

Causer and causee as two higher-ranked thematic roles

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On the basis of the argument realization of Mandarin resultative verb compounds, this paper argues that the Proto-Agent properties as well as the Proto-Patient properties proposed by Dowty (1991) are not equal in status. Specifically, the Proto-Agent property corresponding to the Causer and the Proto-Patient property corresponding to the Causee are two higher-ranked properties. In a non-prototype approach to thematic roles, this means that the Causer and the Causee are two higher-ranked thematic roles that are immediately relevant to the argument realization of monotransitive causative predicates. The paper shows that, compared with Dowty's equal-weight approach, the alternative approach recognizing the Causer and the Causee as two higher-ranked properties or roles can give a simpler, more effective, and more straightforward account of the argument realization associated with monotransitive causative predicates, including lexical causatives, morphological causatives, and resultatives. This study has implications for research in the argument realization of causatives involving three (or more) arguments as well. Meanwhile, it has implications for any theory utilizing thematic hierarchy because (i) none of the thematic hierarchies proposed in the literature includes both the Causer and the Causee and (ii) a complete theory of thematic roles needs to take these two higher-ranked roles into consideration.

Keywords: Causer, Causee, argument realization, causative, resultative, thematic hierarchy

1. Introduction

In his prototype approach to thematic roles and argument realization, Dowty (1991) proposes two Proto-Roles: Proto-Agent (henceforth, *AGENT*) and Proto-Patient (hereafter, *PATIENT*), which have their properties in (1) and (2), respectively.

- (1) Contributing properties for the Agent Proto-Role
 - a. volitional involvement in the event or state
 - b. sentience (and/or perception)
 - c. causing an event or change of state in another participant
 - d. movement (relative to the position of another participant)
 - e. exists independently of the event named by the verb

(Dowty 1991: 572)

- (2) Contributing properties for the Patient Proto-Role
 - a. undergoes change of state
 - b. incremental theme
 - c. causally affected by another participant
 - d. stationary relative to movement of another participant
 - e. does not exist independently of the event, or not at all

(Dowty 1991: 572)

Crucially, Dowty does not present the properties as ranked, which means that the properties are generally all equal in status and might all be relevant to the determination of whether an argument is AGENT or PATIENT even when the event is a causative one that involves a Causer and a Causee. However, Dowty (1991: 574) comments that in some sense “causation has priority over movement for distinguishing agents from patients” because movement appears to fail to be an AGENT property when it is caused by somebody or something (e.g. *John threw the ball*) or when the movement is interrupted (e.g. *John caught the ball*). As a result, he “would not rule out the desirability of ‘weighting’ some entailments [i.e. the properties in (1) and (2)] more than others for purposes of argument selection” (Dowty 1991: 574).

This paper argues that there is indeed evidence that the properties in (1) as well as those in (2) do not bear the same weight. As pointed out by Davis & Koenig (2000: 76) through their examination of morphological causatives (see below for more discussion), the causal structure expressed by the verb “appears to take precedence over other entailments for purposes of linking.” Moreover, as far as the AGENT properties are concerned, Koenig & Davis (2001: 82) also state that “[f]or all verbs that denote causal events, the only proto-agent entailment that we need to consider is whether the participant causally affects another participant in the event.” This paper is intended to provide additional evidence particularly from Mandarin resultatives for the priority of causative properties in the determination of AGENT and PATIENT. Specifically, it argues (i) that the third properties in (1) and (2), which correspond to the Causer and the Causee respectively, are properties which rank over all the other relevant properties and (ii) that, when the event is causative, the only properties that are immediately relevant to the determination of AGENT and PATIENT are the third properties in (1) and (2).

For the sake of argumentation, it should be pointed out that this study, like Dowty's (1991), does not postulate any underlying syntactic representations. That is, only the surface form will be paid close attention to. Meanwhile, to be consistent with Dowty's study, which essentially examines the argument selection with respect to monotransitive predicates, this paper will focus on monotransitive predicates as well although, as can be seen below, it has implications for the argument realization of causatives involving three (or more) event participants.

The paper is organized as follows. § 2 presents evidence for the proposal of analyzing the Causer and the Causee as higher-ranked properties. § 3 discusses cases that can be given a much more straightforward account after the Causer and the Causee are recognized as higher-ranked properties (or as higher-ranked thematic roles if a non-prototype approach to thematic roles is adopted), i.e. as properties or roles that are ranked higher than the others within a list of relevant properties or roles. § 4 discusses the implications of this study for research in argument realization. The final section summarizes the main points made in the paper.

