

ORIGINAL ARTICLE

Marked causative structures of Chinese verb-resultative construction

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Abstract: This paper aims to study the syntactic and semantic features of ‘marked VRC causative structures’, those special syntactic-semantic structures formed by verb-resultative constructions (VRCs) which violate both the Uniformity of Theta Assignment Hypothesis and the Thematic Hierarchy. Their syntactic and semantic features are defined as follows: 1) VRC has a causative relation within itself; 2) the argument in the object position is the causee and the only argument of the resultative complement; 3) the causer in the subject position is any conceptual component from the cause event other than the agent of the predicate verb. This paper then attempts to propose an extended account to expound how they are formed syntactically and semantically. On this account, a marked VRC causative structure is re-causativization of a VRC when the VRC is self-causative; it enables other conceptual components of the cause event than the agent to become the causer when a VRC is not self-causative. There are some constraints on what becomes the causer of a marked VRC causative structure.

Keywords: verb-resultative construction; marked causative structure; self-causative VRC; re-causativization

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1. Introduction

In mandarin Chinese there are many verb-complement structures, such as *zhui-lei* ‘chase-tired’, *xi-ganjing* ‘wash-clean’, which usually consist of two verbs or a verb plus an adjective, the first predicate verb indicating an action and the second resultative complement a result. It is generally considered that in such a structure there is a causative relation between the predicate verb and the resultative complement and the latter is a result caused by the former. They are rather complex in semantics, yet they are syntactically used in the same way as individual verbs. Some scholars, especially overseas scholars, define them as compounds, like ‘resultative verb compounds’ (e.g. Thompson, 1973; Ross, 1990; Li, 2013), ‘V-V compounds’ (e.g. Chang, 1997; Li, 1990),

‘resultative V-V compound’ (e.g. Zou, 1994), ‘resultative compounds’ (e.g. Li, 1997; Cheng and Huang, 1994). However, in Chinese literature the majority of the related studies still regard them as phrases rather than compounds. There do exist a small number of compounds deriving from verb-complement structures, but their semantic meanings have somehow changed and they no longer have complex semantic relations within themselves. Most of the existing studies are more focused on those structures with a causative relation than on those compounds with a relatively fixed meaning. Scholars of construction grammar or cognitive grammar tend to name these structures as constructions (e.g. Goldberg and Jackendoff, 2004; Zhang, 2009; Song, 2007). Considering the naming of such structures in Chinese literature, this paper adopts a corresponding term, namely verb-resultative constructions (henceforth VRCs).

Unlike English resultatives, VRCs in Chinese are known to be peculiar in that the predicate verb (V for short) and the resultative complement (R for short) of a VRC are syntactically close, allowing no element between them. The predicate verb can be a transitive verb, like the verb *chi* ‘eat’ of *chi-bao* ‘eat-full’, which can take two arguments, and its resultative verb *bao* ‘full’ is an intransitive verb, which takes one argument. The predicate verb can also be an intransitive verb, like *ku* ‘cry’ of *ku-shi* ‘cry-wet’, which takes only one argument, and the resultative adjective *shi* ‘wet’ has one argument.

Chinese VRCs are quite simple in syntax, namely ‘NP1 VR (NP2)’. However, they have quite complex argument structures, thematic relations and semantics. In sentence (1), the predicate verb of the VRC is a transitive verb, yet the VRC *chi-bao* ‘eat-full’ is generally intransitive as a whole. However, in (2) the predicate verb *ku* ‘cry’ is an intransitive verb, yet the whole construction *ku-shi* ‘cry-wet’ is transitive, having two arguments, the argument of *ku* ‘cry’ as the subject of the sentence and the argument of *shi* ‘wet’ as the object of the sentence. In (3) the predicate verb is transitive, yet the object is not subcategorized by the predicate verb.

(1) *Wo chi-bao le.*

I eat-full ASP

‘I am full from eating’.

(2) *Xiao nvhai ku-shi le shoupa.*

little girl cry-wet ASP handkerchief

‘The little girl cried and (wiping away tears with a handkerchief) as a result the handkerchief became wet.’

(3) *Yeye kan-dun le futou.*

grandpa hack-blunt ASP axe

‘Grandpa hacked (something with an axe) and as a result the axe became blunt.’

In addition, there are also VRC sentences like (4), in which the subject of sentence is semantically the patient of the predicate verb *chi* ‘eat’ while its agent *san-ge ren* ‘three people’ becomes the object and also serves as the undergoer of the resultative verb *si* ‘die’. Some VRCs also occur in sentences like (5), in which the subject of the sentence is the theme of the predicate verb

xie ‘write’ and the object is not subcategorized by the predicate verb, yet the object is the theme of the resultative adjective. What’s more, some VRCs are even used in sentences like (6), in which neither the subject nor the object is subcategorized by the predicate verb.

(4) *Zhe kuan bingjiling yijing chi-si le 3-ge ren.*

this sort ice cream already eat-die ASP 3-CL people

‘Three people have died because of eating this sort of ice cream.’

(5) *Na-ben shu xie-bai le Zhangsan de toufa.*

that-CL book write-white ASP Zhangsan ’s hair

‘Zhangsan wrote that book and as a result his hair turned white.’

(6) *Na-ge youmo gushi xiao-wan le Zhangsan de yao.* (adapted from Li, 2013)

that-CL humorous story laugh-bend ASP Zhangsan ’s waist

‘That humorous story caused Zhangsan to laugh and as a result of laughing his waist bent.’

VRCs are very productive in Chinese. Many studies try to explain the asymmetry between argument structure and syntactic structure and between syntactic structure and semantics of VRCs (e.g. Thompson, 1973; Sybesma, 1991, 1999; Li, 1990, 1995, 1997; Chang, 1997; Her, 2007; Li, 2007, 2013; Gu, 1992; Zou, 1994). Among them some scholars try to account for the particularly complex thematic relations and semantics of VRCs used in syntactic structures like (4)-(6), yet there is still some disagreement among the accounts.

This paper is not intended to review all the literature on Chinese VRCs. It focuses mainly on the representative studies on the special syntactic-semantic relations of VRCs involved in sentences like (4)-(6), poses their problems and then offers an extended account on the basis of the existing studies.

