

θ -structures of Mandarin Resultative Verb Compounds*

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Abstract

Mandarin Resultative Verb Compounds, different from any simplex words, have complicated θ -structures, since both the verb (V_{caus}) and its complement (C_{res}) have the capacity of assigning their own thematic roles. The thematic roles assigned by V_{caus} form the θ -structure's main structure, and those assigned by C_{res} form the embedded structure. Sometimes an entity plays a role in the main structure, and at the same time plays a role in the embedded structure. If the two roles are identical, they are "coindexed"; if they are different, they form a composite role. RVC's θ -structure is further compounded when ambiguity occurs and when causation is taken into consideration. The ambiguity of RVCs can be attributed to the different combination of thematic roles. As for causation, the two causative roles, causer and causee, can be assigned to thematic roles according to certain constraints.

1 Introduction

A Resultative Verb Compound (RVC) is a Mandarin construction composed of a verb and its complement denoting the result (cf. Lv 1980)¹. The verb, which can be either transitive or intransitive, comes before the complement, which can be a verb (as in *gan-pao*, chase-run, meaning drive away), or an adjective (as in *ku-hong*, cry-red, meaning crying so much that one's eyes turn red), or a bound morpheme (as in *mai-zhao*, buy-ASP, meaning having been bought, where *zhao* is a bound morpheme indicating the present state). Semantically, the verb indicates the causing action or event and the complement the resulting state or event. In *gan-po*, for example, the verb *gan*, or chase, is the causing action which leads to *pao*, or run, the resulting event. That is to say, one's chasing has caused the running of another entity. According to this kind of cause-effect relation, we represent the verb and its complement respectively as V_{caus} and C_{res} .

RVCs are much more complicated than any simplex verbs in Mandarin in terms of their thematic-role structures (or θ -structures) since both V_{caus} and C_{res} have the capacity of assigning their own thematic roles. This, of course, does not apply to RVCs with a bound morpheme in the complement position, which only serves the verbs preceding them, indicating the result of the action, and assigns no thematic roles to either the subject or object. In this sense, RVCs containing a bound morpheme have no difference with other simplex verbs like *xiangshou* enjoy, *kefu* overcome, etc. Since this study focuses on the complexity of thematic roles in RVC constructions, this kind of RVCs would not be taken into account in

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¹ As one of the anonymous reviewers has pointed out, in many sinolinguistic articles there is no clear distinction between syntax and semantics. In this case here, the definition of RVCs is a mix of both. Even so, we still follow this tradition on the grounds that the focus of this study – thematic roles – inevitably involves both syntax and semantics.

the following discussion. So whenever RVCs are mentioned hereinafter, those with bound morphemes are automatically excluded.

Though there have been a lot of studies on RVCs, few of them have thoroughly examined their θ -structures. The perspectives of previous studies include but not limited to²: the Head of RVCs (Lv & Zhu 1952; Ding 1961; Li 1984; Ma 1987; Zhan 1989; Song 2004a; Xiong/Liu 2005; Lin 2009), transitivity of RVCs (Zhu 1982; Li 1994), sentence patterns in which RVCs occur (Li 1980; Fan 1987; Song 2004c; Huang 2008), implications of C_{res} (Fan 1985; Wang 1996), semantic reference of C_{res} (Zhan 1989; Li 1990; Mei 1994; Jiang 2007), valency of RVCs (Fan 1985; Huang 1993; Guo 1995; Wang 1995; Song 2004b; Shi 2006), correlation between different levels of RVCs, like lexicon-syntax correlations (Lin 1996; Lin 1998), and syntax-semantics correlations (Lu 1977; Huang/Lin, 1993; Li 1995; Claudia 1990; Her 2004, 2007).

The current study is aimed to present a clear picture of the θ -structures of RVCs. It is observed that frequently a RVC can assign more than two thematic roles, and sometimes a composite role is formed when a single entity bears two different roles. This is further compounded by ambiguity and causation of RVCs.

2 Thematic Roles

To study the θ -structures of RVCs, we have to first have a look at the thematic roles in general. Saeed (1997: 140–145) identifies 9 generally accepted thematic roles (The relevant role-bearing nominal is italicized in the examples below each role):

1. **Agent**: the initiator of some action, capable of acting with volition, e.g.

(1) *John* threw away the stone.

2. **Patient**: the entity undergoing the effect of some action, often undergoing some change in state, e.g.

(2) The cat broke *the cup*.

