# Event structure and argument realisation in Mandarin V-V compounds

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**Abstract**

This paper analyses different types of resultative V-V compounds in Mandarin Chinese, including those previously claimed to show inverse argument-function linking. We propose a simplified and novel LFG account of V-V compounds by providing a systematic approach to argument realisation and event structures using only standard mapping principles and a constructional approach that imposes just two event structure frames for different resultative compounds: either a change-of-state frame or a causative frame. The main claim is that V-V compounding creates a change-of-state predicate, which may optionally undergo causativisation. By treating the second verb that denotes the result state as the semantic head, and by formalising the suppression of the first verb's highest argument, the present analysis captures the full range of interpretations found in Mandarin resultative compounds.

# 1 Introduction

Resultative V-V compounds (RVCs) in Mandarin Chinese are composed of two verbs which we will refer to as V1-V2.† V1 typically denotes an activity or state and V2 denotes a state, a change of state (COS), or, in exceptional cases, an activity, with a causal relation holding between V1 and V2, as shown in the examples in (1).[1]

(1) a. *ta* *ca-ganjing-le* *zhuo zi*
he wipe-clean-PFV table
'He wiped the table clean.'

b. *ta* *ti-po-le* *qiuxie*
he kick-broken-PFV sneakers
'He kicked (something) and, as a result, his sneakers got torn.'

These RVCs are indivisible because no aspect markers, adverbials, modals, negation markers nor objects may occur between the two verbs, except for two infixes, which yield the so-called potential form, expressing 'be able to' and 'be unable to'.[2] This contrasts with serial verb constructions, where such syntactic insertions are permitted in Mandarin (see more discussions in Zhuang et el. 2021). Moreover, V-V compounds are a type of complex predicates, given that the two component predicates form a unit from the point of view of argument structure and grammatical functions (GFs) (see e.g., Butt 1995, 1997, Alsina 1993, 1996), as we shall see.

This paper aims to provide a unified analysis of different types of RVCs. Section 2 classifies major RVC types and examines the complex thematic relations they encode. Section 3 reviews two previous analyses within the LFG framework and identifies unresolved issues. In Section 4, we present our proposal that V-V compounding creates a COS predicate, which can be optionally causativised, thereby accounting for both intransitive and transitive patterns in a principled manner.

† We thank the two anonymous reviewers and the audience at LFG 2025 Conference at Pompeu Fabra University for their comments.

[1] Given that both adjectives and verbs can function as predicates in a clause without a copular verb, we do not distinguish these two categories in this paper, but refer to them as verbs.

[2] The potential form is highly productive and can be derived by a lexical derivation rule as proposed by Thompson (1973). However, it is not addressed in this paper due to space limitations.

## 2 Complex thematic relations

RVCs exhibit considerable flexibility in argument realisation, depending on the semantic roles of both component verbs and their causal dependencies. More specifically, RVCs are often classified into several types and their variants.

First, **canonical transitive RVCs**, as exemplified in (1), are typically composed of an activity V1, either transitive or intransitive, such as *ku* 'cry' or *ca* 'wipe', and a stative or COS verb V2, which expresses the result state of the object. These RVCs can also be referred to as object-oriented RVCs, since the result predicate denoted by V2 is predicated of the object. Likewise, the term subject-oriented reading will be used for cases where the result predicate is predicated of the subject.

We refer to the argument that denotes the result state of V2 as the affectee. For example, the object in (1a) is both the patient of V1 and the affectee of V2. However, note that in certain cases, the affectee is not necessarily interpreted as the patient or theme argument of V1, as the object of RVCs may bear no thematic relation to V1. In an example like (1b), the object, i.e., the sneakers, is not selected by V1, as it is not the entity to which the kicking is directed, but just happens to be involved in the event.[3]

Second, canonical transitive RVCs have **pseudo-passive counterparts**, a term proposed by Cheng and Huang (1994), in which the agent of V1 is unexpressed, unlike those in (1). In this type of RVCs, the affectee is the only expressed argument, which maps onto the subject function; thus, they have a subject-oriented reading. These RVCs lack overt passive morphology (unlike the English translation), as shown in (2), where the passive morpheme *bei* is absent.

(2) a. *zhuo zi* *ca-ganjing-le*
table wipe-clean-PFV
'The table was wiped clean.' (Lit. 'The table wiped clean.')

b. *qiuxie* *ti-po-le*
sneaker kick-broken-PFV
'The sneaker was kicked broken.' (Lit. 'The sneaker kicked broken')

These RVCs denote a COS, though neither of the two component verbs encodes a COS in isolation.[4] The examples in (2) express a COS in which the result state is denoted by V2, without specifying the agent of the causing event. In particular, in (2b), the agent and the patient/goal arguments of V1 are both unexpressed.

[3] *qiuxie* 'sneaker' in examples (1b) and (2b) is not the patient argument of V1 *ti* 'kick', as it is not the entity that receives the impact. Following Jackendoff (1990), the entity in motion is the kicker's foot, which also serves as the default instrument. Although whether the sneaker qualifies as a legitimate instrument remains to be determined, this uncertainty does not affect the conclusion that it is not an argument of the verb.

[4] Mandarin Chinese is a state/COS labile language lacking overt inchoative morphology. We follow Smith et al. (2025) in attributing the systematic availability of COS interpretations for stative predicates to aspectual coercion, which triggers an inchoative shift. In this view, V2 adjectival predicates are basically stative, but the compounding environment gives rise to a COS interpretation, analogous to the perfective marker *le*, which systematically patterns with RVC constructions. For more discussion, see Tham (2010, 2013), Zhang (2023) and Koontz-Garboden et al. (2025).

Moreover, the agent of V1 in pseudo-passives cannot be expressed in the absence of the passive marker *bei*. These pseudo-passives are also incompatible with agent-oriented adverbs, such as *zixi de* 'carefully' and *guyi* 'deliberately'.

(3) a. **zhuo zi* *zixi de* *ca-ganjing-le*
table carefully wipe-clean-PFV
'The table was carefully wiped clean.'

b. **qiuxie* *guyi* *ti-po-le*
sneaker deliberately kick-broken-PFV
'The sneaker was deliberately kicked broken.'

The third type of RVCs consists of **COS RVCs**, which are intransitive and express a COS without the presence of a causer. Unlike pseudo-passive RVCs, both V1 and V2 of COS RVCs are predicated of the subject.

(4) a. *Zhangsan* *zui-dao-le*
Zhangsan drunk-fall-PFV
'Zhangsan got so drunk that he fell.'

b. *Zhangsan* *chang-ku-le*
Zhangsan sing-cry-PFV
'Zhangsan got to cry by singing.'