The paper is organized as follows: section 2 reviews some lexical-syntactic and lexical-semantic accounts for this special kind of syntactic-semantic structures of VRCs; section 3 gives a critical review of the main studies on this kind of structures within the framework of cognitive linguistics and poses problems with those studies; section 4 offers an extended account based on the previous studies and states how they are formed syntactically and semantically; section 5 contains some concluding remarks.

2. Lexical-syntactic or lexical-semantic accounts

The idiosyncrasy of the argument structures and thematic relations of Chinese VRCs is not so readily understood. Researchers have made varied assumptions to account for their complex thematic and syntactic-semantic relations. Some focus on lexical-syntactic accounts, some offer an account from a lexical-functional perspective while others present a lexical-semantic account. In this section, we will review the most representative studies, in which those special structures are discussed.

2.1. Y. Li’s causative hierarchy account

Y. Li's studies on Chinese VRCs are very representative. He discusses Mandarin VRCs in several important papers. The review here will focus on his 1990 and 1995 papers, because the very special kind of structures is also discussed in these papers. Take the well-known ambiguous VRC *zhui-lei* 'chase-tired' for example:

(7) *Zhangsan zhui-lei le Lisi.* (adapted from Li, 1995)

Zhangsan chase-tired ASP Lisi

- a. 'Zhangsan chased Lisi and as a result Lisi got tired.'
- b. 'Zhangsan chased Lisi and as a result Zhangsan got tired.'
- c. 'Lisi chased Zhangsan and Zhangsan got Lisi tired.'
- d. * 'Lisi chased Zhangsan and Zhangsan got himself tired.'

As is shown in the English translation, the sentence has more than one reading. Y. Li (1990) proposes that the reading of (7d) is bad because it violates the head-feature percolation, yet his assumptions also incorrectly rule out the third reading (7c), which is in fact a good one. Y. Li (1995) recognizes the problem and further assumes that "in addition to the theta-roles assigned by lexical words and regulated by the thematic hierarchy, there are two causative roles (c-roles), Cause and Affectee, that arguments acquire when they are associated in a particular way with two causally related predicates" (Li, 1995: 265). The two causative roles form the 'causative hierarchy', in which Cause is more prominent than Affectee. According to Li (1995), the causative hierarchy interacts with the thematic hierarchy to determine the linking between theta roles and syntactic argument positions and when in conflict the latter can be overridden by the former. Li assumes that this interaction accounts for the inverse theta role assignment in the reading of (7c), namely, the Patient argument *Zhangsan* of *zhui* 'chase' is the Cause and becomes the subject while the Agent argument *Lisi* is the Affectee and gets into the object position.

It seems that Li's assumption of the interaction of the causative hierarchy and the thematic hierarchy is also able to account for sentence (4). When in conflict, the causative hierarchy overrides the thematic hierarchy, thus *bingjiling* 'the ice cream', the Cause and the Patient of V, occupies the subject position while *san-ge ren* 'three people', the Affectee and the Agent of V, becomes the object. However, the phenomena are more complex than the inverse theta role assignment shown in (7c) or (4). As is shown in sentence (5) and (6), the Cause may not be the Patient argument of the predicate verb and/or the Affectee may not be the Agent argument of the predicate verb.

According to Li, the two causative roles are assigned on the following conditions:

(8) Conditions for c-role assignment (Li, 1995: 267)

- a. The argument in the subject position receives the c-role Cause from a resultative compound if it receives a theta role only from V_{caus} ;
- b. The argument in the object position receives the c-role Affectee from a resultative compound if it receives a theta role at least from V_{res} .

In sentence (5), the argument in the subject position, *na-ben shu* ‘that book’, is the theme of the predicate verb *xie* ‘write’, receiving a theta role from V_{caus} , and thus receives the c-role Cause from the VRC *xie-bai* ‘write-white’; the argument in the object position is *Zhangsan de toufa* ‘Zhangsan’s hair’, which receives the theta role of the undergoer from V_{res} *bai* ‘white’. In this case, sentence (5) does follow the above conditions, although it is not explained why the agent of the causing event *Zhangsan* cannot receive any c-role. As Li (1995: 255) mentions, “Chinese has a productive resultative V-V compound in which the first verbal morpheme refers to the causing event and the second refers to the resulting event.” Even though resultative V-V compounds are referred to as verb-resultative constructions in this paper, there is a causative relation in VRCs. Li does not further clarify the relationship between his causative hierarchy and the causative relation within a VRC.

In sentence (6), the argument in the object position, *Zhangsan de yao* ‘Zhangsan’s waist’, has no thematic relation with the predicate verb, but it receives a theta role of the undergoer from the resultative verb *wan* ‘bend’, therefore it can be assigned the c-role Affectee according to the second condition. But the argument in the subject position, *na-ge youmo gushi* ‘that humorous story’, has no thematic relations with either the predicate verb *xiao* ‘laugh’ or the resultative verb *wan* ‘bend’. That is, it receives no theta role from the predicate verb, thus it violates (8a) and should not be assigned the c-role Cause. In this case, Li’s account fails.

There is actually such a sentence as (9) that Li (1995) tries to account for. By (8a), the NP in (9) cannot be assigned the Cause role.

(9) *Na-chang jihuang e-si le henduo ren.* (adapted from Li 1995)

that-CL famine starve-die ASP many people

‘Many people starved to death in that famine.’

In order to account for (9), Li restates (8a) as follows:

(8) a’. The argument in the subject position receives the c-role Cause from a resultative compound only if it does not receive a theta role from V_{res} .

Li argues that *na-chang jihuang* ‘that famine’ “may well carry an intrinsic temporal theta role and therefore does not directly receive a theta role” from the verb *e* ‘starve’ (1995: 268). By (8a) it cannot be assigned the Cause role, but by (8a’) it can, since it is not a thematic argument of the resultative verb *si* ‘die’. As Her (2007) and Li (2007, 2013) point out, Li’s conditions are stipulative and prediction made about causative relations on the basis of the proposed conditions is not always borne out. It is important to point out that the restatement of (8a) into (8a’) should be based on the premise that identical thematic relationships between items are represented by identical structural relationships between these items at the level of D-structure, namely the Uniformity of Theta Assignment Hypothesis (UTAH). However, this premise cannot stand in Chinese. A huge number of Chinese sentences, especially those with VRCs, violate the Uniformity of Theta Assignment Hypothesis (UTAH) (Baker 1988) or the thematic hierarchy (Jackendoff, 1972; Grimshaw, 1990) and even pose a great challenge to the causative hierarchy (Li, 1995).