3. **Theme**: the entity which is (literally or figuratively) moved by an action, or whose location is described, but constitutionally unchanged, e.g.

(3) Please pass *the book* to me.

(4) He gives *lessons* to a group of young pupils.

4. **Experiencer**: the entity which is aware of the action or state described by the predicate but which is not in control of the action or state, e.g.

(5) *I* saw a beggar at the corner.

(6) *The boy* was frightened by the dog.

5. **Beneficiary**: the entity for whose benefit the action was performed, e.g.

(7) Jucy cooked meal for *her mother*.

(8) He bought *me* a watch.

6. **Instrument**: the means by which an action is performed or something comes about, e.g.

(9) He cut the wood with *an ax*.

² Here we provide a brief literature view that majorly focuses on the studies conducted by researchers in Mainland China, which are mostly presented in Chinese and published intra-nationally, so little known to overseas researchers. Hopefully, this will be beneficial for overseas researchers to find out what is going on in Mainland China in the field of RVC research.

7. **Locative**: the place in which something is situated or takes place, e.g.

(10) Tom put a pen on *the desk*.

8. **Goal**: the entity towards which something moves, either literally or metaphorically, e.g.

(11) He directly walked towards *the wolf*.

(12) Pat told his story to *everyone* he knew.

9. **Source**: the entity from which something moves, either literally or metaphorically, e.g.

(13) These students came from *Canada*.

(14) This clever idea is from *Thomas Jefferson*.

It has been noted that there is a hierarchical relation between thematic roles as far as prominence is concerned. For example, the agent has primacy over the patient or beneficiary; where both are present, the patient or beneficiary is affected as a result of something the agent does. Bresnan and Kanerva (1989) propose the thematic hierarchy (see below), where the left most role is the most prominent and the right most the least prominent.

Thematic hierarchy:

agent > beneficiary > experiencer/goal > instrument > patient/theme > locative

The hierarchy is not an independent stipulation but a consequence of the conceptualization.

Accordingly, the thematic roles in the θ -structure are arrayed by their relative prominence in the hierarchy: the most prominent is put left most, and the least right most.

3 θ -structures of RVCs in General

As has been stated, RVC constructions are complex in their θ -structures. Take *da-bai* (defeat) for example. $V_{\text{caus}} da$ (literally beat) is transitive, and has two thematic roles: agent and patient, hence has such θ -structure as <ag pt> (ag = agent, pt = patient). $C_{\text{res}} bai$ (literally defeated) is intransitive, and has the θ -structure of <th> (th = theme)³. As a whole, the θ -structure of the compound can be represented as

(15) *da-bai* <ag pt <th>>

where the inner angled brackets indicate “embedded” since it is the θ -structure of the embedded predicate C_{res} , and the broken line indicates that the two roles are borne by a single entity. We regard those two different roles like the patient and theme in the example which are co-borne by one single entity as forming a composite role, i.e. *pt* and *th* here together are called a composite role. The roles both in the outer angled brackets and the inner ones are arrayed respectively according to the thematic hierarchy mentioned above. What’s more, the main θ -structure always precedes the “embedded” one.

In what follows, RVCs will be classified roughly based on the composition of the θ -structures: whether they contain composite roles or not. Different pictures of the θ -structures under each category will be presented by giving typical examples. All the examples to appear come from the online Chinese Corpus of Center for Chinese Linguistics PKU (http://ccl.pku.edu.cn:8080/ccl_corpus/index.jsp?dir=xiandai), unless otherwise stated.

³ Abbreviations for other thematic roles: ben = beneficiary; exp = experiencer; ins = instrument; loc = locative; go = goal.

3.1 RVCs without composite roles

A number of RVCs can fall into this category: *ku-hong* cry-red, *ku-sha* cry-foolish, *bing-si* fall-sick-die, etc.

(16a) *Wo ku-hong le shuangyan.*

I cry-red ASP eyes

I cried so much that my eyes turned red.

ku-hong <ag <th>>

wo shuangyan

(16b) *Wo shuangyan ku-hong le.*

I eyes cry-red ASP

My eyes turned red because I cried.

ku-hong <ag <th>>

wo shuangyan

(17) *Cun-li bing-si le yige ren.* (Wang 1995)

village-LOC fall-sick-die ASP a person

In the village a man was caught by a disease and died.

bing-si <th_i loc <th_i>>

ren cun-li ren

In the examples above, no roles are co-borne by one entity, therefore, no composite roles can be identified. Note that (16a) and (16b) have the same θ -structures but different syntactic representations. Also note the subscripted “i” in (17) which indicates the **coindexation** of the two roles, or the identical reference of them: both referring to *ren*. They do not form a composite role because they are identical roles instead of different ones. See another example of coindexation:

(18) *Ren Fajie die-jin le liangnan jingdi.*

Ren Fajie (Name) stumble-enter ASP dilemma

Ren Fajie stepped into a dilemma.

die-jin <th_i <th_i loc>>

Ren Fanjie Ren Fanjie dilemma

Let's see one more example.