2. Important evidence from Mandarin resultative verb compounds

Like English resultatives (e.g. (3); see Levin & Rappaport Hovav 1991, 1995, 2004; Rappaport Hovav & Levin 2001; Goldberg & Jackendoff 2004; Beavers 2012 for some representative studies), Mandarin resultative verb compounds (RVCs) (e.g. *xi-lei* in (4)) involve a causing subevent and a result subevent and the two components form a causative relationship (cf. Green's (1975) characterization of English resultatives like (3) as "instrumental causative constructions"). The example in (4) still counts as a resultative in the sense that Zhangsan's tiredness results from the washing action. What is special about (4), however, lies in the fact that, although the washing action is directly related to Zhangsan's tiredness, what is construed as the Causer is the clothes, presumably their amount or degree of dirtiness.

(3) Jill wiped the table clean.

(4) *Na-pen yifu xi-lei-le Zhangsan.*
 that-CL clothes wash-tired-PERF Zhangsan
 'That basin of clothes got Zhangsan tired after Zhangsan washed them.'

Crucially, conforming to the canonical SVO order (i.e. subject-verb-object) in Mandarin, *na-pen yifu* 'that basin of clothes' in (4) is realized in the subject position and *Zhangsan* is realized in the object position. The initial noun phrase (NP) in (4) is in the pre-verbal subject position just as *Lisi* is in the pre-verbal subject position in (5). On the level of information structure, the referent of *na-pen yifu* can be analyzed as the topic of the sentence in (4). However, assuming that it is

possible for the referent of the subject NP to be the topic of the sentence, an analysis of the referent of the initial NP in (4) as the topic does not prevent this NP from being the subject of the sentence. Moreover, if the referent of the initial NP were analyzed as the topic of the sentence and if the subject of the sentence were some other NP than the two overt NPs of the sentence, there would seem to be no way to identify that subject NP. In addition, when *youyi* ‘intentionally’ were added before the RVC in (4), the sentence would be unacceptable due to the incompatibility of the clothes and an intentional act as clearly conveyed by *youyi*. This also indicates that the subject of (4) is the initial overt NP of the sentence, not some participant that intentionally performs the washing action.

- (5) *Lisi chi-le liang-ge pingguo.*
 Lisi eat-PERF two-CL apple
 ‘Lisi ate two apples.’

The argument realization pattern seen in Mandarin sentences like (4) poses a serious problem for Dowty’s approach. As shown in Table 1, *na-pen yifu* ‘that basin of clothes’ has the AGENT property of being the Causer and *Zhangsan* has the AGENT properties of being sentient as well as being volitional with respect to the washing action.

Table 1.

	AGENT Properties	PATIENT Properties
‘That basin of clothes’	Causer	Change of state
‘Zhangsan’	Sentience; Volition	Causee; Change of state

Moreover, *na-pen yifu* has the PATIENT property of undergoing a change of state and *Zhangsan* has the PATIENT property of being the Causee and undergoing a change of state as well. This is so because Dowty’s AGENT and PATIENT properties are entailments from the predicate and because each of the two components of the RVC *xi-lei* ‘wash-tired’ is part of and contributes to the meaning of the whole compound. Given that with respect to *xi-lei* ‘wash-tired’ in (4) *Zhangsan* plays not only the role of the Causee and the role of an entity undergoing a change of state but also the role of a volitional and sentient doer, it thus bears multiple AGENT and PATIENT properties. Similarly, due to the fact that *na-pen yifu* plays not only the role of the Causer but also the role of the entity undergoing a change of state from the washing action, it is associated with more than one Dowty property, too.

The subject selection with respect to (4), however, is not rightly predicted by Dowty’s approach if his argument selection principle in (6) is strictly followed.

- (6) Argument Selection Principle

In predicates with grammatical subject and object, the argument for which the predicate entails the greatest number of Proto-Agent properties will be lexical-

ized as the subject of the predicate; the argument having the greatest number of Proto-Patient entailments will be lexicalized as the direct object.

(Dowty 1991: 576)

Specifically, by the principle in (6) *Zhangsan* should be realized in the subject position because it has more AGENT properties. This, however, is not borne out, as this argument is actually realized in the object position in (4). Moreover, with respect to PATIENT properties, Dowty's approach predicts that *Zhangsan* should be realized in the object position because it has the PATIENT properties of being the Causee and undergoing a change of state while *na-pen yifu* has only one PATIENT property of undergoing a change of state when being washed. As a result, Dowty's approach predicts that *Zhangsan* will be realized in both the subject and the object position, which is an undesirable result and which is not borne out by the data in (4) as far as its surface form is concerned.¹ Moreover, given that the