Example (4a) illustrates an RVC with a state verb *zui* 'drunk' as V1 and the COS verb *dao* 'fall' as V2 and it means that the subject *Zhangsan* became so drunk that he fell down. As in (4b), COS RVCs can also be composed of two activity verbs, *chang* 'sing' and *ku* 'cry', which means that the singer *Zhangsan* was singing and ended up crying.

In COS RVCs, all activity verbs, either intransitive or used intransitively, can function as V1, without requiring an object, such as *tiao* 'jump; dance', *da* 'hit', *ti* 'kick', *he* 'drink', *zou* 'walk', etc. Besides, only a few COS verbs (e.g., *dong* 'freeze') can occur as V1 in COS RVCs, in which a stative V2 specifies the result of the COS of the compound, as in (5b).

(5) a. *Zhangsan* *zou-lei-le*
Zhangsan walk-tired-PFV
'Zhangsan got tired from walking.'

b. *shou jiao* *dong-jiang-le*
hand foot freeze-stiff-PFV
'Both hands and feet have become stiff from the cold.'

Given that both pseudo-passive RVCs and intransitive COS RVCs denote a COS, a close examination of the predicate classes that can appear as V1 and V2 in these two types of compounds reveals an interesting pattern. Even when neither V1 nor V2 denotes a COS, the compound as a whole, such as *ca-ganjing* 'wipe-clean' in (2a) and *sing-cry* 'chang-ku' in (4b), expresses a COS meaning. Similar examples include *ku-lei* 'cry-tired', *lei-bing* 'tired-sick', *zhan-ma* 'stand-numb', *qie-sui* 'cut-mashed', etc.

We claim that all these cases indicate that it is V-V compounding itself that creates a COS predicate and that the COS meaning is not derived from either component verb.

Finally, the fourth type involves the causativisation of COS RVCs. The examples in (4) have causative counterparts, shown in (6), where the subject of a COS RVC becomes the object of the causative form, and a causer takes the subject position.

(6) a. *na* *ping* *jiu* *zui-dao-le* *Zhangsan*
that CLF alcohol drunk-fall-PFV Zhangsan
'That bottle of liquor got Zhangsan so drunk that he fell down.'

b. *na* *shou* *ge* *chang-ku-le* *pingwei*
that CLF song sing-cry-PFV judge
'That song made judges cry.'

As Yao (2022) observes, intransitive COS RVCs systematically participate in the causative alternation. NPs such as *na-ping jiu* 'that bottle of alcohol' serve as pragmatically plausible causers that trigger causing subevents denoted by V1, as in example (6a). In (6), neither of the causer subjects bears any thematic relation to either component verb of the two RVCs. An important point worth mentioning with respect to (6b) is that the agent of V1, the singer, remains unknown, as it is unlikely that the judges are the ones singing.

In sum, RVCs can be divided into two major classes, with transitive and intransitive variants: canonical transitive RVCs and their intransitive counterparts, so-called pseudo-passive RVCs, on the one hand; intransitive COS RVCs and their causativised counterparts, on the other hand. All of these RVCs involve complex thematic relations.

# 3 Previous analyses

In this section, we present two previous LFG analyses: Her (2007) and Lee (2013).

## 3.1 Her (2007)

Her (2007) focuses on argument-function mismatches and revises the Lexical Mapping Theory (LMT) by replacing the different mapping principles with a unified Mapping Principle, which closely parallels the Mapping Principle proposed by Kibort (2001, 2004, 2006). According to this principle, each argument role, listed from left to right in order of prominence, is mapped onto the most prominent compatible function available.

With respect to Mandarin RVCs, Her assumes a set of lexical operations of resultative compounding that bind the single role of V2 with one of the two roles of V1, in the case of transitive V1s, creating a 'composite role', as in (7), notated by hyphenating the two roles. Moreover, Her adheres to Function-Argument Biuniqueness, proposed by Bresnan (1982) (see also Bresnan & Kanerva 1989, Dalrymple et al. 2019), and thus assumes that one of the component roles must be suppressed, indicated by a cross-out below, which implies that it receives no mapping to GF.

(7) Lexical rules for resultative compounding (Her 2007: 237)

a. When $V_{caus}$ is transitive:

$V_{caus}$<*x y*> + $V_{res}$ <*z*> →

$V_{caus}$Vres <*α β*>, where <*α β*> = (i) <*x y-z*>

(ii) <*x*[caus] ~~*y*~~-*z*[af]>

(iii) <*x-z y*>

(iv) <*y*[caus] ~~*x*~~-*z*[af]>

b. When $V_{caus}$ is intransitive

$V_{caus}$<x> + $V_{res}$<z> →

$V_{caus}V_{res}$ <*α (β)*>, where <*α (β)*> = (i) <*x-z*>

(ii) <~~*x*~~-z>

(iii) <*x*[caus] *z*[af]>

In addition, the Causativity Assignment Hypothesis in resultative compounding is given in (8), where $V_{res}$ refers to our V2, $V_{caus}$ to V1, [af] to the Affectee role and [caus] to the Cause role (cf. Li 1995).

(8) Causativity assignment hypothesis in resultative compounding (Her 2007: 234)

An unsuppressed role from $V_{res}$ receives [af] iff an unsuppressed role from $V_{caus}$ exists to receive [caus].

Furthermore, following Dowty's (1991) Proto-Role classification, Her assumes that [caus] is more prominent than [af]. This, in turn, affects further argument-function mapping, such that the argument bearing [caus] takes precedence in mapping onto the highest compatible function.

To illustrate how these representations capture the relevant patterns, (9) provides a classic example of a transitive RVC, which allows three possible readings.[5]

(9) *Zhangsan* *zhui-lei-le* *Lisi*
Zhangsan chase-tired-PFV Lisi

a. 'Zhangsan chased Lisi and as a result Zhangsan got tired.' (Subject-oriented)

b. 'Zhangsan chased Lisi and as a result Lisi got tired.' (Object-oriented)

c. 'Lisi chased Zhangsan and Zhangsan got Lisi tired.' (Inverse linking)

For the subject-oriented reading, where the result is predicated of the subject, the corresponding a-structure is as in (7a[iii]), where the *x* and the *z* roles form a composite role, as shown in (10). The interpretation is not causative because the *z* role is suppressed, and consequently no causativity is assigned under the Causativity Assignment Hypothesis. This is further supported by the fact that the subject-oriented reading lacks a *ba* construction counterpart, which has been widely argued to be a diagnostic of causativity, given that the NP that follows *ba* is the affected argument (see also Huang 1992, Li 1995, Zou 1995, among others). It is worth noting that both the

[5] Ambiguity involving three readings is extremely rare in RVCs. This rarity is likely related to the affectedness of V1 and its compatibility with the result predicate contributed by V2, which is an issue that lies beyond the scope of the present paper.

object-oriented reading and the inverse linking reading have *ba* construction counterparts. In the case of the subject-oriented reading, the *x* and the *y* roles are mapped onto SUBJ and OBJ, respectively.