(19) *Fuzi kan-dun le.*

ax cut-dull ASP

The ax became dull because of overuse.

kan-dun <ag pt <ins>>

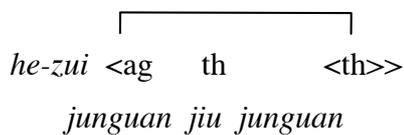
fuzi

Note that not all the entities bearing a certain role show themselves in the syntactic representation: since *kan* cut is transitive, its θ -structure should contain two arguments: agent and patient, but in (19) both the entities bearing the agent role and the patient role do not appear. (Such roles are italicized in the θ -structures.)

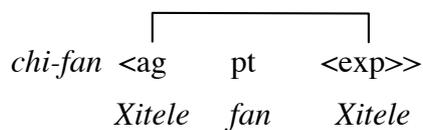
3.2 RVCs with composite roles

It is typical of RVC constructions that one entity often bears more than one thematic role. These roles form (or merge into) a composite role. Sometimes it is the most prominent role in the main predicate θ -structure, that is, $\hat{\theta}$, that merges with the role in the embedded predicate θ -structure, and sometimes it is the role other than it. For example,

- (20) *Liangge junguan he-zui le jiu.*
 two military officers drink-drunken ASP wine
 Two military officers drank a lot and got drunk.



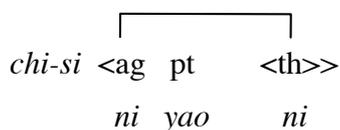
- (21) *Ta pa Xitele hui chi-fan ta zuo de fan.*
 she afraid Hitler would eat-bored she cooked ASP dishes
 She was afraid that Hitler would get bored with her cooking.



The agents in the two sentences merge with the theme and experiencer respectively.

What makes things more complicated is where inversion is concerned. See below:

- (22) *Zhezhong yao hui chi-si ni.* (Her 2007)
 this kind medicine will eat-die you
 Eating this kind of medicine would make you die.



The patient *yao* is not in its usual position—the OBJ position; instead, it is in the position of SUBJ. Hence inversion occurs (cf. Her 1996; 2007). Inversion does not occur within this subcategory only; it also occurs with RVCs without composite roles. (17), for example, is another kind of inversion: locative inversion. That is, the locative role is not in its usual position (at the end of the sentence) but in the initial position and serves as SUBJ (cf. Her 1996).

Most examples given till now have the agent as $\hat{\theta}$ in the main predicate θ -structure. Of course, it can also be some other roles like the theme, experiencer, etc.

(23) *Ta pao-diu le yishuang xie.* (Fan 1985)

he run-lost ASP a pair shoes

When he ran, he lost a pair of his shoes.

$$\begin{array}{c} \text{pao-diu} <\text{th} & \text{<ag th>} \\ \text{ta} & \text{ta xie} \end{array}$$

$\hat{\theta}$ in the above example is the theme, but in the embedded θ -structure, it is the agent. The two roles form a composite role.

On other occasions, $\hat{\theta}$ does not form a composite role with any other roles; it is the roles other than it that merge. For example,

(24) *Mingtian Lao Li you da-pao le Lao Zhang.*

Tomorrow Mr. Li again beat-run ASP Mr. Zhang

Tomorrow Mr. Li will again fight off Mr. Zhang.

$$\begin{array}{c} \text{da-pao} <\text{ag} & \text{pt} & \text{<th>} \\ \text{Lao Li} & \text{Lao Zhang} & \text{Lao Zhang} \end{array}$$

(25) *Ta ba chuangban shui-huai le.*

he BA bed-board sleep-cracked ASP

He got in the bed so heavily that the bed-board got cracked.

$$\begin{array}{c} \text{shui-huai} <\text{ag} & \text{loc} & \text{<th>} \\ \text{ta} & \text{chuangban} & \text{chuangban} \end{array}$$

(26) *Mayi pa-man le dashu.*

ants crawl-full ASP big-tree

The ants crawled all over the tree.

$$\begin{array}{c} \text{pa-man} <\text{th} & \text{loc} & \text{<th>} \\ \text{mayi} & \text{dashu} & \text{dashu} \end{array}$$

From those examples, we get such composite roles like pt-th, loc-th, etc.

