesma (1999), which essentially adopts a small-clause analysis which Hoekstra (1988) proposes for Dutch and English resultative constructions. The small-clause analysis postulates that resultative constructions can have three distinct underlying structures.

- (35) a. NP [VP V₁ [SC NP Pred]] (transitive resultative)
 b. *e* [VP V₁ [SC NP Pred]] (intransitive resultative)
 c. NP CAUS [VP V₁ [SC NP Pred]] (causative resultative)

¹⁰ When an agent appears in postverbal position, it appears in Spec-vP, but not in Spec-VP. Thus, the agent does not undergo object topicalization even if it is located in postverbal position in (32). In this connection, note that the interpretation in (32iv), which is lacking in (32), is obtained for the sentence in (i).

- (i) *Zhangsan, zhe-dao cai chi-ni le.*
 Zhangsan this-CL dish eat-bored ASP
 'This dish made Zhangsan be bored of eating it (=He wants to eat another dish)'

The relevant interpretation here is that *Zhangsan* is the topic and the affected argument of V₂ at the same time. This construction is derived from an inverted sentence by applying topicalization to the argument in Spec-vP, and differs from (32), which is derived from a non-inverted sentence by applying topicalization to the argument in Spec-VP. This suggests that topicalization can normally apply to an argument in VP, but topicalization of an argument in vP is made possible only when it is forced by having an argument in the preverbal subject position that cannot possibly be construed as an agent. There are speakers who find (i) very awkward, although the relevant interpretation is detected. Apparently, this group of speakers allows topicalization to apply only to arguments in VP, and thus feels that the forced application of topicalization to arguments in vP is unnatural, though not unacceptable.

Sybesma suggests that the interpretations of a transitive RVC like (1) can be derived from the two kinds of underlying structures where V selects a small clause, one for a canonical intransitive resultative and another for a transitive resultative. To make this point, consider (36) [= (1)].

- (36) *Taotao zhui-lei le Youyou.*
 Taotao chase-tired ASP Youyou
 (i) ‘Taotao chased Youyou and as a result Youyou got tired’
 (ii) ‘Taotao chased Youyou and as a result Taotao got tired’
 (iii) *‘Youyou chased Taotao and as a result Taotao got tired’
 (iv) ‘Youyou chased Taotao and as a result Youyou got tired’

In Sybesma’s analysis, it is postulated that the RVC in (36) has the unaccusative structure in (37a) or the transitive structure in (37b) as its underlying structures.

- (37) a. [[_{VP} *zhui* [_{SC} *Taotao lei Youyou*]]]
 b. [*Taotao* [_{VP} *zhui* [_{SC} *Yaoyao lei*]]]

In (37a), *lei* ‘tired’ is a transitive predicate taking *Taotao* as an external argument and *Youyou* as an internal argument. In this case, (36) has the interpretation in (36ii). Sybesma takes *Taotao* in (37b) to be a causer. The default interpretation given to (37b), which is obtained when *Taotao* is “animate”, is the interpretation in (36i), in which *Taotao* is the causer and *Youyou* is the affected theme of *lei*. If *Taotao* is “inanimate”, *Youyou* receives an interpretation as a causer. Then the interpretation in (36iv) is obtained. If no other underlying structure is available for (36), then (36iii) turns out to be a missing interpretation for (36).

This analysis is called into question, however. One problem is posed by the fact that *Taotao lei Youyou* does not have the interpretation that Sybesma stipulates. When used as a transitive predicate, the first argument is a causer and the second argument is an affected theme. This type of predicate does not fit into the predicate slot in the small clause. This means that (36ii) must be derived from the underlying structure [*Taotao* [_{VP} *zhui* [_{SC} *Youyou lei*]]], which differs from the structure posited by Sybesma. Another problem is that no argument of *zhui* appears in the underlying structures of (36). In Chinese, when an argument is suppressed, an existential interpretation is made available (see section 4.2). If (36) has a causative structure like [*Taotao* CAUSE [*chase* [*Youyou tired*]]], (36) is expected to have the interpretation that Taotao caused Youyou to become tired by “someone” chasing Youyou, as a case of agent role suppression, i.e. the interpretation that Taotao caused “someone” to chase Youyou; as a result, *Youyou* got tired. But the

relevant interpretation is not possible with (36). In addition, in all the possible interpretations, the argument represented as a causer must be interpreted as the agent of *zhui*, suggesting that the causer is somehow identified as the agent of *zhui*. The thematic interpretation needs to be fixed through some extra interpretive mechanisms under this analysis.

Our analysis fares better than Sybesma's. In our analysis, which posits a unitary underlying structure for all the interpretations in (36), the absence of the interpretation that "someone" chases *Youyou* straightforwardly follows, since *Taotao* is introduced as the agent of V_1 (with no agent role suppression). Moreover, our analysis has the advantage of providing a straightforward account for why (27) has only one interpretation (27i). In (27), the intervening negator blocks the domain extension. Hence (27) can have only one interpretation. This fact does not automatically follow from the analysis proposed by Sybesma.

Incidentally, while (32) represents a case where the possible interpretations of RVCs are restricted by syntactic factors, there are also cases where some possible interpretations are removed by semantic conditions. For instance, the *ba*-construction in (38), which is formed from (1), can have the two interpretations in (38i) and (38ii), but not the interpretations in (38iii) and (38iv).

(38) *Taotao ba Youyou zhui-lei le.*

Taotao BA Youyou chase-tired ASP

(i) 'Taotao chased Youyou and as a result Youyou got tired'

(ii) 'Youyou chased Taotao and as a result Youyou got tired'

(iii) *'Taotao chased Youyou and as a result Taotao got tired'

(iv) *'Youyou chased Taotao and as a result Taotao got tired'

(Li 1995: 271; (iv) is added by the authors)

In the *ba*-construction in (38), the postverbal argument in (36) is rendered into the *ba*-phrase appearing to the left of the RVC. It is often discussed that *ba* needs to take an affected argument, since it is subject to the affectedness condition (see e.g. Huang, Li, and Li 2009). Li (1995) in fact suggests that for the *ba*-construction to be legitimate (semantically), the argument occurring with *ba* must be an affected argument. Under the present view, then, the *ba*-argument must count as an affected theme of V_2 (regardless of whether it is construed as the agent or the theme of V_1). Accordingly, (38iv), which is a possible interpretation for (36), is eliminated, since the interpretation in (38iv) is derived from the structure where *Youyou* does not

receive an affected theme role from R. In (38), then, only the interpretations in (38i) and (38ii) are allowed.^{11,12}

11 Owing to the constraint that only one affected argument is allowed in RVCs, the example in (i), where V1 selects an affected theme, allows only one interpretation out of four logically possible interpretations.