(10) 'Zhangsan chased Lisi and as a result Zhangsan got tired.' (Subject-oriented)
< *x*-~~*z*~~ *y* > (7a[iii]) (x=ag, y=pt/th) (non-causative)
SUBJ OBJ

For the object-oriented reading, Her proposes that the two a-structures in (7a[i]) and (7a[ii]) share the same linking, yielding the same interpretation, as in (11).

(11) 'Zhangsan chased Lisi and as a result Lisi got tired.' (Object-oriented)
a. < *x* *y*-~~*z*~~ > (7a[i]) (x=ag, y=pt/th) (non-causative)
SUBJ OBJ

b. < *x*[caus] ~~*y*~~-*z*[af] > (7a[ii]) (x=ag, y=pt/th) (causative)
SUBJ OBJ

The *z* role from V2 is suppressed in (11a), thus no causativity is assigned in the sense that it does not receive a causative interpretation. In contrast, in the a-structure in (11b), the *z* role from V2 is not suppressed, which triggers causativity assignment, so that the *x* role and the *z* role are assigned [caus] and [af], respectively. Thus, (11b) is causative and Her (2007: 235) claims that "our account correctly predicts that the reading of (11) is still causative."

Finally, the third reading in (9c), where the subject *Zhangsan* is understood as the one being chased, while the object *Lisi* is both the chaser and the one that undergoes a COS (i.e., the argument of which V2 is predicated), corresponds to the a-structure in (7a[iv]).

(12) 'Lisi chased Zhangsan and Zhangsan got Lisi tired.' (Inverse linking)
< *y*[caus] ~~*x*~~-*z*[af] > (7a[iv]) (x=ag, y=pt/th) (causative)
SUBJ OBJ

In (12), the most prominent role, namely the *x* role, is suppressed. This reading is causative because the *z* role from V2 remains unsuppressed, the unsuppressed *y* role from V1 can be assigned [caus], as required. Therefore, the *y* role is mapped onto SUBJ and the *z* role mapped onto OBJ, which results in an inversion of linking.[6]

Though Her provides an analysis of the unexpected inverse linking pattern, there are several problems in his account. First of all, causativity is a stipulation in the a-structure motivated solely by the facts of Chinese RVCs. Second, the assumption that the subject-oriented reading in (11) corresponds to two distinct a-structures, one causative and the other one non-causative, is not independently motivated: there is no evidence that the sentence is ambiguous in terms of causativity and thus there is no clear motivation for positing two a-structures for one interpretation. Third, Her

[6] This is termed *inverse linking* reading because the agent and the patient/goal argument of V1 are mapped to object and subject, respectively, which is the reverse assignment of GFs that occurs when V1 is the sole verb of a clause.

discusses examples of passivised RVCs like (13a), where the passive marker *bei* triggers the suppression of the agent role of V1. However, he does not address pseudo-passive RVCs, such as (13b), where there is no overt passive marker *bei* and the agent role of V1 is not realised in the syntax. Theoretically speaking, suppression in the case of passivisation would not be expected to occur in the case of pseudo-passives, so additional mechanisms and conditions on suppression need to be proposed.

(13) a. *shou pa* *bei* *ku-shi-le*
handkerchief PASS cry-wet-PFV
'The handkerchief got wet, caused by someone's crying.'

b. *shou pa* *ku-shi-le*
handkerchief cry-wet-PFV
'The handkerchief got wet from someone's crying.'

Fourth, the notion of suppression used here is different from the kind of suppression found in passivisation or unspecified object deletion (see Bresnan et al. 2016). In fact, it is used to satisfy Argument-Function Biuniqueness: only one of the two composing roles is mapped onto a GF, while the other one is left unavailable for linking. This is quite similar to Alsina's (1995, 1996) proposal, who challenges the Argument-Function Biuniqueness by arguing that two arguments are mapped onto a single GF. Finally, Her fails to cover all RVCs, especially those involving a non-subcategorised object as in (1b) and causative RVCs as in (6), where argument roles of V1 do not necessarily all need to be syntactically realised.

## 3.2 Lee (2013)

A more recent account of Mandarin RVCs within the LFG framework is provided by Lee and Ackerman (2011) and Lee (2013). They follow Goldberg and Jackendoff's (2004) analysis of English resultatives and propose that RVCs in Mandarin form a family of related constructions, similar to the proposals of Li (2008) and Shibagaki (2011). Adapting Rappaport and Levin's (1998) event structure templates, Lee (2013) assumes that the following simple event structures and schematic templates are used for Chinese verbs:[7]

(14) Simple event structures:

| | | |
|---|---|---|
| a. | [x <*STATE*> ] | (State) |
| b. | [BECOME [x <*STATE*>]] | (COS) |
| c. | [x ACT<$_{MANNER}$> (y)] | (Activity) |

(15) Schematic templates:

a. [[$_{ACT}$…] CAUSE [$_{COS}$…]][8]
b. [[$_{COS}$…] CAUSE [$_{COS}$…]]

[7] Conventionally, event structure templates consist of semantic primitives (expressed in plain uppercase, e.g. ACT for activity, CAUSE, BECOME), roots (indicated in italics and in angled brackets) and variables, e.g. x, y, z.
[8] [$_{ACT}$…] and [$_{COS}$…] represent an activity event and an event denoting COS, respectively.

c. [[COS…] BY [ACT…]]
d. [[COS…] BY [COS…]]

(15a) and (15b) represent schematic templates involving the CAUSE predicate, relating either an activity event or a COS event to a COS event. In (15c) and (15d), in the presence of the BY predicate, the COS event is specified as arising by means of an activity event or a COS event. Lee points out that the latter two schemas can also be interpreted as a culmination, in which the activity or the COS culminates in a COS, as discussed by Parson (1990) and Tham (2012). In addition, Lee (2013) posits that certain RVCs, such as *zui-dao* 'drunk-fall', *lei-si* 'tired-die', *qi-si* 'annoy-die', in which neither component verb is an activity predicate, consist of two COS verbs, which motivates the schema in (15d).