1. The complex thematic relations of (4) (as explicated in (8b) below) and many other examples containing a Mandarin RVC might lead one to posit complex underlying syntactic representations. In the case of (4), one might propose a syntactic representation in which *Zhangsan* occupies both a position indicating its being the Agent argument of the washing action and another position indicating its being semantically associated with the result predicate *lei* 'be tired'. In the literature on Mandarin RVCs, there are indeed proposals in such a spirit (e.g. Gu 1992; Sybesma 1999; Wang 2001; Lin 2004; Liu 2014). Neither Dowty nor the present author is committed to such an underlying syntactic representation of complex thematic relations. As the focus of the paper is a discussion of Dowty's prototype approach to argument selection, this is not a proper place to compare purely syntactic accounts of complex thematic relations with accounts leaving the complexity of the thematic relations to semantics. However, it is worthwhile to point out the following facts. First, as far as the surface form is concerned, (4) has the same SVO structure as (5). The complexity of (4) lies in the use of a complex predicate and its complex semantics and in the arguably non-canonical realization of the Agent argument associated with the causing predicate in the object position. Although *Zhangsan* is semantically the Agent argument of *xi* 'to wash', it does not occupy the subject position of *xi-lei* in (4). Given the realization of *na-pen yifu* 'that basin of clothes' as the subject of *xi-lei*, it is also quite a stretch to posit an empty category that is coreferential with *Zhangsan* and occupies the subject position (as far as the surface form is concerned). That is, this is a different situation from positing a reasonable empty category in the case of an English example like *Hector_i promised to ϕ_i donate some new books to the library* in which the empty category is co-referential with *Hector*. Second, crosslinguistically there are other cases of a (compound) verb having a complex semantics but a simpler syntax. For example, "to bag" means "to place something in a bag." However, such a paraphrase does not entitle an analysis of the verb *bag* as requiring three participants in three different positions of a syntactic diagram. Crucially, with respect to its surface argument realization, *bag* in its use as a verb requires only two syntactic arguments which are realized in the subject and object position respectively as in *Hector bagged the apples*. Finally and more generally, it is arguably not a viable approach to propose the same underlying representation for two or more linguistic units simply on the basis of their being synonymous with each other (e.g.

number of the AGENT properties of each of the two arguments in Table 1 is the same as the number of the PATIENT properties of the same argument, in this case it seems impossible for Dowty's approach to correctly predict the argument realization pattern associated with (4), in which one argument is realized in the subject position and the other in the object position.²

More generally, there is evidence that what is immediately relevant to linking and argument realization of Mandarin RVCs are the two complex causative roles, namely the Causer and the Causee, that are compositionally determined by the components of the complex predicate formed by the causing component and the result component (Li 1995, 1999; Li 2008, 2013; see Tham 2015 and Williams 2014 for recent overviews of studies of Mandarin RVCs and see Thompson 1973; Li 1980, 1984; Ma 1987; Li 1990; Lu 1990; Gu 1992; Huang & Lin 1992; Cheng & Huang 1994; Wang 1996; Lin 1998; Yuan 2001; Williams 2005; Her 2007; Shi 2008, among others, for some more representative studies of this important and

consider a pair involving *those spacious houses* and *those houses which are spacious* or a group involving *They did not come because of the rain*, *They did not come because it rained*, and *The rain caused them not to come*. As Fodor (1970) shows, there are good reasons for not deriving *kill from cause to die*.

2. One anonymous reviewer expressed doubt about the problem posed by (4) for Dowty's approach. The motivation is that Dowty (1991:580, 587), in determining the AGENT and PATIENT of causative psych verbs like *surprise* in *The birthday party is surprising Mary*, takes the position that, although *the birthday party* and *Mary* are equal in the number of AGENT properties, *Mary* is a better PATIENT because it has the property of undergoes a change of state and the other participant does not have any PATIENT property. In this case, Dowty appears to assume that, when one participant is selected as PATIENT or AGENT, the other participant of a two-participant verb automatically assumes the other Proto-Role. This assumption, however, may in fact be against the argument selection principle proposed by Dowty, as when it is applied to (4). It should be first made clear that (4) is actually different than Dowty's example containing a causative psych verb. As shown in Table 1, *Zhangsan* in (4) has more PATIENT properties than the other participant and it also has more AGENT properties. By following Dowty's argument selection principle in (6), the prediction is that *Zhangsan* would be realized in both the subject and the object position, as mentioned above. On the basis of Dowty's account of causative psych verbs, one might think that, because *Zhangsan* has more PATIENT properties, it is thus realized in the object position and the other participant is automatically realized in the subject position. This, however, is inconsistent with and in fact violates Dowty's argument selection principle in (6) because *na-pen yifu* 'that basin of clothes' in fact has fewer AGENT properties than *Zhangsan* and thus should not be selected as the AGENT. Moreover, there is no a priori reason why we cannot view the argument realization of (4) from the perspective of AGENT. As *Zhangsan* has more AGENT properties, it should be realized in the subject position. If one adopts Dowty's implicit auxiliary assumption that the other participant is then automatically realized in the object position, the result would be a reverse argument realization of what is seen in (4). Therefore, there is good reason for viewing (4) as posing a serious problem for Dowty's prototype approach to argument realization.

interesting topic in Chinese linguistics). The following are some core Mandarin examples containing an RVC.