- (i) *Zhangsan dong-si le Lisi.*
 Zhangsan freeze-dead ASP Lisi
 a. ‘Zhangsan froze Lisi and as a result Lisi is dead’
 b. *‘Zhangsan froze Lisi and as a result Zhangsan is dead’
 c. *‘Lisi froze Zhangsan and as a result Zhangsan is dead’
 d. *‘Lisi froze Zhangsan and as a result Lisi is dead’ (Yu 2018: 38)

(i) can only have the interpretation in (ia), since the postverbal *Lisi*, which is assigned the affected theme role of V_2 , must also receive the affected theme role from V_1 .

12 Another semantic factor that restricts the behavior of RVCs has to do with the “delimitedness” condition that a clause may comprise only one expression indicating the culminating point of a described event (Goldberg 1995). (ib) may be ruled out by this condition.

- (i) a. *Zhangsan {zou/zou-dao chezhan} le.*
 Zhangsan {walk/walk-arrive station} ASP
 ‘Zhangsan {walked (=went)/walked to the station}’
 b. **Zhangsan zou-lei dao chezhan le.*
 Zhangsan walk-tired arrive station ASP
 ‘Zhangsan walked to the station and as a result he got tired’

The verb *zou* ‘walk’ is an activity verb, to which a goal can be optionally added, as in (ia), but (ib) is not acceptable, presumably because the goal delimits the described event. It might be claimed that (ii) is ruled out for the same reason.

- (ii) *Zhangsan (*wang qiang shang) tie-ni le haibao.*
 Zhangsan to wall LOC paste-bored ASP poster
 ‘Zhangsan pasted posters (to the wall) and as a result he got bored’

Nevertheless, it is not entirely clear whether the unacceptability of (ii) with the goal comes from the affectedness condition, given that (15b) is acceptable even in the presence of an obliquely-marked goal. It might be argued that the unacceptability of (ii) is attributed to the constraint that two individual verbs within a RVC cannot be independently modified, as discussed in Williams (2014), basing the suggestion on the well-formedness of another construction (i.e. the verb-copying construction) like (iii).

- (iii) *Zhangsan wang qiang shang tie haibao tie-ni le.*
 Zhangsan to wall LOC paste poster paste-bored ASP
 ‘Zhangsan pasted posters to the wall and as a result he got bored’

As noted by Williams (2014), the distribution of adverbial phrases is constrained by this condition, but the well-formedness of (iv) poses a problem on this account, since it shows that obliquely-marked recipients are allowed for RVCs.

Let us now consider how an English resultative construction like (39) allows the interpretation in (39i), where *bloody* is predicated of *the frozen meat*, but not (39ii), where *bloody* is predicated of *Rocky's fist*.

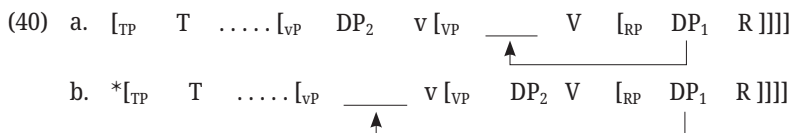
(39) *Rocky's fists pounded the frozen meat bloody.*

(i) 'The frozen meat got bloody from being pounded by Rocky's fists'

(ii) *'Rocky's fists got bloody from pounding the frozen meat'

(Williams 2014: 79)

In (39), the resultative predicate *bloody* can only be predicated of *the frozen meat* owing to the direct object constraint. There are a number of different analyses for English resultative constructions, but for the present purposes, suppose that English shares the basic clause structure with Chinese, specifically, the three-layered verbal structure which has vP-VP-RP (see (4) in section 3.1). One crucial difference that distinguishes English from Chinese is that the resultative predicate in English does not form a compound predicate with the main predicate due to the lack of syntactic predicate raising. This entails that the configuration in (40b) [= (16b)], where the argument of R is moved into the subject position across an object, is not allowed because Spec-VP and Spec-RP are not equidistant from v.



The only option available is one where the argument of the resultative predicate moves into the object position, as in (40a) [= (16a)]. Since (40b) is not legitimate, (39ii) is not a possible interpretation for (39), i.e. the argument reversal interpretation in (39ii) is not obtained for (39). The fact regarding (39) falls out straightforwardly in the present analysis.

In the present perspective, syntactic head raising of θ -marking heads feeds the possibility of moving one argument across another. Note that argument reversal interpretation is possible in cases where V_1 and V_2 share an argument. This config-

- (iv) *Wo can gei ta song-cuo le.*
 I food to him send-wrong ASP
 'I sent him the wrong food'

We will not go into the question of how these cases are handled, and the problem is left open for further research.

uration can be created thanks to the syntactic raising of R to v, which gives rise to a V-V complex. The present analysis then predicts that the reversal of arguments is not possible unless a compound verb is formed. In fact, the inverse realization of agent and theme is impossible in a simple non-RVC clause, where only one transitive predicate appears.