Furthermore, as Lee observes that only COS verbs have an alternative use as causatives, he proposes the Causative Formation Hypothesis in (16a), which can be formalised as in (16b). According to this hypothesis, an external causer argument, namely an individual or an entity, is introduced by the CAUSE predicate, which takes a COS event as its complement.

(16) a. Causative formation hypothesis:
Only event structures that are headed by a COS predicate can be causativised.
b. Causative template:
[x CAUSE [BECOME …]]

In light of the above templates, eleven event structures are proposed to account for the different readings of RVCs (see Lee 2013: 191 for details). On the one hand, subject-oriented readings are represented by two schemas involving the BY predicate in (15c) and (15d), which captures the fact that RVCs with a subject-oriented reading lack a *ba* construction counterpart, as they are not causative. The specific choice between them depends on whether the event denoted by V1 is a COS or an activity. On the other hand, Lee distinguishes various sources for the formation of causative RVCs. Object-oriented readings like those in (1), in which V1 is an activity, are represented by the schema involving the CAUSE predicate in (15a), whereas inverse linking readings like those in (6) involve the interaction between the causative template in (16b) and the two templates in (15c) and (15d). Within the second option, a further distinction is made. When one of the two verbs can be used causatively on its own, which is the case with *lei* 'tire', *zui* 'intoxicate' and *fan* 'annoy', as Lee claims, the causative interpretation of RVCs involving these three verbs is derived from their independent causative use. More specifically, depending on whether those verbs occur as V1 or V2, the corresponding subevent is reformulated by the causative template in (16b), resulting in the introduction of a causer argument to that subevent. By contrast, when neither V1 nor V2 is one of these three verbs, causative interpretations arise from causativising the entire RVC. In this case, according to the causative template in (16b), a causer argument is introduced by the CAUSE predicate, which takes a complex event structure in (15c) as a complement.

To make the discussion concrete, the corresponding event structure representations for the classic example with three possible readings in (9), repeated here as (17), are shown in (18).

(17) *Zhangsan* *zhui-lei-le* *Lisi*
Zhangsan chase-tired-PFV Lisi
a. 'Zhangsan chased Lisi and as a result Zhangsan got tired.' (Subject-oriented)
b. 'Zhangsan chased Lisi and as a result Lisi got tired.' (Object-oriented)
c. 'Lisi chased Zhangsan and Zhangsan got Lisi tired.' (Inverse linking)

(18) a. Event structure for the subject-oriented reading of *zhui-lei* 'chase-tired'
[[BECOME [x <*TIRED*>]] BY [x ACT$_{<CHASE>}$ y]]

b. Event structure for the object-oriented reading of *zhui-lei* 'chase-tired'
[[x ACT$_{<MANNER>}$ y] CAUSE [BECOME [y <*TIRED*>]]]

c. Event structure for the inverse linking reading of *zhui-lei* 'chase-tired'
[[x CAUSE [BECOME [y <*TIRED*>]]] BY [y ACT$_{<CHASE>}$ x]]

With respect to the subject-oriented reading, the schema involving the BY predicate in (15c) is used, as it lacks a *ba* construction counterpart, as illustrated in (18a). By contrast, the object-oriented reading has a *ba* construction counterpart and is therefore associated with the schema containing the CAUSE predicate in (15a), as in (18b). As for the inverse linking reading, since V2 *lei* 'tired' has an independent causative use, as Lee claims, the causative template in (16b) is used. Additionally, the causative event and an activity event are related by the BY predicate in the sense that the activity event culminates in an externally caused COS, namely *lei* 'tired', as shown in (18c).

Although Lee's analysis covers the majority of RVCs, it still faces several issues. First, the claim that *zui* 'drunk' and *lei* 'tired' have a causative use as independent predicates is not convincingly supported, as it goes against previous research on RVCs (Tay 2024) and the judgment of most native speakers consulted. In addition, this approach allows multiple schematic templates and a wide range of options, giving rise to a strikingly large number of event structures, namely eleven types in total. This, in turn, requires imposing additional restrictions on the structures, based on whether the RVC involves one of the three verbs that can supposedly be used causatively on their own. Such complexity suggests the need for a simpler and more unified account that captures the full range of RVC properties without resorting to *ad hoc* stipulations.

Second, Lee (2013) does not address pseudo-passive RVCs. He assumes that the syntax of RVCs only allows a maximum of two argument NPs and appeals to the Argument-per-Subevent condition proposed by Levin and Rappaport (2004), which states that "there must be at least one argument XP in the syntax per subevent in the event structure." However, it is unclear how this condition could be satisfied in the case of pseudo-passive RVCs, particularly when V1 is monadic, as in (13b), repeated below as (19).

(19) *shou pa* *ku-shi-le*
handkerchief cry-wet-PFV
'The handkerchief got wet from someone's crying.'

There are two subevents, i.e., the crying activity and the COS, but the subject is only an argument of V2 and has no thematic relation to V1. Since the agent of V1 *ku* 'cry'

is not overtly realised, Lee would need to invoke additional stipulations to account for such cases in order to satisfy the Argument-per-Subevent Condition.

Third, Lee represents the subject-oriented reading of RVC *zui-dao* 'drunk-fall' and *lei-si* 'tired-die' with the event structure in (15d), where two COS events are related by the BY predicate. However, this reading is better understood as a state-to-COS culmination 'he was drunk to such an extent that he fell', rather than a COS-to-COS culmination, in which the COS 'become drunk' itself culminates in a second COS 'fall', as Li (2008) also points out. In fact, RVCs such as *zuo-lei* 'sit-tired' with a subject-oriented reading, where *zuo* 'sit' clearly denotes a state rather than a COS, as shown in (20), provide direct counterexamples to this treatment.

(20) *ta* *zuo-lei-le*
he sit-tired-PFV
'As a result of his sitting, he became tired.'

Thus, an additional event structure is needed, one that replaces the COS event in the "means" position with a state event, as shown below, to be incorporated into the set of event structure templates.

(21) [[COS…] BY [STATE…]]

Finally, in some subject-oriented readings, the theme of a V1 cannot be realised, as shown by the contrast between (22a) and (22b). Nevertheless, this argument can be realised as the subject under certain conditions, namely causativisation, as shown in (22c).