2.2. Her’s LMT account

Her (2007) tries to account for the argument-function mismatches in Mandarin VRCs. He formulates an account within a revised Lexical Mapping Theory (LMT) which incorporates a unified mapping principle. According to the Lexical Mapping Theory, an argument structure serves as an interface between the lexical semantic structure and the syntactic structure of a predicator; each argument in an argument structure is mapped onto a grammatical function; the argument roles and grammatical functions are assumed to have a hierarchical organization (Bresnan and Kanerva, 1989; etc.).

The thematic hierarchy assumes an order of prominence among thematic roles in the argument-structure, descending from the most prominent Agent role. The LMT adopted in Her (2007) assumes that in the a-structure argument roles are represented in a left-to-right order according to their prominence. Grammatical functions are likewise assumed to have a universal hierarchical organization, with Subject, the most prominent and the least marked, at one extreme and Object at the other extreme. Her proposes a universal classification of roles in the a-structure, namely the intrinsic classification of argument roles for functions (IC). In addition, the version of LMT proposed in Her (2007) replaces the multiple mapping principles and well-formedness conditions in other formulations of the theory with a single Unified Mapping Principle (UMP) in (10), which applies to all syntactic assignments.

(10) The Unified Mapping Principle (UMP): (Her, 2007: 229)

Map each argument role, from the most prominent to the least, onto the highest compatible function available.

(* A function is available iff it is not linked to a role.)

Her further presents the assumption of causitivity assignment in resultative compounding, namely, “an unsuppressed role from V_{res} receives [af] iff an unsuppressed role from V_{caus} exists to receive [caus]” (2007: 234). On the basis of the assumption he then formulates the resultative compounding for Mandarin VRCs when V_{caus} is transitive and for those when V_{caus} is intransitive.

There are some problems with Her’s account. First, his account makes wrong predictions. According to his account, under the mapping principle, a composite role, formed by two composing roles, receives syntactic assignment via one composing role only; the second composing role is thus suppressed (Her, 2007: 221). In other words, when argument sharing takes place, a certain thematic role involved will be suppressed. When it comes to sentences like (7), by assuming that the Agent argument of the causing predicate is suppressed, the account makes the wrong prediction that Lisi cannot be interpreted as the Agent argument of V1. Another problem with Her’s account is that it fails to account for some VRCs. Her assumes a strict one-to-one argument-function correspondence, yet his formulation fails to account for VRCs with an intransitive predicate verb like (6) (cf. Li, 2013).

2.3. C. Li’s lexical-semantic account

Li (2013) offers a lexical-semantic account of Mandarin VRCs. Li first makes his assumptions and presents the linking rules in (11) below. The realization of the Causer (Cause) argument and the Causee (Affectee) argument is assumed to follow the rules.

(11) Linking Rules for Complex Causative Events in Active Sentences (Li, 2013: 106)

- a. The Causer argument is realized in the subject position and the Causee argument in the object position, when both arguments are overtly expressed by different linguistic expressions.
- b. When the Causer argument and the Causee argument are realized by one and the same linguistic expression, it appears in the subject position.
- c. When only the Causee argument is expressed, it is realized in the subject position.

Li then proposes a lexical-semantics account of Mandarin VRCs. On his account, there are two separate thematic tiers, an individual thematic tier and a composite thematic tier. The former refers to the thematic relations between V1 and V2; the latter is the Causer-Causee relation (i.e. the Cause-Affectee relation in Y. Li's terms), the composite causative relation at a higher level. Li assumes that the complex thematic relations associated with VRCs result from an interaction of these two thematic tiers.

The possibilities of realizing the Causer and Causee arguments are summarized in **Table 1** (Li, 2013: 107). Among the sixteen potential combinations, eleven are attested except that 2-b is bad for semantic reasons and 1-c, 2-c, 3-a, 3-b are illicit because of conflicting requirements on the transitivity of V1.

Table 1. Causer and Causee realization

Causer =	Causee = single argument of intransitive V2 =
1. Agent argument of transitive V1	a. Agent argument of transitive V1
2. Patient argument of transitive V1	b. Patient argument of transitive V1
3. Single argument of intransitive V1	c. Single argument of intransitive V1
4. Participant distinct from any argument of V1	d. Participant distinct from any argument of V1

According to Li's lexical-semantic account, the combination of sentence (12) is 2-a, in which the Patient argument of a transitive V1 is realized as the Causer, and the single argument of V2 is identified with the Agent argument V1; the combination of (13) is 4-b, in which the Causer is not identified with any argument of V1 and the single argument of V2 is identified with the Patient argument of transitive V1; and that of sentence (6) is 4-d, in which neither the Causer nor the Causee is identified with any argument of V1.

(12) *Na bao yifu xi-lei le Zhangsan.*

that bundle clothes wash-tired ASP Zhangsan

‘(Zhangsan washed that bundle of clothes) and the clothes got Zhangsan tired.’

(13) *Feizao shui xi-ganjing le yifu.*

soap water wash-clean ASP clothes

‘The soap water washed the clothes clean.’

Li (2013) gives a detailed analysis of many complex thematic relations of VRCs. His account is more comprehensive than previous ones and seems more desirable with fewer assumptions and stipulations as the author claims. However, there are still some problems with his account. First, Li's account does not really account for the formation of these sentences. It is more like a description of the good combinations between theta roles and c-roles. Second, Li does not define 'participant distinct from any argument of V1', which may result in his failure to exclude illicit sentences and explain why they are illicit. For example, if *feizao shui* 'soap water' in (13) is replaced by *mabu* 'duster', the sentence will become illicit. However, according to Table 1, the combination is still 4-b, yet Li's account fails to account for its illicit use.