- (41) *Taotao zhui/xia/sha le Youyou.*
 Taotao chase/threaten/kill ASP Youyou
 (i) 'Taotao chased/threatened/killed Youyou'
 (ii) *'Youyou chased/threatened/killed Taotao'

In (41), the postverbal argument cannot count as an agent. This fact naturally follows from our analysis. The transitive verbs bear two θ -roles and take two arguments. In this case, the number of arguments matches the number of θ -roles, and thus, no A-movement takes place below vP and thus multiple θ -role assignment is not implemented. If the predicate encodes an unaffected meaning, as in *zhui* 'chase' or *xia* 'threaten', one argument is assigned an agent role by v, and the other argument is assigned a theme role by V, thus obtaining the structure [_{VP} agent [_{VP} theme [_{RP}]]]. If the predicate carries an affected meaning, as in *sha* 'kill', one argument is assigned an agent role by v and the other argument is assigned an affected theme role by R, obtaining the structure [_{VP} agent [_{VP} [_{RP} affected-theme]]]. In either case, owing to the absence of a θ -role that V or R can assign to its Spec, A-movement into the open argument slot below vP does not take place even if it does not violate the condition on equidistance. It turns out then that the agent unambiguously c-commands the other argument, and hence only the agent can be attracted to Spec-TP for the purpose of fulfilling the EPP requirement imposed on T, and thus (41i) is the only interpretation available for (41).

In this section, we have discussed how our proposed syntactic analysis can account for the four conceivable interpretations for (36)[=(1)] are derived, while ruling out the unavailable one. In our analysis, syntactic structures available for RVCs are responsible for deriving all the available interpretations, and θ -role assignment strictly follows the thematic hierarchy, since Spec-vP, where an agent role is assigned, is projected above Spec-VP, where a theme role is assigned, and Spec-VP is located above Spec-RP, where an affected theme role is assigned. The available interpretations are derived without positing the causative hierarchy allowing a thematic hierarchy violation. The proposed analysis can also treat the fact that possible interpretations for RVCs are affected by an intervening negator (27) and topicalization (32), which obviously fall outside the realm of Li's lexical analysis.

4 Subsidiary RVC constructions

Thus far, our discussion has focused on RVC constructions consisting of transitive V_1 and resultative V_2 , which involve argument sharing. In this section, we will turn to RVCs consisting of an intransitive verb plus a resultative verb and transitive RVC constructions with θ -role suppression. In both cases, a causer, which looks like an unselected argument on the surface, can be introduced under certain conditions. These variants of RVCs show different argument realization patterns but their syntactic behaviors fall out naturally in the present analysis.

4.1 Intransitive RVCs

It should be noted at the outset that at least three different variants of RVC constructions can be constructed from intransitive RVCs (like *tiao-fan* ‘jump-bored’, *pao-po* ‘run-worn.out’ and *ku-xing* ‘cry-awake’), where the first verb is intransitive, as (42) illustrates.

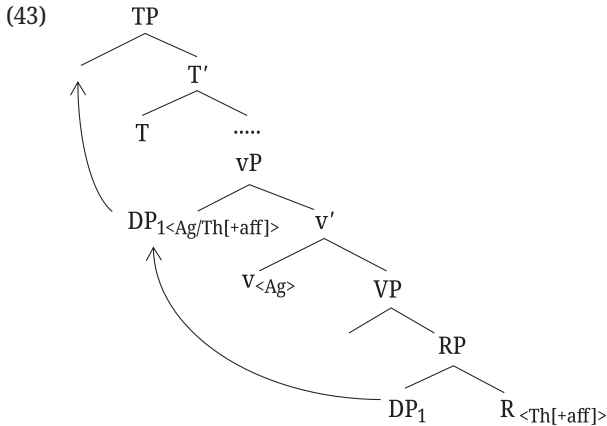
- (42) a. *Zhangsan tiao-fan le.*
 Zhangsan jump-bored ASP
 ‘Zhangsan jumped and as a result he is bored’
 b. *Zhangsan pao-po le zhei shuang xie.*
 Zhangsan run-worn.out ASP this CL shoes
 ‘Zhangsan ran and as a result this pair of shoes is worn out’
 c. *Emeng ku-xing le mama.*
 nightmare cry-awake ASP mother
 ‘The mother cried and as a result she woke up by a nightmare’

In (42a), *Zhangsan* is the agent of *tiao* ‘jump’ and the theme of *fan* ‘bored’. In (42b), *Zhangsan* is the agent of *pao* ‘run’ and *zhei shuang xie* ‘this pair of shoes’ is the theme of *po* ‘be worn out’. In (42c), *mama* ‘mother’ counts as the agent of *ku* ‘cry’ as well as the theme of *xing* ‘awake’, and *emeng* ‘nightmare’ is identified as an external causer (Note that *emeng* ‘nightmare’ in (42c) is neither the argument of *ku* ‘cry’ nor the argument of *xing* ‘awake’ because it is *mama* ‘mother’, but not *emeng* ‘nightmare’, that performs the action of crying, resulting in the state of being awake.)

The three intransitive RVC variants in (42) are made available on the grounds that V_1 selects only one argument. The intransitive V_1 leaves one argument slot open in the verbal structure, and thus, allows an extra non-selected argument to appear because RVCs can include up to two arguments in the clause, i.e. intransitive

RVCs can include one argument selected by V_1 , or can introduce an extra argument, which is not thematically related to V_1 , alongside the argument of V_2 .

Let us now discuss how the three variants of intransitive RVCs in (42) are derived. First, given the premise that unergative verbs include vP as well as VP (Chomsky 1995; Hale and Keyser 1993), the derivation in (43) can be posited for (42a).

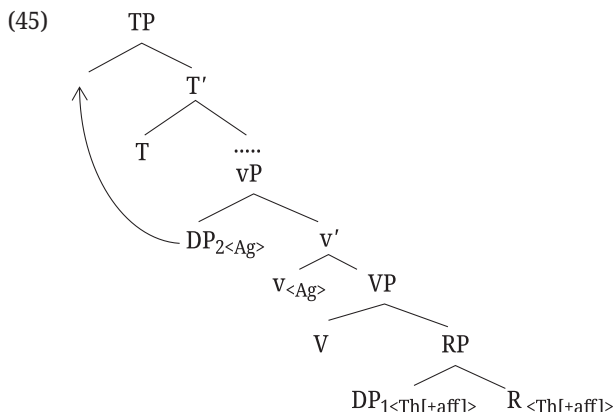


(42a) has only one argument *Zhangsan*, and this argument must first appear in Spec-RP (to receive an affected theme role) and is subsequently raised to Spec-vP (to receive an agent role). *Tiao* ‘jump’ is an unergative verb, so *V* does not bear any θ -role to assign to an argument. DP_1 is merged with RP and moves to vP, and as a result, it carries <Ag/Th[+aff]>. Since (42a) is an intransitive clause with just one argument, *T* Case-licenses DP_1 in Spec-vP. If DP_1 is further moved to TP to satisfy the EPP requirement imposed on *T*, (42a) is derived. Note that if the EPP-driven movement of DP_1 does not take place, ungrammaticality results.