(22) a. **ni* *hui* *chi-si* *zhe* *zhong* *yao* (Shibagaki 2009)
you will eat-die this kind drug
Intended: 'You will die from eating this kind of drug.'

b. *Taotao* *chi-si-le* (Lee & Ackerman 2011)
Taotao eat-die-PFV
'Taotao died from eating.'

c. *zhe* *zhong* *yao* *hui* *chi-si* *ni* (Her 2007)
this kind drug will eat-die you
'Eating this kind of drug will kill you.'

Lee argues that it is the intransitive variant of the verb *chi* 'eat' that participates in the resultative compounding of *chi-si* 'eat-die' in (22), causing the RVC itself to be intransitive, as represented in the event structure he proposes for (22b) in (23a).

(23) a. [[BECOME [Taotao <*DEAD*>]] BY [Taotao ACT <*EAT*>]]
b. [drug CAUSE [[BECOME [Taotao <*DEAD*>]] BY [Taotao ACT <*EAT*>]]]

The inverse linking reading in (22c) is analysed as resulting from the causativisation of the subject-oriented reading, with the subject NP *zhe zhong yao* 'this kind of drug' serving as an external cause, as shown in (23b). However, he does not explicitly explain why V1 must function as an intransitive verb in these cases, leaving his analysis

somewhat stipulative rather than principled. Moreover, this RVC is not strictly intransitive, as it also allows canonical transitive readings, as illustrated below, an option entirely absent from Lee's analysis.

(24) *haizi* *chi-si-le* *yuanli* *de* *yushu* (CCL corpus)[9]
child eat-die-PFV yard-inside DET elm tree
'The children ate up the elm trees, causing the elm trees to die.'

Given the context of the Great Famine, when food was severely scarce and people were forced to survive by eating tree bark, it is unsurprising that this RVC could also have a canonical transitive use. A comparison of (22c) and (24) reveals a clear contrast: in the former, the subject is a cause, whereas in the latter it is an agent. This split strongly suggests that a single uniform analysis is insufficient. Unless Lee distinguishes between two distinct variants of this RVC, one intransitive and one transitive, each subject to different formation conditions, the full range of alternations in *chi-si* 'eat-die' cannot be satisfactorily explained.

# 4 The present proposal

Unlike Her's (2007) analysis, which involves extensive modifications to LMT and introduces an *ad hoc* causativity assignment hypothesis, the present approach builds directly on event structure to capture the properties of RVCs, in particular, their complex thematic relations, but makes no modification to the classic LMT. In contrast to Lee's (2013) account, which allows for interaction among multiple event structure templates and thereby predicts an overly wide range of structural possibilities, we aim to provide a unified account for different types of RVCs.

We argue that RVCs can express meanings that are not compositionally derived from either verb alone but instead emerge from the compound as a whole. Specifically, we propose that it is the compounding that creates a COS predicate, yielding a COS meaning that does not come directly from either component of RVCs. Furthermore, all COS RVCs can be causativised when pragmatically plausible. The causer can but is not required to be interpreted as an argument of V1 by pragmatic inference.

## 4.1 Basically stative verbs

It is worth noting that in RVCs, many adjectival predicates appear as V1 or V2, but their properties remain controversial. We depart from Tham's (2013) claim that stative adjectives systematically have COS counterparts and it is the COS counterpart that participate in the resultative compounding. Following Smith et al. (2025), we assume that adjectival predicates in Mandarin are basically stative, and that their COS interpretations arise only in the presence of some event-selecting elements, such as the perfective aspect marker *le*, modals, such as *neng* 'can' and *hui* 'can', and the negation marker *mei* 'not', which has been argued to negate the occurrence of an event (Lin 2003), as illustrated in (25).

[9] Example from the Center for Chinese Linguistics PKU corpus of Modern Chinese (hereafter CCL corpus). http://ccl.pku.edu.cn:8080/ccl_corpus/index.jsp?dir=xiandai

(25) a. *bing ren* *xue ya* *gao-le* (Tham 2013)
patient blood pressure high-PFV
'The patient's blood pressure has risen.'

b. *ta* *neng* *gao* (Tham 2013)
he can tall
'He can become tall.'

c. *ta* *hui* *pang* (Tham 2013)
he can fat
'He may become fat.'

d. *ta* *yi* *dian* *dou* *mei* *lao*
he one little all NEG old
'He hasn't become old at all.'

The view that these adjectival predicates are basically stative is further supported by the incompatibility between the progressive marker and them, as noted by Zhang (2023). For instance, the adjectival predicate *kuan* 'wide' cannot co-occur with the progressive marker *zai*, unless it is combined with the verb *bian* 'change', as in (26).

(26) *he dao* *zai* **(bian)* *kuan* (Zhang 2023)
river-course PROG *(change) wide
'The river course is widening.'

This distribution strongly suggests that adjectival predicates in Mandarin Chinese are statives and their COS interpretations arise only when event-selecting elements are introduced.

Therefore, we argue against Lee (2013), Lu et al. (2023), Tham (2013) and Tay (2024), who posit that it is the COS variant of stative predicates that appears in RVCs. Instead, we maintain that it is the compounding itself that creates the COS interpretation, rather than its being derived from either component verb individually, in particular given that many of these verbs denote states, as we argue.

More specifically, even when neither V1 nor V2 denotes a COS, the compound as a whole, such as the pseudo-passive RVCs in (2), repeated below as (27), expresses a COS meaning.

(27) a. *zhuo zi* *ca-ganjing-le*
table wipe-clean-PRF
'The table was wiped clean.' (Lit. 'The table wiped clean.')

b. *qiuxie* *ti-po-le*
sneaker kick-broken-PRF
'The sneaker was kicked broken.' (Lit. 'The sneaker kicked broken')

We argue that all RVCs encode a COS created by the compounding, yielding the COS frame, and it may undergo causativisation, introducing a causer, thus giving rise to the causative frame.

## 4.2 Evidence for V2 as the head of the compound

Before turning to the two event structure frames in detail, it is important to establish the role of V2 in the event structure. In line with a number of researchers, e.g., Chief (2007), Tai (2003), Tham (2012) and Tay (2024), we claim that V2 of RVCs, which denotes the result state, functions as the main predicate in the event structure.

A crucial piece of evidence comes from argument realisation patterns of V2. All the examples discussed above, along with our observations and previous findings in the literature (Li 2007, 2009, 2013, Sybesma 1997, 2013), show that the argument of V2 must be realised in the overt syntax, regardless of the transitivity of V1 and of the RVC as a whole.

In transitive RVCs, as shown by the contrast between (28a) and (28b), omission of the V2 argument, namely *caidao* 'the knife', results in ungrammaticality, even when both the agent and the theme arguments of V1 are realised. Moreover, (28c) illustrates that even when the most prominent argument of V1, i.e., the agent, is suppressed, the overt realisation of the argument of V2 is still obligatory in a causative RVC.