3. A critical survey of studies within the framework of cognitive linguistics

The study of the above syntactic structures is a classic subject of formal linguistics and functional linguistics. In recent decades this particular type of structures has also aroused wide concern and interest among researchers from cognitive linguistics, especially construction grammar and cognitive grammar, including many Chinese scholars.

The naming of this type is varied from scholar to scholar, such as inverted causative structure (Gu, 1992; Li, 1999), inverted resultative construction (Zhang, 2009; Xiong and Wei, 2014), patient-as-subject clause (Zhang, 2004). In this section, we will review three specialized and most representative studies in Chinese literature.

3.1. Zhang's study

This special type of syntactic-semantic structures is first referred to as 'inverted resultative construction' in Yi Zhang (2009), in which he argues that it is a special usage of resultative construction and believes that it is an autonomous structure, having its own motivation. According to Zhang (2009), inverted resultative construction has its specific form and semantic characteristics. Its basic form is 'NP1+V1+V2+NP2', and its variant forms can be summarized as 'XP1+V1+V2+NP2', in which XP can be VP or S, but whatever it is, it can be semantically construed as the cause of the resulting state 'NP2+V1+V2'. Zhang maintains that inverted resultative constructions are generally used to convey the meaning of unexpected causations and results. He believes that since it is unexpected causation, it is not under the control of the participants in the event. This semantic feature puts forward requirements for the components entering the construction: 1) in general, there cannot be a typical agent participant in the construction; 2) the predicate verb of the construction must be a non-autonomous verb.

Zhang (2009) is one of the few important studies focusing on this particular phenomenon, yet there are some problems with his study. First, as Song (2018) points out, the naming of this structure is not reasonable, for the inversion is more suitable to be understood as the inversion of the predicate verb and the resultative complement of a VRC, rather than the inversion of the theta roles of the predicate verb in the configuration of a VRC sentence. In addition, it is quite confusing that the term is sometimes used to refer to a kind of VRCs and sometimes to a syntactic structure of VRCs. Even if the term can be used to refer to a construction, they fail to grasp the uniform characteristics of the construction, because not all of them are the inversion of the Agent argument and the Patient argument of VRC's predicate verb in syntactic configuration.

Second, Zhang's arguments for inverted resultative construction being an independent construction are hard to establish. Whichever 'inverted resultative construction' refers to, a construction or a syntactic structure, his arguments are problematic by analyzing the structure from the perspective of the thematic structure of the predicate verb in the VRC rather than the whole thematic structure of 'VR'. In addition, Zhang makes a mistake in his reductive analysis. To prove that inverted resultative construction is an independent structure, the evidence Zhang provides is that inverted resultative construction cannot be reduced to a general VRC, and there exists no corresponding expression. For example, sentence (14a) cannot be reduced to (14b), the latter being ungrammatical.

(14) a. *Ganmao yao chi-si Laochen.*

cold medicine eat-die Laochen

'Laochen took medicine for cold and as a result he died.'

b. **Laochen chi-si Ganmao yao.*

Laochen eat-die cold medicine

c. *Laochen chi-si le.*

Laochen eat-die ASP

'Laochen died from eating (something).'

d. *Laochen chi Ganmao yao chi-si le.*

Laochen eat cold medicine eat-die ASP

'Laochen died from taking medicine for cold.'

Zhang is not right by simply switching the positions of the subject and the object and by assuming that (14b) is the reduced form of (14a). In fact, the basic form of *chi-si* 'eat-die' should be 'NP VR', namely (14c), since it is an intransitive construction as a whole. Some scholars, such as Song (2018), argue that its underlying sentence pattern is a verb-copying sentence, like (14d). But we take (14d) as an expanded form of (14c) by complementing the Patient argument of the predicate verb *chi* 'eat'.

Third, Zhang's generalization of the constructional meaning is not strong enough. Zhang concludes that inverted resultative construction is a cognitive construction, used to express the meaning of unexpected causations and results just on the basis that most of the data in his corpus convey the meaning of unexpected causations and results. He does not present any explanation for those without such a specific meaning. Besides, structures like non-causative and verb-copying sentences can also express the meaning of unexpectedness. Thus, it is still doubted whether the meaning of unexpectedness can be taken as its constructional meaning.

The fourth problem is that there is contradiction in Zhang's discussion and analysis. When it comes to sentence (15), Zhang points out that NP2 *quan zhongguo* 'the whole China' has no thematic relations with V *chang* 'sing' or R *hong* 'popular' and thus it is not the subject of the resultative state; the resultative event cannot be analyzed as NP2+V1+V2. Therefore, Zhang

believes that the above sentence is less typical and proposes that they form a continuum. This analysis clearly contradicts his arguments about resulting state and resultative event.

(15) *Xianggan yueyu ge chang-hong le quan zhongguo.*

Hongkong Cantonese song sing-popular ASP whole China

‘Cantonese songs from Hongkong become popular all over China because of being sung (by people).’

What’s more, Zhang (2009) points out that XP in the form of PP no longer indicates the cause of the NP2’s resulting state, but the place where the event of ‘NP2+V1+V2’ occurs, which directly negates his previous statements. Although realizing that since there is no explicit causer in the expression it is doubted whether these examples can be analyzed as causative structures, Zhang still believes that there should be no doubt to regard them as VRCs since NP2 still has a change of state and brings about a result.

Another problem with Zhang’s study is that his argumentation on the cognitive motivation is circular. According to Zhang (2009), whether XP indicates the cause of the state change or the place where the change occurs, there must be a reason for it to appear at the beginning of the sentence. However, when discussing the cognitive motivation of the primary focus, Zhang argues that since most of the constructions have the meaning of unexpected causations and results the cause naturally becomes the first object the speaker and the listener pay attention to, which meets the requirement of the primary focus. It is quite obvious that his argumentation is circular. Besides, he reverses the logical order. It is not the construction expressing the meaning of unexpected causations and results that enables the cause to become the focus. Instead, it should be the speaker’s intentionality that chooses the cause as the focus, which is then linguistically represented in such a way.