- (44) **Tiao-fan* *le* *Zhangsan*.
 jump-bored ASP Zhangsan
 Intended: ‘Zhangsan jumped and as a result he is bored’

In (44), the agent argument cannot appear in the postverbal position in the absence of another argument that can fill the subject position. Thus, (43) is the only derivation available for (42a).

Secondly, (42b) represents a case where two arguments appear in intransitive RVCs. In this type of intransitive RVC, one argument is base-generated in Spec-RP, and the other argument in Spec-vP, and we can posit the structure in (45) for (42b).



DP₂ in Spec-vP is assigned an agent role, and is attracted to Spec-TP, while DP₁ remains in Spec-RP where it is merged. Only DP₂ can be moved to Spec-TP, since DP₂ c-commands DP₁ and not conversely. DP₁ is not an argument selected by the first verb. As argued by Hale and Keyser (1993), unergative verbs are capable of taking a non-subcategorized object in English, since *v* associated with unergative verbs can Case-license it. This property of unergative verbs follows from Burzio's generalization that the verbs that assign a θ -role to the subject can assign accusative Case to an object (Burzio 1986). This also applies to Chinese RVCs with intransitive V₁. For intransitive RVCs, the generalization is that if *v* assigns an agent role, it can assign accusative Case to an argument (i.e. since *v* is active, it can Case-license an argument). In (45), V₁ is unergative and *v* bears an agent role to an argument in vP. Thus, T and *v* can Case-license DP₂ in Spec-vP and DP₁ in Spec-RP, respectively, although DP₁ is not assigned a thematic role by V. The derivation in (45), which gives rise to the intransitive RVC clause in (42b), is legitimate.

Under the present analysis, it is further predicted that in (42b), the agent argument cannot appear in postverbal position since there is no copy of *zhei shuang xie* 'this pair of shoes' c-commanding *Zhangsan*. This prediction is borne out, as (46) is unacceptable.

- (46) **Zhei shuang xie pao-po le Zhangsan.*
 this CL shoes run-worn.out ASP Zhangsan

Intended: 'Zhangsan ran and as a result he was worn out by this pair of shoes'

The affected theme *zhei shuang xie* does not appear in a structural position higher than the agent *Zhangsan* in the derivation, and hence is not construed as an argument that can be attracted by T. Accordingly, in (42b), the reversed realization of the agent and the affected theme arguments is not possible.

Furthermore, note that a *ba*-sentence can be built from the variant of the intransitive RVC in (42b), as (47) indicates.

- (47) *Zhangsan ba zhei shuang xie pao-po le.*
 Zhangsan BA this CL shoes run-worn.out ASP
 ‘Zhangsan ran and as a result this pair of shoes was worn out’

In (42b), since the argument *zhei shuang xie* ‘this pair of shoes’ appearing in Spec-RP receives an affected theme role, it is possible for this argument to occur with *ba*, as in (47), for *ba* takes an affected argument as its post-*ba* DP (see section 3.2).

In the variant of the intransitive RVC in (42c), the agent appears to the right of the complex verb, and an external causer to the left of it. Although the external causer is neither the argument of V_1 nor the argument of V_2 , (42c) is grammatical. Then, the question is why such an external causer can appear in (42c). By way of answering this question, observe that the same causer argument can appear in a causative sentence like (48).

- (48) *Emeng rang mama ku de henbushufu.*
 nightmare cause mother cry DE sick
 ‘The nightmare made the mother cry and as a result she got sick’

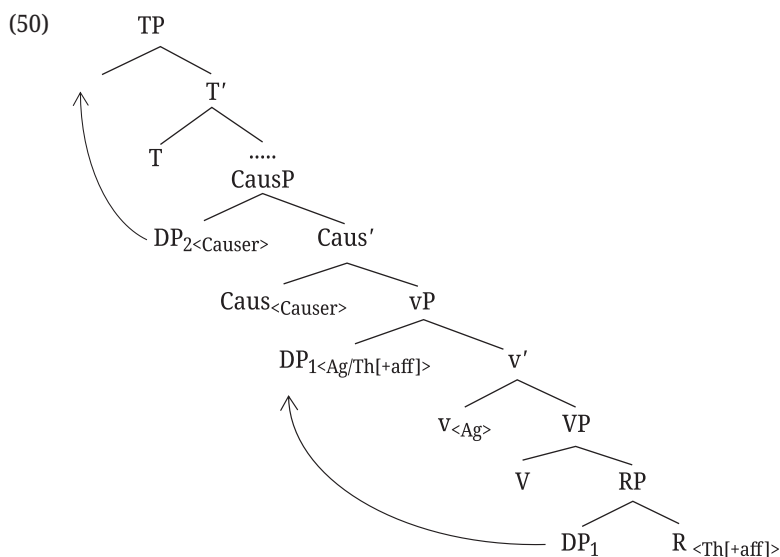
(48) is a causative construction which does not include a V-V compound. We assume that the causative sentence has the clause expressing the caused event embedded under the causative verb.

- (49) $[_{TP} DP_2 [\dots [_{CausP} DP_2 CAUS [_{TP} DP_1 [_{VP} DP_1 [_{VP} [_{RP} DP_1]]]]]]$
-

In the causative construction, the embedded verb is intransitive, and does not assign a theme role, which means that Spec-VP is not available as a landing site of A-movement. Thus, DP_1 generated in Spec-RP is moved to Spec-vP to receive an agent role. Then DP_1 is attracted by the embedded T and appears in the embedded Spec-TP. DP_2 is assigned a causer role in CausP and then is moved to the matrix Spec-TP for it is attracted by the matrix T.