(28) a. *ta* *qie-dun-le* *caidao* (Tay 2024)
he cut-dull-PFV knife
'He cut (the bone) and as a result the knife became dull.'

b. **ta* *qie-dun-le* *na* *gen* *gutou*
he cut-dull-PFV that CLF bone
Intended: 'He cut the bone with the knife, and the knife became dull.'

c. *na* *gen* *gutou* *qie-dun-le* *caidao* (Williams 2015)
that CLF bone cut-dull-PFV knife
'That bone made the knife dull from cutting.'

Similarly, in pseudo-passive RVCs such as in (29a), neither the agent nor the theme of V1 is realised in the syntax, but the argument of V2 is realised as the subject, yielding a grammatical sentence. In contrast, omitting the argument of V2 makes the sentence ungrammatical, as in (29b).

(29) a. *ta* *de* *caidao* *qie-dun-le*
he DET knife cut-dull-PFV
'His knife got dull from cutting.'

b. **na* *gen* *gutou* *qie-dun-le*
that CLF bone cut-dull-PFV
Intended: 'His knife got dull from cutting that bone.'

Taken together, these facts reveal a systematic asymmetry: the argument of V2 is obligatorily expressed, whereas the arguments of V1, which denote the causing event in RVCs, may be suppressed. This distribution would be unexpected if V1 were the head of the event structure, since we would then expect its argument to be always realised. Instead, it is the argument of V2 that must be expressed, which provides strong evidence that V2 serves as the semantic head of RVCs.

Additional evidence comes from the interaction between RVCs and the negation *mei* 'not', which has been shown to negate the occurrence of a dynamic event, as illustrated in (30a). In contrast, in RVCs, *mei* 'not' takes scope exclusively over the result state denoted by V2, while the causing event denoted by V1 cannot be negated, as shown in (30b).

(30) a. *ta* *mei* *qie* *gutou*
he NEG cut bone
'He didn't cut the bone.'

b. *ta* *qie-le* *gutou,* *dan* *mei* *qie-duan* *ta*
he cut-PFV bone but NEG cut-broken it
'He cut the bone, but didn't break it.'

Therefore, the scope restriction of negation indicates that the result state denoted by V2 forms the core part of the compound, supporting the claim that V2 functions as the head in the event structure.

We now turn to adverbial modification properties of RVCs (see Liu 2021 for a full discussion). As shown in (31a), in a simple activity clause, adverbs, such as *kuai* 'fast', can freely modify the activity verb *zou* 'walk'. However, when the same verb appears as V1 in a COS RVC, as in (31b), it can no longer be modified by such adverbs.

(31) a. *Zhangsan* *zhengzai* *kuai* *zou* (Liu 2021)
Zhangsan PROG fast walk
'Zhangsan is walking fast.'

b. *Zhangsan* *(*kuai)* *zou-lei-le* (Liu 2021)
Zhangsan quickly walk-tired-PFV
Intended: 'Zhangsan got tired by walking fast.'

This contrast shows that, in COS RVCs, V1 is unavailable for adverbial modification, suggesting that the event denoted by V1 is subordinated and not independently accessible for adverbial modification.

In transitive RVCs, adverbs that modify activities, such as *manmande* 'slowly' and *mashang* 'immediately', cannot modify V1 alone; instead, they necessarily take scope over both the causing event and the result state. The example in (32) illustrates a canonical transitive RVC modified by the adverb *manmande* 'slowly'.

(32) *Zhangsan* *manmande* *tui-kai-le* *men*
Zhangsan slowly push-open-PFV door
a. 'Zhangsan slowly pushed the door and the door opened slowly.'
b. *'Zhangsan pushed the door slowly and the door opened (quickly).'

In such a case, the only plausible interpretation is that Zhangsan caused the door to open, in a slow manner, by pushing it, rather than that Zhangsan's action of pushing was slow, yet the door opened quickly. Under our analysis, this follows straightforwardly if V2 functions as the head of the compound in the event structure.

Furthermore, adverbs such as *you* 'again', *chayidian* 'almost', *zhongyu* 'finally' can either modify both V1 and V2 or modify just V2, as shown below.

(33) *Zhangsan* *you* *zhuang-dao-le* *pingzi*
Zhangsan again hit-fall-PFV bottle
a. 'Zhangsan previously knocked the bottle over. He did it again.'
b. 'The bottle had fallen over before. Zhangsan caused it to be in the same state again.'

With *you* 'again' in (33), two interpretations arise: one repetitive, which involves a complex cause-result event, and the other one restitutive, which targets the result state denoted by V2. In the latter case, the bottle had been in a fallen state before and has now returned to that same result state. However, the adverb *you* 'again' never modifies V1 alone. These facts about adverbial modification further indicate that V2 is the head of the compound.

Given the above evidence from the obligatoriness of V2 argument realisation, interaction with negation and adverbial modification, we conclude that V2 functions as the main predicate in the event structure of RVCs.

## 4.3 Event structure representations

Building on this assumption, the next step is to formalise the two event frames proposed for RVCs, namely the COS and causative frames. We begin with the COS frame, which represents the core event structure underlying all RVCs. Following Lee (2013), who adapts the event structure templates of Rappaport Hovav and Levin (1998), we adopt the predicate BY to capture the semantic relation between the two subevents. As formulated in (34), this BY predicate encodes a *means* relation, indicating that the event denoted by V1 serves as the means through which the result state denoted by V2 comes about. As Lee notes, this relation may also be interpreted as *culmination* (Parsons 1990, Tham 2012), whereby an activity or a state culminates in a result event. In this representation, PRED2 denotes the predicate contributed by V2, typically a stative or COS verb, and PRED1, contributed by V1, denotes an activity or a state.

(34) COS frame:
[[BECOME PRED2 <x>] [BY [PRED1 <w>]]]
|
SUBJ

The event structure involves a result state encoded by PRED2, and a BECOME predicate, which takes this PRED2 as its argument. Furthermore, the event introduced by PRED1 is embedded within a BY adjunct, subordinate to the result event headed by PRED2, involving the sole argument *x*, namely the affectee.

Furthermore, we assume the Highest V1 Argument Suppression Principle in (35), which states that V-V compounding systematically suppresses the highest argument of V1, preventing it from being mapped onto a GF as an independent argument. The suppression of V1's highest argument is represented by the underlining of *w* in (34).