3.2. Study of Xiong and Wei

Xiong and Wei (2014) adopt Zhang’s (2009) Chinese naming for those structures concerned (though they use ‘reversal resultative construction’ in their English abstract instead of ‘inverted resultative construction’). They define them as a special form of Chinese VRCs, referring to a construction that violates the Uniformity of Theta Assignment Hypothesis or the thematic hierarchy; it is a causative construction, which is special in that the nominal phrase in the subject position is not the agent of the verb, but the causer of the causation of the VRC, while the nominal phrase in the object position is not the patient of the verb either, but the causee of the causation.

Xiong and Wei (2014) study the syntactic and semantic characteristics of Chinese inverted resultative constructions from a causative perspective. They believe that there are lexical causatives and constructional causatives. The latter can be transitive and intransitive according to the transitivity of the verb. They argue that “the major difference between these two is that the transitive construction specifies its causer as having the [+R] feature while the intransitive construction itself injects the [+V] feature into the causer so that the relationship between the subject and the causer is indirect.” (2014: 507).

Based on the existing research, Xiong and Wei argue that it is difficult to appropriately describe the nature of this type of VRCs if studies are just conducted on its deep structure merely within

the framework of syntactic generation. They propose it should be studied as an independent construction, which has its own semantic features and syntactic representations. Thus, factors such as semantic, pragmatic and cognitive factors, should be taken into consideration, yet they point out that the existing studies from such perspectives deviate on their explanations, more or less failing to fully explain its motivation and semantic uniqueness. They try to present a semantic classification for inverted resultative construction from the perspective of its internal causation and analyze its motivation and the necessity of the inverted thematic structure.

Xiong and Wei (2014) adopt a causative approach and pay more attention to the causation of this particular structure. However, there are some problems with their account as well. First, their classification standards are inconsistent. They divide inverted or reversal resultative constructions into two types: lexical causatives and constructional causatives. According to them, the former are compounds in nature and entail a causative meaning while the latter do not entail a causative meaning and its causative meaning is coerced by the inverted construction. However, in this very article they also point out that inverted resultative constructions are constructional causatives and are different from lexical causatives. Obviously, they are not consistent in their classification.

Second, as is mentioned by Song (2018), the naming of the subclasses is not reasonable. Xiong and Wei further divide constructional causatives into transitive ones and intransitive ones, yet their subdivision is based on the transitivity of the predicate verb of a VRC rather than the transitivity of the whole construction, which is not natural to most people. Besides, their classification is not a good generalization of the phenomena. Syntactically speaking, inverted resultative constructions are all transitive, for they have both subjects and objects. The focus of the study should be why those intransitive VRCs can govern two NPs. However, by their classification, what falls into the category of transitive inverted resultative construction also includes constructions used as intransitive as a whole in their basic usage, such as *chi-si* ‘eat-die’; what falls into the category of intransitive inverted resultative construction also includes constructions used as transitive as a whole, such as *ku-shi* ‘cry-wet’. Thus, whether a VRC is transitive as a whole should be considered more fundamental for classification (Song, 2018).

3.3. Song’s study

Song (2018) argues that the so-called Chinese inverted resultative construction (‘reversal VR compounds’ is used in his English abstract) is a kind of marked causative construction formed by VRCs and the markedness comes from the fact that the conceptual structure of the event expressed by the language structure is out of convention. The causative events expressed by this causative structure are not normal and they are different from typical causative events. According to him, this marked causative structure has the following core features: 1) the causer has no volition and its animacy is lower than the causee. Even when the causer is a human NP, its volition is not as strong as that of a typical causer. The causee is usually a person with high animacy, but meanwhile it has the same characteristics as a typical causee, namely, no control and no volition over its own behavior or change. 2) The sentence embodies strong subjectivity. In other words, there is strong subjectivity in the conceptualization mechanism of the causative event expressed by this marked causative structure of VRCs.

Song divides this kind of constructions into two subtypes: one deriving from the causativization of intransitive VRCs, the other as a result of reassigning a new causer to transitive VRCs. Song

believes that they are all closely related to verb-copying constructions and assumes that the cognitive mechanism of its formation process is not reversal reasoning, but reconceptualization of the events expressed by its fundamental usage. According to him, although intransitive VRCs and transitive VRCs have different syntactic-semantic operations in causativization, the cognitive mechanisms of their formation are basically the same: in contrast to animate human beings, inanimate objects have lower influence and are less salient; the reason why they can become causers is mainly motivated by the speaker's subjective attribution and reconceptualization of the event expressed by the fundamental usage of the VRC.

Song points out that the output of a sentence is first developed by the speaker to form what needs to be expressed and then followed by a choice of morphosyntactic coding. He proposes that what enables an intransitive VRC to have a causer is the process of reconceptualizing the event and that the referent of the causer is the conceptual element that the speaker highlights from the background information of the event. Song's account is quite impressive and efficient, nevertheless there are still some problems with his study.

First, Song's views on natural results are questionable. Song stresses that the classification of 'inverted resultative constructions' should be conducted according to the transitivity of VRCs in their fundamental usage. According to him, the difference between sentence (16) and (17) lies in that they have different fundamental forms, the former verb-copying sentence while the latter a general intransitive sentence. He argues that it is because *dai* 'stiff' is not a natural result of 'watching' and the combination of the two is hard to predict, so the sentence "*Laozhang kan-dai* 'watch-stiff' *le*" cannot be independent and needs some contextual support, which is realized by verb copying. As for (17), he argues that *xiao-si* 'laugh-die' belongs to VRCs in a broad sense, the complement of which describes the degree of laughing. He maintains that the combination of the two is very natural, so it does not need to take the form of verb copying. Although Song fully realizes that it is a verb-degree structure instead of a verb-resultative construction, indicating degree meaning rather than result meaning, he still focuses his discussion on this case. Besides, in this case *xiao-si* 'laugh-die' does not mean 'laugh to death'; *si* 'die' is not used in its literal meaning and it is virtually a function word. What's more, it is really hard to tell it is a natural result of laughing as Song believes.

(16) *Na-fu hua ba Laozhang kan-dai le.*

That-CL painting BA Laozhang watch-stiff ASP

'Laozhang was transfixed by that painting.'