In (48), the arguments are realized in a way similar to those in (42c), in the sense that the preverbal causer is followed by the agent argument of the verb *ku* ‘cry’. In addition, (42c) expresses the same causative relation as (48). Given these similarities, we propose that an invisible causative verb appears above the vP in the RVC construction in (42c), and that the external causer is assigned a “causer” role by an invisible causative verb in CausP projected above vP. We suggest that no TP projection appears in the embedded clause, since it falls into the subclass of V-V compound constructions. This analysis is dismissed by Li (1995), but we suggest that it is viable since it can capture the word order facts involving an unselected causer.

On this proposal, what looks like an unselected causer – the causer which cannot be taken by V_1 (**Emeng ku le* ‘Nightmare cried’) or V_2 (**Emeng xing le* ‘Nightmare awoke’) – is introduced into CausP. The causative verb in CausP is not overtly realized, since RVCs have the restriction that the verbal complex can include only two overtly realized component verbs. By positing that the external causer is base-generated in CausP positioned above vP, we can account for the word order of the RVC in (42c).¹³ To be concrete, in (42c), the derivation proceeds, as illustrated in (50). (cf. Li 1995).



In (50), DP_1 is merged with RP, and is moved to vP; hence DP_1 is understood to be the agent of *ku* ‘cry’ and the affected theme of *xing* ‘awake’. The external causer is assigned a causer role by Caus in CausP. T cannot attract the agent DP_1 , since the causer DP_2 is the argument closer to T than DP_1 , which is the agent of the verb *ku* ‘cry’. Given that the intransitive V_1 selects only one argument, there is a sense in which the invisible causative verb should introduce a causer argument in (42c). In (50), T Case-licenses the causer argument DP_2 in CausP. In addition, the agent argument of *ku* ‘cry’ is Case-licensed by the Caus-head. The Caus-head is the Case-

¹³ Not all causative sentences can have causative RVC counterparts due to the lack of overt indication of causative relations. Pragmatically plausible causative relations need to be established for causative RVCs to be acceptable.

licenser of accusative Case, since it is the verbal head positioned immediately below T (section 3.1). (42c) is well-formed, for (50) is a legitimate derivation.

Li (1995) argues, on the basis of (51a), which seems to be similar to (42c), that the causer subject actually receives a thematic role from V_1 , although it does not look like the argument of V_1 .

- (51) a. *Taotao de gushi xiao-si wo le.*
 Taotao's story laugh-die me ASP
 'Taotao's story made me laugh to death' (Li 1995:262)
- b. *Taotao de gushi zui xiao ren.*
 Taotao's story most laugh people
 'Taotao's story made people laugh most (=was the funniest)' (Li 1995:263)

Li (1995) argues that *xiao* 'laugh' can have a causative use, and can express the meaning of 'make. . laugh' in (51b). In light of this fact, Li claims that *xiao* 'laugh' can assign a causer role to *Taotao de gushi* 'Taotao's story' in (51a), which means that this causer subject is construed as an argument of V_1 . Attractive as Li's analysis may seem at first sight, the fact is not general enough to cover a case like (42c), and hence, his account for (51a) cannot be extended to (42c). In fact, the unacceptability of (52) suggests that the subject in (42c) should not receive a causer role from V_1 *ku* 'cry'.

- (52) **Emeng zui ku ren.*
 nightmare most cry people
 Intended: 'Nightmare made people cry most'

Example (52), where *ku* 'cry' is intended to take *emeng* 'nightmare' as its argument, is not acceptable. The unacceptability of (52) illustrates that in a sentence like (42c), *ku* 'cry' does not license the occurrence of the external causer *emeng*.

In this connection, observe that (42c) permits only the construal where the external causer appears in the subject position and the agent in the postverbal position. It is in fact not possible to derive from (42c) a sentence like (53), where the agent is placed in TP in lieu of the external causer.

- (53) **Mama ku-xing le emeng.*
 mother cry-awake ASP nightmare
 Lit. 'The mother cry-awake nightmare'

The external causer is not thematically related to vP, VP or RP, but is selected by an invisible causative verb. This external causer unambiguously c-commands the

agent from its θ -position, so that the agent can never count as an argument to be attracted by T. Hence, (53), where the agent has been attracted to Spec-TP by T, is unacceptable.

Furthermore, given that DP₁ in (50), which corresponds to *mama* ‘mother’ in (42c), is an affected argument, it is expected that DP₁ will be able to occur with *ba*. This expectation is correct, as shown in (54).

- (54) *Emeng ba mama ku-xing le.*
 nightmare BA mother cry-awake ASP
 ‘The mother cried and as a result she woke up by a nightmare’

Under the present proposal, the *ba*-construction is expected to be well-formed, since *mama* is first-generated in Spec-RP to receive an affected theme role, and then is moved up to Spec-vP to receive an agent role. The agent argument *mama* satisfies the affectedness condition for the formation of the *ba*-construction, and hence (54) is well-formed.

In brief, intransitive RVC constructions have derivations that are not available for transitive RVC constructions, since V_1 is intransitive and takes only one argument. When the intransitive RVC has only one argument, the sole argument serves as the agent of V_1 and the affected theme of the resultative V_2 at the same time, as in (42a). Alternatively, the intransitive RVC can have an affected theme argument selected by the result verb V_2 , independently of an agent argument of V_1 , as in (42b). In this case, the preverbal argument counts as the agent of V_1 and the other postverbal argument counts as the unaffected theme of V_2 . Furthermore, if a causer is added to the intransitive RVC, as in (42c), the causer appears preverbally, and the postverbal argument counts as the agent of V_1 as well as an affected theme of V_2 . These facts are accounted for straightforwardly in our proposed analysis.