First, in (7) *Zhangsan* is profiled as the Causar and *zhuozi* as the Causee.³ Following Li (2008; 2013), I explicate the complex thematic relations of (7a) in (7b) with a two-tier thematic representation that is inspired by studies by Jackendoff (1987; 1990) and Li (1995; 1999).

- (7) a. *Zhangsan ca-ganjing-le zhuozi.*
 Zhangsan wipe-clean-PERF table
 ‘Zhangsan wiped the table clean.’
- b. Zhangsan ca-ganjing-le zhuozi.
- | | | | |
|----------|---------------------|---------------------|----------------------------|
| Causar | | Causee | (composite thematic tier) |
| | | | |
| Zhangsan | zhuozi _i | zhuozi _i | |
| | | | |
| <1 | 2> | <a> | (individual thematic tier) |
| | | | |
| | ca | ganjing | |

The individual thematic tier shows the semantic argument(s) from each individual predicate (i.e. the causing predicate and the result predicate) of an RVC, and the composite thematic tier displays the thematic relations of the Causar and the Causee compositely contributed by the RVC as a whole. In between the two tiers are specific event participants relevant to each component of the RVC and to the RVC as a whole. In brief, the different tiers are used to explicate the interaction of the individual thematic relation and the composite thematic relation and to show that the same participant can play different roles (just as the same participant can have more than one relevant property in Dowty’s prototype approach). As can be seen in (7b), *Zhangsan* is one of the participants of the wiping action, and so is *zhuozi* ‘table,’ which is also a participant of the eventuality (i.e. a cover term for events and states) expressed by *ganjing* ‘clean.’ Meanwhile, *Zhangsan* is associated with the Causar role and *zhuozi* with the Causee role. As shown in (7), the Causar and the Causee arguments are realized in the subject and the object position, respectively. In this case, the fact that *Zhangsan* is also the Agent argument of the causing component *ca* ‘to wipe’ and *the table* is also the Patient argument of the same verb is not directly relevant to the argument realization of *ca-ganjing*.

Second, in (8), as discussed with respect to (4), *na-pen yifu* is profiled as the Causar and *Zhangsan* as the Causee because the most significant thematic rela-

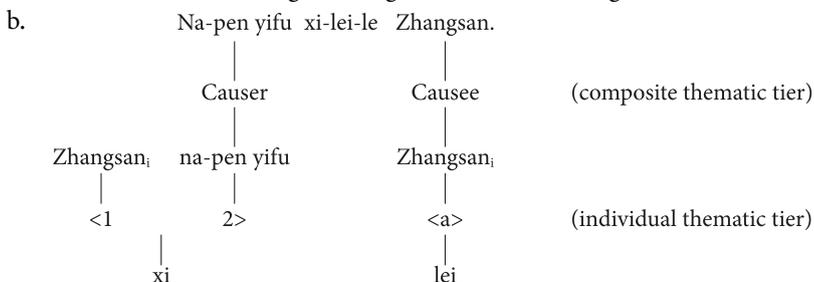
3. As far as Mandarin RVCs are concerned, the Causee can be identified as the entity that comes into the state described by the result predicate.

tion expressed by (8) is “the basin of clothes got Zhangsan tired.” The two arguments are again realized in the subject and object position respectively. In this example, the fact that *na-pen yifu* is also the Patient argument of the causing predicate *xi* ‘to wash’ and *Zhangsan* is its Agent argument is not directly relevant to the overt realization of these two participants with respect to the RVC *xi-lei*. What is immediately relevant to the overt realization of the two participants is the fact that one is the Causer and the other is the Causee. In this respect, it is also worth noting that, while *Zhangsan* is the Agent of the causing predicate in both (7) and (8), it is profiled as the Causer in (7) but profiled as the Causee in (8). As a result, *Zhangsan* is overtly realized in different positions in the two examples.

(8) a. *Na-pen yifu xi-lei-le Zhangsan.* [= (4)]

that-CL clothes wash-tired-PERF Zhangsan

‘That basin of clothes got Zhangsan tired after Zhangsan washed them.’

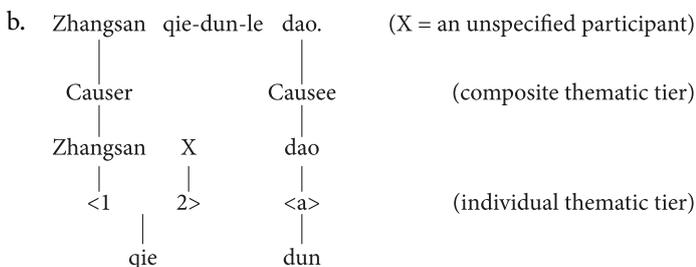


Third, in (9) *Zhangsan* is realized in the subject position and *dao* in the object position because they are construed and profiled as the Causer and the Causee, respectively. This is so, regardless of the fact that *Zhangsan* is the Agent argument of *qie* ‘to cut’ and *dao* is not a profiled core argument of the same verb.