(35) Highest V1 argument suppression principle:
V-V compounding requires that the highest argument of V1 is always suppressed and not mapped onto a GF as an independent argument.

This systematic suppression of V1's highest argument can be regarded as a direct consequence of V1's non-head status within the compound. Conversely, since V2 functions as the head, its argument must be overtly realised in the syntax. Moreover, this principle does not entail that all arguments of V1 are suppressed. In other words, lower arguments may still be available for mapping in certain cases.

Given this asymmetry in argument suppression, the mapping of arguments to GFs follows directly from the event structure. In the COS frame in (34), the argument of V2, as the unsuppressed argument, is mapped onto SUBJ in accordance with the general mapping principles.

Furthermore, this hypothesis straightforwardly accounts for the pseudo-passive pattern, as in (13b), repeated below as (36a), where the subject bears no thematic relation to V1 and V1 is monadic.

(36) a. *shou pa* *ku-shi-le*
handkerchief cry-wet-PFV
'The handkerchief got wet from someone's crying.'

b. [[BECOME WET <x>] [BY [CRY <w>]]]
|
SUBJ

The corresponding event structure of (36a) is given in (36b), where PRED1 and PRED2 are instantiated by *ku* 'cry' and *shi* 'wet', respectively, with V2 *shi* 'wet' functioning as the head. In addition, the argument of V1 *ku* 'cry' is suppressed, thus not syntactically realised. According to the mapping principles, the argument of V2 *x*, namely the affectee, is mapped onto SUBJ. This sentence can be interpreted as "the handkerchief undergoes a COS in the sense that it becomes wet by means of someone's crying." Importantly, although the single argument of V1 is not syntactically realised, it remains recoverable from the context. This individual can be typically inferred from the immediate discourse context.

In the case of COS RVCs, however, the situation is somewhat different. Specifically, the compound expresses a spontaneous COS, in which no external causer is conceptually involved. Although the argument of V1 is suppressed, it is co-indexed (at the level of event structure) with the argument of V2. Note that the principle in (35) only requires V1's highest argument be suppressed but does not further prohibit the possibility of its co-indexation with a structurally higher argument. It should be emphasized that such a co-indexation, while allowed, is not obligatory in the sense that the highest argument of V1 can be co-indexed with the argument of V2, but does not have to, as in the example of (36).

Consider the example from (4a), repeated below as (37a):

(37) a. *Zhangsan* *zui-dao-le*
Zhangsan drunk-fall-PFV
'Zhangsan got so drunk that he fell.'

b. [[BECOME FALL <$x_i$>] [BY [DRUNK <$w_i$>]]]
SUBJ

The corresponding event structure of (37a) is shown in (37b), where PRED1 and PRED2 are instantiated by *zui* 'drunk' and *dao* 'fall', respectively. According to the Highest V1 Argument Suppression Principle in (35), the sole argument of V1 is suppressed. However, in this case, the argument of V1 is co-indexed with the sole argument of V2. This co-indexation allows the two subevents, namely the state denoted by V1 and the result state denoted by V2, to share a single participant.

Building on the COS frame introduced above, we now turn to cases where the causative meaning is involved, or in other words, those that have a *ba* construction counterpart. Following the literature, we assume that causatives are characterised by the presence of the predicate CAUSE. Therefore, for RVCs with a causative meaning, such as canonical transitive RVCs in (1) and causativisation of COS RVCs (6), we assume that a layer of causation that introduces a causer *y* is added. The event structure in (34) is embedded as the second argument of the CAUSE predicate, as shown in (38).

(38) Causative frame:
[CAUSE <y [[BECOME PRED2 <x>] [BY [PRED1 <w>]]]>]
SUBJ OBJ

We assume that an argument of a more prominent predicate in event structure takes precedence over an argument of a more embedded predicate in the assignment of the SUBJ function. Note that we do not make any modification to the classic LMT (see Findlay et al. 2023 for details); our proposal can be implemented in different versions of LMT. Specifically, the causer *y*, as the most prominent argument and [-o], always maps onto SUBJ and the argument of V2 *x*, a less prominent [-r] argument, is mapped onto OBJ. Though the argument of V1 is suppressed as stated in the Highest V1 Argument Suppression Principle in (35), the causer *y* can still be interpreted as the argument of V1 by pragmatic inference.

To illustrate how the causative frame operates, consider the causative counterpart of pseudo-passives in (36a), as shown below, with its corresponding event structure in (39b). The causer argument *y* is syntactically realised as the SUBJ, while the argument of V2, *x*, representing the affectee, is mapped onto the OBJ. The interpretation corresponds to a causative event, in which a causer brings about the COS event by means of the activity denoted by V1.

(39) a. *ta* *ku-shi-le* *shou pa*
he cry-wet-PFV handkerchief
'He cried and as a result the handkerchief got wet.'

b. [CAUSE <y [[BECOME WET <x>] [BY [CRY <w>]]]>]
SUBJ OBJ

In this event structure, the argument of V1, namely *w*, the agent of *ku* 'cry' is suppressed, thus unavailable for syntactic expression. In this case, the causer is interpreted as the agent of *ku* 'cry' through pragmatic inference.

Another example comes from the causative counterpart of the COS RVC in (37a), from (6a), repeated as (40a). The corresponding event structure representation is shown in (40b), which builds directed on the COS frame in (37b), with an additional causative predicate, which licenses the causer argument.

(40) a. *na ping jiu zui-dao-le Zhangsan*
that CLF alcohol drunk-fall-PFV Zhangsan
'That bottle of liquor got Zhangsan so drunk that he fell down.'

b. [CAUSE <y [[BECOME FALL <$x_i$>] [BY [DRUNK <$\underline{w}_i$>]]]>]
SUBJ OBJ

The NP *na ping jiu* 'that bottle of liquor' is introduced as the causer, which brings about a COS in the affectee *Zhangsan*, and it is mapped onto SUBJ, as the most prominent argument. Importantly, the addition of the causative layer does not interfere with the co-indexation between the argument of V2 *x* and that of V1 *w*, even though *w* is suppressed.

## 4.4 Some puzzles

Now we consider the puzzle of *chi-si* 'chi-die', which displays an interesting argument-structure restriction. We take examples from (22), repeated as (41). As shown in (41a) and (41b), when the agent of the eating event is also the affectee of the COS *si* 'die', the potential causer that brings about the death, namely the drug, cannot be overtly expressed as the OBJ. In such cases, *chi-si* 'eat-die' is obligatorily intransitive, denoting an event in which a single participant both performs the action of eating and undergoes the COS. However, if the drug is to be overtly expressed, the intransitive compound must undergo causativisation, whereby the causer is realised as the SUBJ and the affectee as the OBJ, as illustrated in (41c).