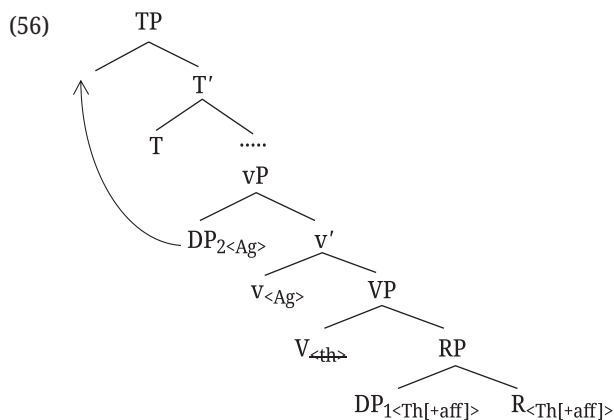
4.2 Transitive RVCs with θ -role suppression

As noted in section 3.1, transitive RVCs have a transitive V_1 , which selects two arguments, alongside V_2 , which selects one argument, but they allow at most two arguments to appear in the clause (while oblique arguments are additionally admitted in certain cases). The transitive RVC in (1) discussed in section 3.1 involves argument sharing. In this type of RVC, one argument receives two θ -roles, one from V_1 and the other from V_2 , which gives rise to three distinct interpretations. Nevertheless, argument sharing is not the only option available for transitive RVCs. In fact, some transitive RVCs make recourse to θ -role suppression rather than argument sharing. In this section, we will discuss how transitive RVCs invoking θ -role suppression are derived.

Transitive RVCs denote a caused change of state, so they need to have an affected argument even if θ -role suppression can be invoked. The question to be raised at this point is how argument suppression cases are handled. We submit that in RVCs with θ -role suppression, θ -roles which V_1 bears may be suppressed, and that no argument in the clause counts as carrying the suppressed θ -roles, i.e. the presence of arguments with the suppressed θ -roles is implied only semantically. Some examples are given in (55).

- (55) a. *Lao-Wei tai-zhong le jianbang.*
 Wei carry-swollen ASP shoulder
 ‘Wei made his shoulders swollen from carrying (something)’
 (Williams 2014: 49)
- b. *Chi ji dun miantiao ye chi-bu-qiong ta.*
 eat several meal noodle also eat-NEG-poor him
 ‘Eating a few meals of noodles won’t make him poor from eating’
 (Williams 2014: 39)

In (55a), the theme argument of V_1 is suppressed, and *jianbang* ‘shoulder’ is the unaffected theme of V_2 . No argument is taken to be the theme of V_1 although the sentence implies that *Lao Wei* carried “something”. Since the theme of V_1 is suppressed, the derivation proceeds, as depicted in (56).



In (56), DP_2 in Spec-vP is assigned an agent role, and is attracted to Spec-TP, while DP_1 remains in Spec-RP where it is assigned an affected theme role. T Case-licenses DP_2 and v Case-licenses DP_1 in Spec-RP. Note that even though the theme argument of V_1 is not realized, v is capable of Case-licensing DP_1 , since it selects an agent argument, i.e. the subject (see section 4.1).

In the configuration in (56), only DP_2 can be moved to Spec-TP, since DP_2 c-commands DP_1 and not conversely. In (56), there is no copy of DP_1 that c-commands DP_2 . This leads to the prediction that no argument reversal will be possible for (55a). This prediction is borne out, as (57) shows.

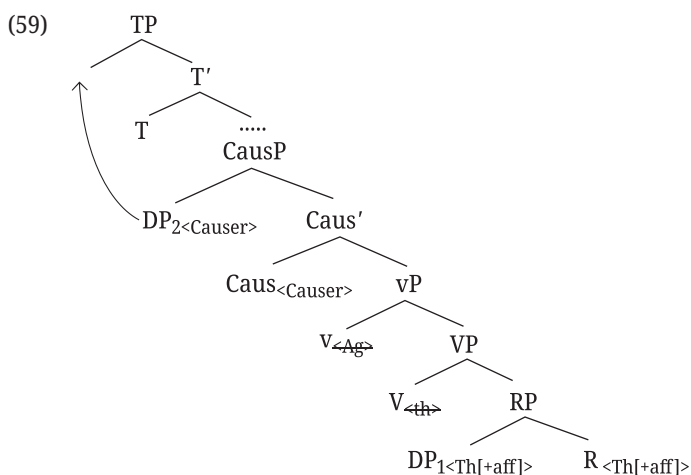
- (57) **Jianbang tai-zhong le Lao-Wei.*
 shoulder carry-swollen ASP Wei
 'Wei carried (something) and as a result his shoulder got swollen'

Since the transitive RVC in (55a) does not involve argument sharing, the only interpretation available is the one in which the preverbal argument is the agent of V_1 and the postverbal argument, the affected theme of V_2 . (55a) is similar to an English resultative like *John drank the teapot dry*, where the object of *drink* is not realized.

(55b) is a case where both arguments of V_1 are suppressed. In (55b), neither of the two arguments is associated with V_1 ; *chi ji dun miantiao* is a causer (which is not selected by V_1 or V_2), and *ta* is the affected theme of V_2 . Under the present analysis, the causer is introduced by an invisible causative verb. This analysis gains support from the fact that (55b) has a causative counterpart like (58).

- (58) *Chi ji dun miantiao ye rang ta chi-bu-qiong de.*
 eat several meal noodle also cause him eat-NEG-poor DE
 'Eating a few meals of noodles won't make him poor from eating'

If the first causer argument is introduced by an unpronounced causative verb, (55b) is derived from the structure in (59).



In (59), no argument occurs in vP or VP. Since a causative verb appears above vP, it Case-licenses DP₁ in RP, and T Case-licenses DP₂ in TP. Again, no copy of the causer argument is c-commanded by the unaffected argument of R, so that (55b) does not allow argument reversal, as the ungrammaticality of (60) shows.