(9) a. *Zhangsan qie-dun-le dao.*

Zhangsan cut-blunt-PERF knife

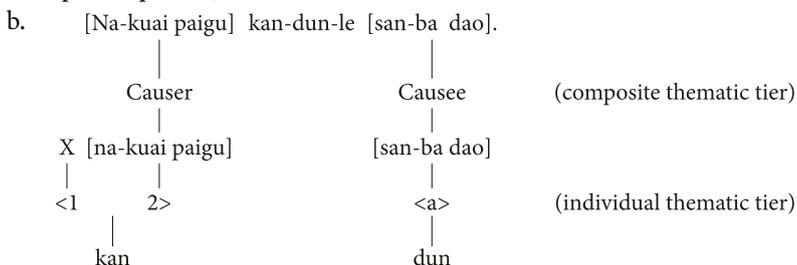
‘Zhangsan cut (something) with a knife, and as a result the knife became blunt.’



Fourth, in (10) *na-kuai paigu* and *san-ba dao* are overtly realized in the subject and object position respectively, again because they are construed as the

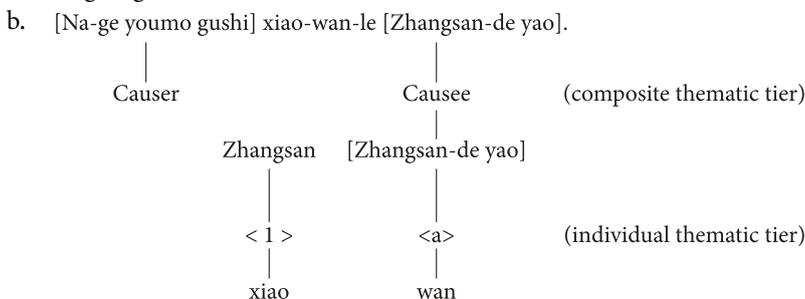
Causer and the Causee respectively. Although *na-kuai paigu* is the Patient argument of the causing predicate *kan* in (10), *san-ba dao*, like *dao* in (9), is not a profiled core argument of the same verb. The fact that the Causer in (9) is the Agent argument of the causing predicate of an RVC and the one in (10) is the Patient argument of the causing predicate once again shows that what is immediately relevant to the argument realization of RVCs is the two higher-ranked thematic roles, namely the Causer and the Causee.

- (10) a. *Na-kuai paigu kan-dun-le san-ba dao.*
 that-CL sparerib cut-blunt-PERF three-CL knife
 ‘That sparerib got three knives blunt as a result of the cutting (by some specific person).’



Finally, in (11) *na-ge youmo gushi* ‘that humorous story’ and *Zhangsan de yao* ‘Zhangsan’s waist’ are construed as the Causer and the Causee respectively, as the most significant part of the meaning of the sentence directly relevant to argument realization is “that humorous story made Zhangsan’s waist bend.”

- (11) a. *Na-ge youmo gushi xiao-wan-le Zhangsan-de yao.*
 that-CL humor story laugh-bend-PERF Zhangsan-MM waist
 ‘That humorous story caused Zhangsan’s waist to bend as a result of his laughing.’



In this case, the fact that Zhangsan’s laughing made his waist bend is defocalized and the bending of Zhangsan’s waist is construed as caused by the humorous story. That is, a causal chain forms from the humorous story’s causing Zhangsan

to laugh to Zhangsan's laughing causing his waist to bend. In the case of (11), the humorous story is profiled as the Causer that caused Zhangsan's waist to bend, and Zhangsan's waist is profiled as the Causee. As seen with other Mandarin examples considered so far, the Causer and Causee arguments in (11) are realized in the subject and object position respectively. Interestingly, in this example neither the Causer in the subject position nor the Causee in the object position is an argument of the causing predicate *xiao* 'to laugh,' and the Agent argument associated with the laughing action is expressed merely as the possessor of the waist. This further shows that, as far as Mandarin RVCs are concerned, their argument realization is about the Causer and the Causee, the two higher-ranked roles or role properties, compositely contributed by the causing predicate and the result component of an RVC.