To sum up, the θ -structure of a RVC comprises two parts: the main structure and the embedded structure. It is the thematic roles assigned by V_{caus} that form the main structure, and those assigned by C_{res} that form the embedded structure. Sometimes an entity plays a role in the main structure, and at the same time plays a role in the embedded structure. If the two roles are identical, they are “coindexed”; if they are different, they form a composite role. Not only $\hat{\theta}$, the most prominent role in the main structure, but any other roles in it can merge with a role in the embedded structure to form a composite role.

4 θ -structures of RVCs with Ambiguity

It is observed that ambiguity exists in RVC constructions. Li (1995), for example, presents the following sentence and claims that it has three different readings.

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

Taotao chase-tired ASP Youyou

(28a) Taotao chased Youyou, and Taotao got tired.

(28b) Taotao chased Youyou, and Youyou got tired.

(28c) Youyou chased Taotao, and Youyou got tired.

While other researchers like Her (2007) and Pan (1998) also agree upon the existence of this kind of ambiguity, we find (28c) above difficult to accept for many native speakers: we interviewed some native speakers about their understanding of (27), they unanimously said (28a) and (28b) are acceptable, but all rejected (28c) as a justifiable reading. Hence here we take (28a) and (28b) as possible meanings of (27), excluding (28c) from our discussion.

A careful study of the θ -structure of the RVC *zhui-lei* would reveal that different combination of thematic roles would lead to different readings.

(29a) *zhui-lei* \langle ag th \rangle \langle exp \rangle
Taotao Youyou Taotao

(29b) *zhui-lei* \langle ag th \rangle \langle exp \rangle
Taotao Youyou Youyou

When the agent merges with the experiencer, we get (28a), and when the theme merges with the experiencer, we get (28b).

In addition to *zhui-lei*, there are other examples of ambiguous RVCs. See the sentence below:

(30) *Houzi da-pa le tuzi.*

monkey beat-fear ASP rabbit

a. *da-pa* \langle ag pt \rangle \langle exp \rangle
houzi tuzi tuzi

(The monkey beat the rabbit and the rabbit was scared.)

b. *da-pa* \langle ag pt \rangle \langle exp \rangle
houzi tuzi houzi

(The monkey beat the rabbit and the monkey was scared.)

5 Causation and Θ -structures of RVCs

It has been observed that RVC constructions are semantically composed of two events: the causing event and the caused event, hence causative relation exists between them. To present an overall picture of the θ -structures of RVCs, we have to take causation into consideration.

5.1 Representation of causation in RVC constructions

According to the standard assumptions (Alsina 1992: 521), a causative predicate would contain the functor or predicator CAUSE, which takes two arguments: a *causer*, which may be an individual or an event, and the *caused event*. The latter contains the argument structure of the predicate on which the causative is based. Under this approach, the causative predicate would be represented as:

$$(31) \quad \begin{array}{c} \text{caused event} \\ \text{CAUSE} < \text{ag} \text{ PRED} < \dots > > \end{array}$$

where *ag* (agent) represents the causer, and the inner angled brackets indicate that the θ -structure of the caused predicate is embedded in that of the causing predicate.

Based on this assumption, we provide a modified model to represent the causation of RVCs. Since all the RVC constructions are composed of two events (not individuals): the causing event and the caused event, we substitute *ag* in (31) for causing event:

$$(32) \quad \begin{array}{c} \text{causing event} \quad \text{caused event} \\ \text{CAUSE} < \theta_a \theta_b \dots \quad < \theta_x \theta_y \dots > > \end{array}$$

Here “ $\theta_a, \theta_b \dots$ ” represents the θ -structure of the causing predicate, or V_{caus} , “ $\theta_x, \theta_y \dots$ ” represents the θ -structure of the caused predicate, or C_{res} , and the inner angled brackets indicate “embedded.” The broken line beneath shows which two roles are borne by one single entity and form a composite role.