- (60) **Ta ye chi-bu-qiong chi ji dun miantiao.*
 he also eat-NEG-poor eat several meal noodle
 ‘Eating a few meals of noodles won’t make him poor from eating’

Importantly, in (55b), an invisible causative verb introduces the first causer argument, and V₂, the second affected argument. Thus, (55b) implies that “someone” eats “something” due to the presence of V₁, although the clause does not include any argument associated with V₁.¹⁴

Note that the affected theme argument appears on the right of *chi-bu-qiong* in (55b), while it appears on the left of *chi-bu-qiong* in (58). The difference in the order of the affected theme argument follows naturally, given that in the causative construction, the causative verb takes TP as its complement, but not the V-V compound in (55b). In the causative construction in (58), the affected theme argument generated in Spec-RP is attracted by the embedded TP, so that it appears to the left of *chi-bu-qiong*.

- (61) [TP [. . . . [CausP DP₂ Caus [TP DP₁ [VP [VP [RP DP₁]]]]]]]
-

On the other hand, the affected theme argument in the RVC construction remains in situ, because the embedded clause does not include TP, as depicted in (59).

There is another type of RVC where the agent role of V₁ is suppressed. In (62), the agent argument is not realized, and *na dun fan* ‘that meal’ counts as the theme argument of V₁ as well as a causer, and *Zhangsan* as the affected theme of V₂.

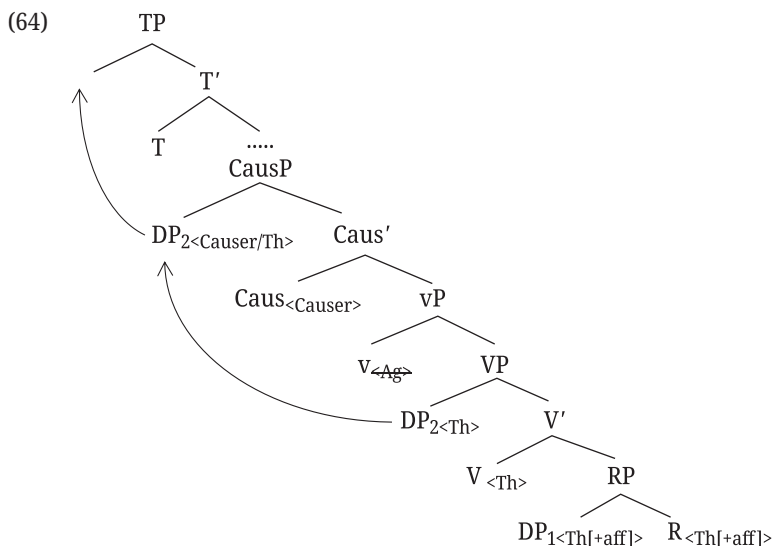
- (62) *Na dun fan chi-qiong le Zhangsan.*
 that CL meal eat-poor ASP Zhangsan
 ‘That meal got Zhangsan poor (from someone/himself eating it)’

¹⁴ Her (2007) utilizes the two mechanisms of Marked Hierarchy of Argument Functions and the Unified Mapping Principle to fix the thematic interpretations of the arguments in RVCs. This analysis allows an argument of V₁ to be suppressed, but cannot treat a case like (55b), in which both the arguments of V₁ are suppressed.

One question to be addressed here is how the preverbal argument is realized. The preverbal argument is taken to be the theme of V_1 . In (62), an agent of V_1 is not realized, which means that v does not assign an agent role to any argument. Since Caus is a head selected by T, Caus should be held responsible for Case-licensing a theme argument appearing in Spec-VP. In light of these considerations, we propose that the preverbal argument *na dan fan* is introduced by V and is raised to an invisible CausP projected above vP. This view gains support from the fact that (62) has a causative counterpart, as in (63).

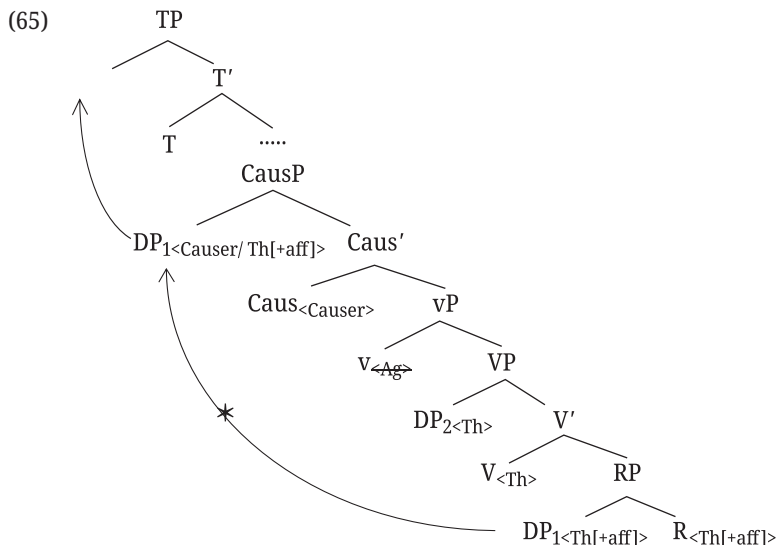
- (63) *Na dun fan rang Zhangsan chi-qiong le.*
 that CL meal cause Zhangsan eat-poor ASP
 'That meal made Zhangsan poor (from someone/himself eating it)'

No argument appears in Spec-vP syntactically owing to the fact that the agent role of V_1 is suppressed. Then, the derivation in (64) is posited for the transitive RVC in (62).



In (64), the theme argument of V_1 appearing in Spec-VP is moved to Spec-TP by way of Spec-vP. For Case, T Case-licenses DP_2 and the Caus-head Case-licenses DP_1 in Spec-RP. In this configuration, no copy of the causer DP_2 c-commands the affected theme DP_1 , and thus no argument reversal is allowed.

Note, however, that there is another conceivable derivation for (62), where the affected theme DP_1 is moved to Spec-CausP across DP_2 , and further to Spec-TP.



If this derivation were possible, (66) would be acceptable. But the fact of the matter is that (66) is not acceptable.