The Mandarin data in this section shows that the Causer or the Causee may be identified with one of the arguments of the causing predicate ((7–8)), but this is not necessary and is certainly not always so, as shown in (9–11). The facts from Mandarin RVCs clearly show that what is immediately and directly relevant to argument realization with respect to complex causative events are the Causer and the Causee – two complex thematic roles – instead of simple thematic roles like Agent and Patient.⁴ This offers strong support for the proposal that the Causer and the Causee are two thematic or semantic roles that should be ranked over simple event roles. When this is put in the perspective of Dowty's prototype approach to thematic roles, the argument realization pattern seen in monotransitive Mandarin sentences containing an RVC strongly shows that the third properties in (1) and (2), which correspond to the Causer and the Causee respectively, rank over all the other properties in each group. In this respect, Dowty is wise in leaving open the

4. One anonymous reviewer comments that not all the causatives shown in (7–11) are equal in the sense that (8) and (11), for example, cannot participate in the alternation with the *ba*-construction while (7), for instance, can. My own judgment and my consultation with five friends, however, point to a different conclusion, namely that all the sentences in (7–11) can alternate with the *ba*-construction particularly when some element of the NP introduced by *ba* is stressed and when *dou* is used before the RVC for the sake of emphasis (presumably the judgment difference between my consultants and the reviewer is due to regional/dialectal variation). For example, (i) alternates with (11) and it is a natural and acceptable sentence to all the native speakers I consulted. Also, regardless of whether (7–11) can alternate with the *ba*-construction or not, the key point, as far as the focus of this paper is concerned, is still that these sentences exhibit the same way of argument realization and the same primacy of the Causer and the Causee in this argument realization.

(i) *Na-ge youmo gushi ba Zhangsan-de yao dou xiao-wan-le.*

that-CL humor story BA Zhangsan-MM waist EMPHASIS laugh-bend-PERF

'That humorous story caused Zhangsan's waist to bend as a result of his laughing.'

possibility that some property or properties may weigh more than others. Equally importantly, the Mandarin data presented provides clear evidence that, when the event is causative, the only properties that are immediately relevant to the determination of AGENT and PATIENT of a monotransitive (complex) predicate are the third properties in (1) and (2).⁵ As can be seen in the next section, adopting this proposal leads to a much simpler and more straightforward account of the argument realization pattern associated with monotransitive causative predicates.

3. Towards a simpler account of the argument realization of monotransitive causative predicates

This section is intended to show the advantage of recognizing the Causer and the Causee as higher-ranked roles or role properties. Specifically, this recognition offers a much simpler and more straightforward account of the argument realization of monotransitive causative predicates. Evidence for this comes from resultatives, lexical causatives, and monotransitive morphological causatives. For each type of causative predicate, I shall compare the “equal-weight” approach originally conceived by Dowty and the alternative proposal of recognizing the Causer and the Causee as higher-ranked role properties. As seen above, the former approach to argument selection or realization sometimes makes wrong predictions; as can be seen below, it also has the problem of being inefficient and unnecessarily clumsy and cumbersome. In this respect, it should be pointed out that, although Dowty’s original equal-weight approach is not a theory of derivation, examination and “numerical comparison” (to use Davis & Koenig’s (2000) and Koenig & Davis’ (2001) words) of AGENT and PATIENT properties are an essential part of Dowty’s proposal.

First, with respect to the argument selection of Mandarin resultatives like (4), it poses a serious problem for Dowty’s equal-weight approach, as discussed above. On the alternative proposal that recognizes the Causer and the Causee as higher-ranked properties or roles, the argument realization of (4) can be given a straightforward account. Under this approach, when the event is causative, the role

5. While it is true that, with respect to the argument realization of a monotransitive (compound) verb, the Causer property of an argument automatically elevates this argument to the status of AGENT and the Causee property of an argument automatically makes it PATIENT, it is not the case that any AGENT has a Causer property and any PATIENT has a Causee property. For example, although *Hector* in *Hector passed the White House* is an AGENT due to Hector’s volition, sentience and movement and although *the White House* is a PATIENT due to its being stationary, *Hector* is not a Causer and neither is *the White House* a Causee.

properties immediately relevant to argument selection are the third properties in (1) and (2). As *na-pen yifu* in (4) is the Causer, it is realized in the subject position by following the general or canonical argument realization principle that, when the Causer and the Causee of a monotransitive predicate are two distinct participants not coreferential with each other, the Causer is realized in the subject position and the Causee in the object position for the sake of prominence preservation in the mapping from the thematic hierarchy to the grammatical relations hierarchy (see more discussion below). By the same argument realization principle, the Causee, namely *Zhangsan* in (4), is realized in the object position, regardless of the fact that *Zhangsan* has sentience and is the doer of the washing action.

Second, there are lexical causatives like (12), in which *the crime scene* and *the tiger* are realized in the subject position and *the jogging man* and *the child* are realized in the object position.

- (12) a. The crime scene scared the jogging man.
 b. The tiger scared the child.

This, however, is not so straightforwardly predicted by Dowty's approach if his argument selection principle in (6) is strictly followed. In the case of (12a) (see Table 2), for example, *the crime scene* is the Causer, the AGENT property in (1c), and *the jogging man* has the AGENT property of being sentient.

Table 2.