(17) *Taotao de gushi xiao-si wo le.*

Taotao 's story laugh-die me ASP

'Taotao's story makes me laugh badly.'

According to Song, in (5) (repeated as (18) below), *toufa bai* "one's hair turns white" is not a natural result of *xie* 'write', while *ganjing* 'clean' of the construction *xi-ganjing* 'wash-clean' is a natural result of *xi* 'wash'. Song does not define and clarify what a natural result is, then how to tell whether a result is natural or not? We argue that it is more powerful to explain them from the semantic perspective, avoiding terms such as 'natural results', 'expected results'. For example,

ganjing ‘clean’ is a result entailed in the semantic meaning of *xi* ‘wash’. The Modern Chinese Dictionary defines *xi* ‘wash’ as “clean sth. using water, gasoline, kerosene oil, etc”. Thus, ‘clean’ is an entailed result of the semantic meaning of ‘wash’.

(18) *Na-ben shu xie-bai le Zhangsan de toufa.*

that-CL book write-white ASP Zhangsan 's hair

‘Zhangsan wrote that book and as a result his hair turned white.’

Second, Song’s view that the causitivization of an intransitive VRC depends on the affectedness of its subject is a far-fetched explanation. His analysis of *xie-bai* ‘write-white’ has much to be discussed. He argues that the subject of the basic usage of *xie-bai* ‘write-white’ is not a real agent, but an actor. Unlike an agent or a typical causer, an actor does not have volition. The subject is the affectee of the change expressed by the predicate and its affectedness is crucial to the causativization of the construction. It is not easy to causativize an intransitive VRC if its subject does not have obvious affectedness. He takes *teng-xing* ‘ache-wake’ and *shui-xing* ‘sleep-wake’ as examples to illustrate his point, yet there are some problems in his discussion. In sentence (19a), Song argues that Zhangsan is the actor of *teng* ‘ache’ and its affectedness enables the construction *teng-xing* ‘ache-wake’ to be causativized and hence sentence (19b), in which ‘severe gastro spasm’ occupies the subject position while Zhangsan is in the object position. However, Zhangsan is an experiencer or an undergoer more than an actor. Meanwhile, Song takes *shui-xing* ‘sleep-wake’ as a counterexample to illustrate that it cannot be causativized because the actor has no obvious affectedness, so (20b) is ungrammatical.

(19) a. *Zhangsan teng-xing le.* b. *Julie de wei jingluan teng-xing le zhangsan.*

Zhangsan ache-wake ASP severe stomach spasm ache-wake ASP Zhangsan

‘Zhangsan woke up in pain.’ ‘Zhangsan woke up because of severe gastro spasm.’

(20) a. *Zhangsan shui-xing le.* b. **qingchen niao jiaosheng shui-xing le zhangsan.*

Zhangsan sleep-wake ASP morning bird call sleep-wake ASP Zhangsan

‘Zhangsan woke up.’

However, whether the semantic relationship between *shui* ‘sleep’ and *xing* ‘wake’ is a verb-result one remains to be further discussed. It is obvious that there is no causative relation between them. In other words, *xing* ‘wake’ is not a result caused by *shui* ‘sleep’.

Third, the account of reconceptualization needs further research. According to Song (2018), the cognitive mechanism of the formation process of ‘inverted resultative construction’ is reconceptualization of the events expressed by its fundamental usage, the key to which is the speaker’s identification of and emphasis on the new causer. Song assumes it is motivated by the speaker’s subjective attribution. The speaker adjusts the focused object by shifting attention to some conceptual component in the background and interpreting it as a causer. In other words, the speaker endows the automatic events with causers, finds new causers for the causative events and makes them prominent in the foreground. Song’s study is quite impressive and insightful, but further questions need to be asked about what influences the speaker’s attention focus and whether there are

any constraints on the speaker's subjectivity.

4. An extended account

In this section, we offer an extended account based mainly on previous studies in an attempt to give a more comprehensive account of the special kind of structures formed by VRCs and to solve some problems in the existing research. In what follows, we will first define the terms for clarity and then present our account in detail.

4.1. Marked VRC causative structures

As can be seen from the existing research, the use of terminology is very inconsistent. In this paper, verb-resultative construction (VRC) is used to refer to the construction consisting of two verbs or a verb followed by an adjective, the second indicating a result caused by the first verb. Not all of those special syntactic-semantic structures of VRCs, which are referred to as 'inverted resultative constructions' or 'reversal resultative constructions' in literature, have inverted theta roles. Inverse theta role assignment is not their uniform feature, thus 'inverted or reversal resultative construction' is not an appropriate name for them. In addition, the term is confusingly used by some scholars to refer to both construction and syntactic structure. Based on the existing research and the survey on such sentences, this paper defines the features of this kind of VRC sentences as follows: 1) a VRC has a causative relation within itself; 2) in the syntactic structure formed by VRC, the argument in the object position is the causee and the only argument of the resultative verb or adjective; above all, 3) the causer in the subject position is any conceptual component from the cause event other than the agent of the predicate verb. The last feature is unique and it is this feature that distinguishes those structures from general ones. To avoid confusion, this type of syntactic structures is referred to as marked VRC causative structure while VRC refers to a construction.

Some Chinese VRCs can occur in the sentences whose subjects and objects can be transposed without changing the meanings of the sentences. For example:

- (21) a. *Zhangsan chi-ni le zhe-dao cai.* b. *Zhe-dao cai chi-ni le zhangsan.*
Zhangsan eat-bored ASP this-CL dish this-CL dish eat-bored ASP Zhangsan
'Zhangsan got bored with this dish (because of eating it too often).'

The subject of (21a) 'Zhangsan' moves to the object position of (21b) while the object of (21a) 'this dish' becomes the subject of (21b). Oddly enough, they have the same semantic meaning. Only a few VRCs can be used in this way. In this case, (21b) is a marked causative structure, in which the construction *chi-ni* 'eat-bored' is intransitive and self-causative.