- (66) **Zhangsan chi-qiong le na dun fan.*
 Zhangsan eat-poor ASP that CL meal
 ‘Zhangsan became poor (from someone/himself eating that meal)’

The unacceptability of (66) suggests that the lower DP₁ cannot be moved to Spec-CausP across DP₂. Note that in Chinese, RVCs are formed by compounding two verbs, one denoting an activity and the other denoting a result. The invisible causative verb adds an extra causative meaning in such a way that the eventuality denoted by the V-V complex is caused by the causer selected by the causative verb. If the verbal compound formed with V₁ and V₂ cannot be further compounded with a verb expressing another eventuality, it is reasonable to assume that the v-V-R complex head is not raised to (invisible) Caus to form a bigger verbal complex.

- (67) [_{TP} [_{CausP} Caus [_{vP} v-V-R [_{VP} DP₂ V-R [_{RP} ...DP₁ R]]]]]

If the v-V-R complex is not raised to Caus, Spec-VP and Spec-vP are not rendered as equidistant from Caus, and Caus can attract DP₂ but not DP₁. Accordingly, the derivation where DP₁ is moved to Spec-CausP is not available, the result of which is that (66) is not acceptable.

The difference in the position of the affected theme argument between (62) and (63) is attributed to the presence or absence of TP in the embedded clause. In the RVC construction in (62), the theme argument appears in Spec-RP without movement into a higher position in the absence of TP. Hence, the affected theme argument is placed to the right of *chi-qiong*. On the other hand, the embedded clause in the causative construction in (63) includes TP.

(68) [_{TP} [. [_{CausP} DP₂ Caus [_{TP} DP₁ [_{VP} [_{VP} [_{RP} DP₁]]]]]]]



In (68), the affected theme argument DP₁ is moved into Spec-TP in the embedded clause, so that it appears to the left of *chi-qiong* in (63).

One notable fact about RVCs involving θ -role suppression is that the presence of arguments is implied semantically although they are not realized syntactically. In fact, implied arguments are not expected to be syntactically realized given that at most two arguments can be Case-licensed by RVCs, as noted in section 3. In (55a), a semantically implied argument can refer to an entity that can be identified contextually, and in (55b), its reference can be any individual. In (62), the implied argument, i.e. the agent who performs the action of eating, can refer to any individual identifiable in the context. Since the affected argument *Zhangsan* is also a plausible candidate, the implied argument can be taken to refer to *Zhangsan*, but this is not necessary.

The “existential” implications for the (implied) arguments of V₁ are akin to the interpretation obtained in an English middle sentence like *This bread cuts easily*, where the agent argument is not realized via suppressing the agent θ -role to be assigned to an argument (Keyser and Roeper 1984). In this English middle construction, the implied agent is any identifiable individual or can be identified with an argument in the clause when it contains a plausible candidate, as in *This bread cuts easily, at least for Mary* (Fellbaum 1986). Given the parallelisms in interpretation between RVCs with θ -role suppression and English middles, it is reasonable to state that suppression of θ -roles of RVCs makes the arguments bearing the θ -roles unavailable in the syntax, and that the existential implications arise for the unrealized arguments.

Overall, the discussion shows that transitive RVCs invoking θ -role suppression differ from transitive RVCs with argument sharing, in that the possibility of interpretation is limited to one in which the postverbal argument counts as the unaffected theme of V₂, while the preverbal argument is an unselected causer or the agent of V₁. Remarkably, RVCs with θ -role suppression do not allow the interpretation where the preverbal argument counts as the affected theme of V₂, nor does it allow the argument reversal interpretation. These facts naturally follow from our

proposed analysis. In our proposal, RVCs with θ -role suppression do not allow one argument to move across another for the purpose of θ -role assignment. Since no argument receives θ -roles from both V_1 and V_2 in such RVCs, they can have only one interpretation.

5 Conclusion

In this chapter, we have argued that the behavioral patterns of Chinese resultative verb compounds i.e. the thematic relations of arguments and their syntactic positions are determined according to where they are assigned θ -roles. We propose that tense can attract the closest argument, where the distance is assessed by a c-command relation relative to the θ -positions of arguments (cf. Chomsky 1995). With transitive RVCs invoking argument sharing, one argument is generated in Spec-vP or Spec-VP, and another argument in Spec-RP is moved to either Spec-vP or Spec-VP, which is unfilled by the former argument. The argument in Spec-RP can be moved to Spec-vP across the argument in VP by virtue of head raising of R to v, which makes both Spec-VP and Spec-RP visible to v. The agent argument appearing in vP, if it receives an affected theme role from the result verb V_2 , can be realized in non-subject position because the other argument in Spec-VP may be construed as closer to T if its closeness is evaluated relative to the copy of the agent argument in RP, which is left by its movement to Spec-vP.

While transitive RVC constructions with *zhui-lei* ‘chase-tired’ can have three out of four conceivable interpretations by virtue of argument sharing, there are cases where not all conceivable interpretations are available. Topicalization and the negative potential *bu* ‘cannot’ affect the possibility of interpretations in transitive RVCs. With intransitive RVCs, three distinct patterns of argument realization are available, owing to the fact that V_1 is intransitive, which takes only one argument. Furthermore, RVCs involving θ -role suppression do not allow the interpretation where the preverbal argument counts as the affected theme of V_2 , nor does it allow the argument reversal interpretation. The facts of RVCs with θ -role suppression also follow naturally given that they do not involve argument sharing, i.e. no argument receives a θ -role from both V_1 and V_2 .

In our proposal, the argument realization patterns of RVCs are accounted for with reference to their syntactic structures. The proposed syntactic analysis allows us to dispense with the assumption about an extra Cause-Affectee role assignment rule, by way of which Li (1995, 1999) attempts to account for the argument realization patterns of RVCs. One important consequence derived from the present proposal is that non-agent subject RVCs are not derived by violating the thematic hier-

archy, but that their apparent violation comes from a non-agent argument moving across the agent argument, which is made available by syntactic head raising to form the complex v-V-R. The non-agent subject RVCs represent the cases of argument reversal, where one argument is moved across another via A-movement for θ -role assignment.

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