	AGENT Properties	PATIENT Properties
<i>The crime scene</i>	Causer	
<i>The jogging man</i>	Sentience	Causee; Change of state

In such a scenario, the principle in (6) actually predicts that both arguments qualify as being the subject of *scare*. It is only through the examination of the PATIENT properties of the two arguments of *scare* as a transitive verb that one can safely conclude that *the jogging man* should be realized as the object due to its having two of the PATIENT properties in (2) – being the Causee and undergoing a change of state – while the other argument has no PATIENT properties at all. In other words, although Dowty's approach eventually can account for the argument realization in (12a), it involves initial uncertainty and indeterminacy as well as the wrong prediction from the first half of (6) that *the jogging man*, as the Experiencer

argument of the causative predicate *scare* in its active form, can also be realized in the subject position.⁶

However, by the alternative approach that recognizes (1c) and (2c) as two properties that are ranked over all the other properties in (1) and (2) respectively, the argument realization with regards to (12a), for example, can again be given a straightforward account. Under this approach, *the crime scene* in (12a) is the Causer and it is thus realized in the subject position; *the jogging man* is the Causee and is thus realized in the object position. In this case, the fact that the jogging man in (12a) has sentience is not immediately relevant to the argument realization of a causative predicate like *scare*.⁷

6. Based on the fact that the “Experiencer-Subject form” (e.g. *The child feared tigers*) of a psychological verb is normally analyzed as the basic form from which the “Stimulus-Subject form” (e.g. *The tiger frightened the child*) is derived, Dowty (1991: 580, Footnote 23) suggests that in some sense “sentience (Experiencer) outranks causation.” If so, then *the jogging man* in (12a) would be a better candidate than *the crime scene* to be the AGENT, a result that is not supported by the argument realization in (12a).

7. As mentioned in a previous note, there are other psychological predicates such as *fear* and *like* which do not show the same argument realization pattern as *scare* in (12) or *frighten* in (i). However, as argued by Levin & Grafmiller (2013), *frighten* is actually different than *fear*. While *the tiger* in (i) can be characterized as a Causer, it does not truly qualify as a Causer in (ii) (see Li 2018 for some examination and discussion of the argument realization of psychological verbs from a crosslinguistic perspective, particularly the type of psychological predicates exemplified by *fear* and the type exemplified by *frighten*).

(i) The tiger frightened the child.

(ii) The child feared the tiger.

In more general terms, while verbs like *frighten* are causative psych verbs, those like *fear* are non-causative (there are languages like Hindi with morphological causatives in which the causative version of a psych verb may be morphologically derived from its non-causative counterpart by adding a causative affix; more specific languages include Lakhota and Classical Nahuatl (see Croft 1993: 56) and ValPal languages like Bezhta, Chintang, Even, Evenki, Japanese (standard), Ket, Mandinka, Sri Lanka Malay, Xârâcùù, Yucatec Maya, and Zenzontepec Chatino (see Hartmann et al. 2013)). Semantically, while (i) means “the tiger caused the child to become scared,” (ii) only expresses a certain disposition of the child towards the tiger. If verbs like *fear* really expressed something causative, the existence of the morphologically-derived causative counterpart in some languages with morphological causatives would be unexpected. Given these observations, the different argument realization patterns found with these two types of psych verbs illustrated with *fear* and *frighten* in (i) and (ii) are not so surprising. While *the child* in both (i) and (ii) is arguably a sentient experiencer, it is realized in the object position in (i) because it assumes the Causee role and it is realized in the subject position in (ii) due to its being a sentient experiencer with respect to a non-causative psych verb. The scenario with respect to *fear* and *frighten* illustrates the importance of examining whether the simplex or complex predicate of a sentence truly expresses a causative meaning. If the predicate of the

Finally, in monotransitive morphological causatives like (13), *kodomo-no shi* ‘the child’s death’ and *ryooshin* ‘parents’ have the AGENT properties of being the Causer and having sentience, respectively, as shown in Table 3.

(13) Japanese

Kodomo-no shi-ga ryooshin-o kanashim-ase-ta.

child-POSS death-NOM parents-ACC grieve-CAUS-PAST

‘The child’s death caused his parents to grieve.’

(Tokunaga 1997: 294; with glosses modified to maintain consistency)

Table 3.

	AGENT Properties	PATIENT Properties
‘The child’s death’	Causer	
‘His parents’	Sentience	Causee; Change of state

Like in (12), the principle in (6) predicts that both arguments in (13) qualify as being the subject of the causative form of ‘grieve.’ It is again only through the examination of the PATIENT properties of the two arguments that one can find out that *ryooshin* ‘parents’ should be realized as the object because it is the Causee and arguably undergoes a change from the state of not grieving to the state of being in grief. As a result, this is another case in which, although Dowty’s original equal-weight approach eventually predicts the argument realization in (13), it involves initial uncertainty and indeterminacy as well as the wrong prediction that *ryooshin* can be realized in the subject position.