Let’s apply this representation to a specific compound: *da-bai* beat-defeated to see how it works.

$$(33) \quad \begin{array}{l} \text{Ta zhongyu da-bai} \quad \quad \quad \text{le} \quad \text{duishou.} \\ \text{He at last} \quad \text{beat-defeated ASP} \quad \text{opponents} \\ \text{At last he defeated his opponents.} \end{array}$$

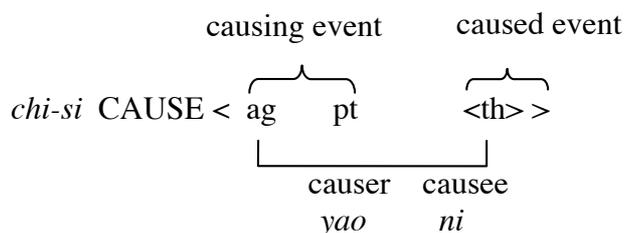
$$\begin{array}{c} \text{causing event} \quad \quad \quad \text{caused event} \\ \text{da-bai CAUSE} < \text{ag} \quad \text{pt} \quad \quad \quad < \text{th} > > \\ \text{causer} \quad \quad \quad \text{causee} \end{array}$$

5.2 Assignment of the causer and causee to thematic roles

Note that in (33) two causative roles are identified: the causer and causee, and associated with the agent *ta* (he) and theme *duishou* (opponents) respectively. The causer is the entity that causes something to happen, and the causee is the entity that is affected by the causer.

The causer may be frequently associated with the agent, it is not always the case, however. For example, in the inverted sentences like (22) (repeated in (34) below), the causer is associated with the patient rather than the agent:

- (34) *Zhezhong yao hui chi-si ni.*
 this kind medicine will eat-die you
 Eating this kind of medicine would make you die.



The causer is *yao*, which is patient instead of agent; the agent, on the other hand, co-borne with the theme by *ni*, is associated with the causee. So we may argue that (31) is inadequate in that it identifies the causer with the agent, which is not always the case, at least for mandarin RVC constructions.

But are there any general rules for this causative-thematic association in RVC constructions? From the examples above and many others which could not be stated here because of the limited space, we can get at least two rules:

- a. The causer is associated with the causing event, hence V_{caus} only, and the causee is associated with the caused event, hence C_{res} only;
- b. The role associated with the causer can never merge with the one associated with the causee, that is, they cannot form a composite role.

Based on this observation, we can assign the causer and causee to thematic roles by assuming the following constraints⁴:

- (35) Assign the causer to θ_a and the causee to θ_b if and only if
- a. θ_a is of V_{caus} , θ_b is of C_{res} , and
 - b. θ_a and θ_b do not form a composite role.

According to (35), one of the two components of a composite role may be assigned the causer or causee. When this occurs, the other component is automatically assigned the causer or causee since they constitute a whole body, and are borne by the same entity which could not be the causer and causee at the same time.

Let's use these constraints to reexamine the example of (34). We assign the causer to the patient and the causee to the theme because the patient is a role of V_{caus} *chi* eat, and the theme

⁴ We are inspired by Her (1999) who also assigns the causer and causee to thematic roles but on condition that not all RVC constructions are causative. So his assignment has stricter constraints in order to rule out those constructions which he thinks bear no causative meaning. We hold that all RVC constructions are causative in that they can undergo the test of causativity proposed by Wierzbicka 1988.

is a role of C_{res} *si die*; and what's more, they do not form a composite role although the theme forms one with the agent. We do not assign the causer to the theme because the latter is of C_{res} ; we do not assign it to the agent because the latter forms a composite role with the theme which has to be assigned the causee according to (35)a. Since the theme is assigned the causee, automatically the agent is assigned the causee too, because ag-th is a composite role.

6 Conclusion

The analysis of the θ -structures of RVCs provides us with a unique picture:

- Both components (V_{caus} and C_{res}) can assign thematic roles.
- The θ -structure of C_{res} is embedded in that of V_{caus} .
- Composite roles is formed when one single entity bears two different thematic roles.
- Ambiguity of RVCs is caused by the different combination of thematic roles.
- Causative roles are bound to thematic roles and can be assigned to thematic roles according certain constraints.

This study is a static description of the θ -structures of RVCs. But we have noticed that the same θ -structures may have different syntactic representation. How do the θ -structures, especially those of RVC inversions like (17) and (34), and of RVC constructions with ambiguity like (27), map onto syntax? Do we have a general rule to govern the mapping? These are the questions needing further exploration, although they have been partially answered.

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