(41) a. **ni hui chi-si zhe zhong yao* (Shibagaki 2009)
you will eat-die this kind drug
Intended: 'You will die from eating this kind of drug.'

b. *Taotao chi-si-le* (Lee & Ackerman 2011)
Taotao eat-die-PFV
'Taotao died from eating.'

c. *zhe zhong yao hui chi-si ni* (Her 2007)
this kind drug will eat-die you
'Eating this kind of drug will kill you.'

First, let us examine the event structure of *chi-si* 'eat-die' in (41a-b). Since these examples instantiate a COS reading, only the COS frame is relevant here.

(42) * [[BECOME DIE <x>] [BY [EAT <w, z>]]]
SUBJ OBJ

As shown in (42), V1 *chi* 'eat' takes two arguments, *w* and *z*. According to the Highest V1 Argument Suppression Principle in (35), *w* as the highest argument of V1, must be suppressed, while *z* remains available for syntactic expression. In principle, then (41a) should be grammatical. Then, what blocks it? To account for this restriction, we propose the Semantic Identity Condition for RVCs in (43), which requires the co-indexation of semantically identical arguments across the two subevents:

(43) Semantic identity condition for RVCs:
The affectee role denoted by the result predicate V2 must be co-indexed with the affected argument of V1, if there exists an affected argument of V1.

Since *chi* 'eat' is an incremental theme verb, the drug serves as its affected argument. According to the Semantic Identity Condition for RVCs, the affected argument of *chi* 'eat', namely the drug, must co-index with the affectee of V2 *si* 'die'. This yields the only grammatically possible reading of (41a), 'I ate the drug and as a result the drug died', which is pragmatically impossible, as the drug itself cannot undergo death. Unless one invokes personification of the drug, which is a highly exceptional case that we set aside here, such co-indexation results in a pragmatically implausible interpretation that violates real-world knowledge.

In order to avoid violating this condition and to prevent a pragmatically implausible interpretation, only one strategy is available: make *chi* 'eat' intransitive by omitting its theme argument. The corresponding event structure is illustrated in (44), where *x* and *w* are co-indexed. The highest argument of V1 *w* is suppressed, while *x* is mapped onto the SUBJ, yielding the grammatical form attested in (41b).

(44) [[BECOME DIE <$x_i$>] [BY [EAT <$w_i$>]]]
SUBJ

Furthermore, when the compound in (41b) undergoes causativisation, we obtain (41c), whose event structure is represented in (45). The drug is introduced as a causer at the causative layer and is therefore mapped onto SUBJ, while the argument that undergoes the COS is mapped onto OBJ.

(45) [CAUSE <y [[BECOME DIE <$x_i$>] [BY [EAT <$w_i$>]]]>]
SUBJ OBJ

Moreover, *chi-si* 'eat-die' also has canonical transitive variants, as shown in (24), repeated below as (46). In this type, the RVC expresses a causative meaning.

(46) *haizi* *chi-si-le* *yuanli* *de* *yushu* (CCL corpus)
child eat-die-PFV yard-inside DET elm tree
'The children ate up the elm trees, causing the elm trees to die.'

Its event structure representation is illustrated below. According to the condition in (43), the theme argument of V1 *chi* 'eat' is co-indexed with the affectee. Furthermore, the highest argument of V1 is suppressed, therefore, the causer, which is co-indexed with the agent, is mapped onto SUBJ and the affectee maps onto OBJ.

(47) [CAUSE <$y_j$ [[BECOME DIE <$x_i$>] [BY [EAT <$\underline{w_j}$ $z_i$>]]]>]
SUBJ OBJ

Finally we discuss *zhui-lei* 'chase-tired', which exhibits three readings. The example in (9) is repeated below as (48), with their corresponding event structures in (49).

(48) *Zhangsan* *zhui-lei-le* *Lisi*
Zhangsan chase-tired-PFV Lisi
a. 'Zhangsan chased Lisi and as a result Zhangsan got tired.' (Subject-oriented)
b. 'Zhangsan chased Lisi and as a result Lisi got tired.' (Object-oriented)
c. 'Lisi chased Zhangsan and Zhangsan got Lisi tired.' (Inverse linking)

(49) a. [[BECOME TIRED <$x_i$>] [BY [CHASE <$\underline{w_j}$ $z$>]]]
(Subject-oriented) SUBJ OBJ

b. [CAUSE <$y_j$ [[BECOME TIRED <$x_i$>] [BY [CHASE <$\underline{w_j}$ $z_i$>]]]>]
(Object-oriented) SUBJ OBJ

c. [CAUSE <$y_j$ [[BECOME TIRED <$x_i$>] [BY [CHASE <$\underline{w_i}$ $z_j$>]]]>]
(Inverse linking) SUBJ OBJ

Unlike *chi* 'eat', *zhui* 'chase' denotes an activity, without involving an affected argument. Its internal argument serves as the target or goal of the chasing event, but is not affected, in the sense that it does not undergo a change. Thus, the Semantic Identity Condition does not apply to it, and so it is not forced into a one-argument use, unlike *chi-si* 'eat-die' in (41b) in the subject-oriented reading.

More specifically, the COS frame is used for the subject-oriented reading, as in (49a), where the agent of V1, although suppressed, is co-indexed with the argument of V2. Thus, *x* as the highest role in the structure is mapped on to SUBJ, while *z* as an argument of a more embedded structure is mapped onto OBJ. The causative meaning of the compound gives rise to only two readings, shown in (49b) and (49c); in both cases, the causer *y* is mapped onto SUBJ and the affectee onto OBJ. The difference lies in the co-indexation of the two arguments of V1 *zhui* 'chase'. If the affectee is co-indexed with the chasee *z*, we get the object-oriented reading, as in (49b); if it is co-indexed with the agent *w*, we get the inverse linking reading, as in (49c).

# 5 Conclusions

We propose that V-V compounding creates a COS predicate, yielding a COS frame of event structure. The compounding can optionally causativise this COS predicate by

adding a CAUSE layer to the COS frame, yielding a causative frame. In both frames, V2 is the head of the structure and the highest argument of V1 is always suppressed. The same argument-mapping principles that operate on simple (non-compound) structures are also the ones we need for V-V compounds. The structurally most prominent argument in a frame is mapped onto SUBJ and the next argument if there is one maps onto OBJ. Therefore, the current approach achieves a simple analysis by making use of only two types of event structures to represent different types of RVCs.

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