4.2. An extended account based on the previous studies

The majority of VRCs used in marked causative structures are intransitive VRCs. Intransitive VRCs are self-causative. In other words, the theme that undergoes the change of state or the theme of the resultative verb is identical with the agent of the predicate verb. Intransitive VRCs have only one theta role and govern one argument. We propose that marked VRC causative structures are actually double causative structures, in which VRCs have a causative relation between the predicate verb and the resultative complement and meanwhile the whole sentence is a causative one. Thus, the

reason why intransitive VRCs can be used in marked causative structures and govern two arguments is that marked causative structure is a higher causative structure above the self-causative VRC. It focuses on the causative relation between an external cause and the VRC's self-causation. That is, what causes the self-causation is expressed and emphasized in a marked VRC causative structure.

In addition to intransitive VRCs, transitive VRCs can also be used in marked causative structures. For example, (22a) is the fundamental usage of *xie-bai* 'write-white', which is a transitive construction. Zhangsan's writing causes his hair to turn white.

(22) a. *Zhangsan xie-bai le toufa.*

Zhangsan write-white ASP hair

'Zhangsan's hair turned white because of writing (something).'

b. *Na-ben shu xie-bai le Zhangsan de toufa.*

that-CL book write-white ASP Zhangsan 's hair

'Zhangsan wrote that book and as a result his hair turned white.'

c. *Zhangsan xie na-ben shu xie-bai le toufa.*

Zhangsan write that-CL book write-white ASP hair

'Zhangsan wrote that book and as a result his hair turned white.'

Shibatani (1976) and Dowty (1979) have long pointed out that the causer is an event in nature and explained it from the perspective of the proposition expressed by the causer. This is also true of marked VRC causative structure. Many scholars use metonymy to explain the phenomenon that participants in the event structure, such as the agent and the patient, replace the event itself (e.g. Song, 2007; Xiong, 2004; Wu, 2013; Xiong and Wei, 2014).

Metonymy is a good account. Xiong and Wei (2014) use metonymy to explain why the causee of sentence (22b) (namely (5)) is 'Zhangsan's hair' instead of Zhangsan. They argue it is an argument metonymy of the genitive structure. It is necessary to recognize the agent of the verb by metonymy, that is, Zhangsan, the owner of 'hair' or 'waist'. But we argue that there is no metonymy in the causee of this sentence. It is (Zhangsan's) hair that turns white. The construction *xie-bai* 'write-white' is formed by the conceptual integration of *xie* 'write' (x, y) and *bai* 'white' (x') based on causality. There is a causative relation between V and R in a VRC. The causative structure aims to explore what causes his hair to turn white. In reality, the causer is not merely Zhangsan or that book but the event of Zhangsan writing that book. If the proposition of the cause serves as the causer in the sentence, the sentence will be (22c). Sentence (22c) is a good sentence, in which the whole proposition of the cause event occurs in the sentence. The above sentence is usually regarded as a verb-copying sentence. But we assume that the sentence is actually formed by the whole proposition of the cause event getting into the subject position, being the causer of this marked causative structure. Any conceptual component of the cause event is a potential causer to represent the event, yet due to their different semantic contribution, some of them seem more natural to people than others, say, if they have volition or they are animate. As is shown in (22), (22a) is less marked than (22b), since Zhangsan is animate and is the agent of the action. Both the agent and the patient of

the cause event are capable of replacing the event to serve as the causer of the whole marked VRC causative structure.

Take another example:

(23) a. *Wo zou-lan le san shuang xie.*

I walk-torn ASP three pair shoes

‘I wore out three pairs of shoes by walking.’

b. *Shi li shan lu zou-lan le san shuang xie.*

ten 1/2km mountain road walk-torn ASP three pair shoes

‘Three pairs of shoes were worn out as a result of walking 5-kilometer mountain road.’

c. *Wo zou shi li shan lu zou-lan le san shuang xie.*

I walk ten 1/2km mountain road walk-torn ASP three pair shoes

‘I wore out three pairs of shoes by walking 5-kilometer mountain road.’

d. *Zou shi li shan lu zou-lan le san shuang xie.*

walk ten 1/2km mountain road walk-torn ASP three pair shoes

‘Three pairs of shoes were worn out as a result of walking 5-kilometer mountain road.’

The construction *zou-lan* ‘walk-torn’ in (23) is transitive, for the object that undergoes a change of state is not the agent of the predicate verb. It is not self-causative and there must be an affectee or a causee, namely, the shoes. The difference between (23a) and (23b) lies in that the subject of the former is the agent of the predicate verb *zou* ‘walk’ while the subject of the latter is not. (23a) is a general structure in accordance with UTAH and the thematic hierarchy. But (23b) violates both of them and belongs to what is referred to as marked VRC causative structure.

Song (2018) is right by assuming that sentences like (23b) are a result of reassigning a new causer to transitive VRCs and it is motivated by the speaker’s selection of and emphasis on the causer. We agree that they are a kind of marked causative structures, in which the causer is not the agent of the predicate verb but something else. The focus of this study is to explain why semantic components other than the agent of the verb can represent the cause event to be the causer and occupy the subject position of the sentence.

(23c) and (23d) further illustrate that the causer is conceptually an event, however, it can be syntactically represented by any conceptual component of the event as long as the very component can trigger the whole cause event in the causative sentence. In contrast, (23b) is the most economical linguistic way to express the causation.

In (22) and (23), the causees remain unchanged, yet the causer is represented by varied linguistic forms, among which the agent of the predicate verb is the least marked causer and is usually taken as a default one. Other conceptual components are marked ones when they serve as the causer. All of the varied sentences in (22) or (23) have the same semantic meaning, yet the marked sentences

differ from the unmarked one in that they likely have a different pragmatic meaning. The other conceptual components than the agent become the causer, which is motivated by the speaker's intentionality to highlight the causative relation between the cause and the result. The speaker decides which component to choose to represent the whole cause event, which is quite subjective and varied, but there are also some constraints on the speaker's selection. The conceptual component must be a component within the framework of the cause event. The more representative the causer is, the easier the causation is semantically and cognitively constructed.

Song (2018) has assumed them as results of reconceptualization of the events. Based on his study, we further argue that conceptually speaking, the cause event of the result is the same, the reasons why the cause event is represented in linguistically different ways are as follows: First, when the conceptual structure is represented linguistically, it has to conform to the syntactic rules and argument configuration, meanwhile it is subject to the economy principle of language. Second, the speaker is driven by his intentionality and focuses on a certain component of the cause event, believing that contributes more to the result. Third, the semantic relations of a cause event are consistent with those of a resultative event and thus they can be constructed based on the intra-linguistic context and cognitive principles. It is because the semantic elements between these events are mapped that various semantic relationships can be established between events.

4.3. Special cases

If there is a lack of mapping semantic elements between the cause event and the resultative event, or the cause event is a relatively complex conceptual event, it is difficult for the listener to completely construct the event based on the intra-linguistic context and cognitive abilities like decompression, then the linguistic representation of the cause event need to be relatively complex. For example:

(24) *Gongsi juhui kuang pin jiu he-si xin yuangong.*

company party crazy compete liquor drink-die new staff

'The crazy drinking competition in the company party caused a new staff member to drink himself to death.'

The cause of sentence (24) is a quite complex event; much of its conceptual information cannot be deduced on the basis of linguistic context. Therefore, what appears in the subject position of the whole sentence is a clause. In many cases, VP also appears in the subject position as the causer, like the above (23d). In a word, the cause is actually an event at the conceptual level.

When it comes to sentences like (9) or a similar one (25), Shi (2008:164) thinks that (25) is composed of two causative events, the underlying one of e 'starve' and the high-level one represented by e-si 'starve-die'. According to him, the semantic structure of (25) is as follows: [(that famine) **cause** [(many villagers)→hungry]] **CAUSE** [(many villagers)→die].

(25) *Na-chang jihuang e-si le bushao cunmin.* (from Shi 2008)

that-CL famine starve-die ASP many villager

‘Many villagers starved to death in that famine.’

For our part, (25) is also a double causative structure, containing two causative events. However, unlike Shi (2008), we argue that sentence (25) is the result of re-causativization of a self-causative VRC. That is, the construction *e-si* ‘starve-die’ is self-causative, somebody starving to death. It is the same animate being that suffers from hunger and then dies. The other causation is about what causes the event of ‘starve-die’. Thus, we assume that the semantic structure of (25) should be as follows: [(that famine)] **CAUSE** [(many villagers)→hungry] **cause** [(many villagers)→die]]. A famine may render a lot of people hungry; some might survive while others starve to death. Those who starve to death in the resultative event do not amount to those who suffer from hunger in that famine. Thus, the semantic structure we propose is more reasonable and logical. The difference between the two semantic structures lies in the causative hierarchy.

Sentences like (26) are also considered to belong to this structure (e.g. Zhang 2009). However, (26) is essentially different from the above ones, for it cannot be reduced to “NP2 VR le”.

(26) *yi-shou ge chang-hong le yi-bu dianying.*

a-CL song sing-popular ASP a-CL movie

‘A movie becomes popular because of a song being sung.’

The formation of (26) is more complicated. The construction *chang-hong* ‘sing-popular’ is not a self-causative VRC and NP2 has no thematic relation with the predicate verb. What’s more, NP1 is not the agent of the predicate verb, but the patient. What makes the movie become popular is that the song is sung by people and it becomes popular. Since the song becomes popular, the movie with which the song is somehow related also becomes well-known. The premise for this sentence is that the song is part of the movie, say, the opening song, the ending song or a song in the movie. The causation between them is not direct but a compressed causative relation. In addition, it does not matter who sings the song. It might be performed by professional singers or just be sung by average people. It follows that the song represents the cause event and becomes the subject of the sentence.

5. Summary

To summarize, this paper has shown that those special syntactic-semantic structures formed by VRCs have been studied in the existing research, but there is still some disagreement and the use of terminology is also inconsistent. In accordance with what it usually refers to in Chinese literature, this paper first adopts a more equivalent term, namely ‘verb-resultative construction (VRC)’, for the lexical structures consisting of a verb plus a resultative complement, the latter being a verb or an adjective and a result caused by the former. Those special structures of VRCs, simple in syntax but complex in semantics, violate both the Uniformity of Theta Assignment Hypothesis and the Thematic Hierarchy. A review of the most representative studies in English literature, Y. Li (1990, 1995), Her (2007), C. Li (2013), in which those special structures are discussed, shows that some problems still remain unexplained. We then present a critical survey of the major specialized studies on those structures within the framework of cognitive linguistics in Chinese literature.

The review shows that inverse theta role assignment is not the uniform feature of those structures. Considering that they are special causative structures, we refer to them as ‘marked VRC causative

structure' and define their features as follows: 1) VRC has a causative relation within itself; 2) in the syntactic structure formed by VRC, the argument in the object position is the causee and the only argument of the resultative verb or adjective; above all, 3) the causer in the subject position is any conceptual component from the cause event other than the agent of the predicate verb. Only causative VRCs are likely to form marked causative structures. Among the features, the third one is the most important distinguishing feature to judge whether it is a marked VRC causative structure.

Based on the previous studies and accounts, we draw on their insights and propose an extended account to give a more comprehensive explanation for the problems. If VRC is self-causative, then marked VRC causative structure is re-causativization of the VRC by establishing a causative relation between an external cause and the self-causation of VRC. They are double causative structures. If VRC is not self-causative, then marked VRC causative structure enables other conceptual components than the agent to be the causer to represent the whole cause event. There are some constraints on what conceptual component of the cause (event) becomes the causer of a marked VRC causative structure. First, it has to conform to the syntactic rules and argument configuration and be subject to the economy principle of language. Second, the speaker is driven by his intentionality to select a certain conceptual component to be the causer, yet the causer should be capable of triggering the whole cause event on the basis of the intra-linguistic context aided by human cognitive abilities.

These marked causative structures formed by verb-resultative constructions are a very complicated linguistic phenomenon, unique to mandarin Chinese. They still need further and more comprehensive research.

Author contributions

XP and LL conceptualized the study. XP analysed the data and led the writing of the manuscript. LL supervised and provided valuable critical revisions of the manuscript. Both of the authors agreed in both contents and form of the final version, being XP the responsible of this article.

Conflict of interest

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