Moreover, as pointed out by Davis & Koenig (2000: 75), there are even morphological causatives that “violate Dowty’s argument selection principle.” For example, according to Davis & Koenig (2000: 76), ‘the women’ in (14) is both sentient and volitional while ‘the news’ is the Causer. Thus, the former in fact has more AGENT properties than the latter, as shown in Table 4. In this case, Dowty’s argument selection principle in (6) predicts that ‘the women’ should be realized in the subject position. Because ‘the women’ is also the Causee, which is a PATIENT property, it is predicted to be realized in the object position as well. Therefore, Dowty’s principle in (6), when strictly followed, predicts that ‘the women’ should be realized in both the subject and the object position, a prediction that is not borne out in (14) because ‘the news’ is actually expressed in the subject position.

sentence does express a causative meaning and if a causative relationship of “A causes B to be in a certain state/location or to perform a certain action” can be established, then “A” can be identified as the Causer and “B” as the Causee.

(14) Finnish

Uutinen puhu-tt-i nais-i-a pitkään.

news.item talk-CAUS-PAST woman-PL-PART long.ILL

‘The news made the women talk for a long time.’ (Davis & Koenig 2000: 75)

Table 4.

	AGENT Properties	PATIENT Properties
‘The news’	Causer	
‘The women’	Sentience; Volition	Causee

However, with respect to morphological causatives like (13) and (14), the alternative proposal recognizing the Causer and the Causee as higher-ranked properties or roles correctly and straightforwardly predicts that *kodomo-no shi* ‘the child’s death’ in (13) and *uutinen* ‘the news’ in (14) should be realized in the subject position because they are Causers. As for *ryooshin* ‘parents’ in (13) and *nais-i* ‘the women’ in (14), they are rightly predicted to be expressed in the object position because they are Causees. That is, the two arguments in (13) and in (14) are overtly realized in the subject and the object position respectively due to their being the Causer and the Causee respectively, regardless of the fact that the child’s parents in (13) have sentience (an AGENT property) and the women in (14) have two of Dowty’s AGENT properties, namely sentience and volition.

The above discussion has seen the following problems for Dowty’s original equal-weight approach: (i) it does not readily and straightforwardly predict the argument realization patterns with respect to monotransitive causative predicates; (ii) as far as monotransitive causative predicates are concerned, it sometimes makes even wrong predictions particularly as to which argument should be realized in the subject position. Compared with the approach presented by Dowty (1991), the alternative proposal that recognizes the Causer and the Causee as higher-ranked properties or roles offers a straightforward and much simpler approach to the argument realization associated with monotransitive causative predicates.

4. Discussion

Haspelmath (2011) discusses Bickel and others’ approach of generalized semantic roles or proto-roles (see, for example, Bickel et al. 2010 and Bickel 2011) whose properties are very similar to Dowty’s (1991). He comments that “[i]t is not quite clear whether these agent and goal/patient properties all have equal status.” In this respect, recall that Dowty (1991: 574) himself points out that he “would not rule out the desirability of ‘weighting’ some entailments more than others for purposes

of argument selection.” We have seen in this paper that there is strong evidence from Mandarin RVCs that the third property in (1) and the third property in (2), which correspond to the Causer and the Causee respectively, are higher-ranked properties. In a non-prototype approach, this can be translated as the Causer and the Causee’s being two higher-ranked thematic or semantic roles with respect to monotransitive predicates.

As far as monotransitive predicates are concerned, we have also seen that the recognition of the Causer and the Causee as two higher-ranked properties or roles leads to an effective and straightforward account of argument realization with respect to complex causative events expressed by lexical causatives, morphological causatives, and resultatives. While a prototype approach that recognizes the Causer and the Causee as two higher-ranked properties is technically different than a non-prototype approach that regards the Causer and the Causee as two higher-ranked thematic roles, the point is that, whichever approach is adopted, it is desirable to rank the Causer and the Causee over the other properties or roles. In the following discussions, however, I shall view the Causer and the Causee as two separate thematic roles and this is mainly because Dowty’s prototype approach has at least the following drawbacks (for further discussion, see Croft 1998, 2012; Davis & Koenig 2000; Koenig & Davis 2001; Levin & Rappaport Hovav 2005). First, as pointed out by Davis & Koenig (2000:74), “[m]etatheoretically, implementing a numerical comparison approach within declarative, monotonic approaches to grammars does not seem feasible.” Second, as can be seen from our discussions above and from the discussions by Koenig & Davis (2001:82), one single property (e.g. being the Causer) can be sufficient for the event participant with that property to be realized in a specific syntactic position. Finally, although on the surface Dowty’s prototype approach reduces the inventory of thematic roles (or even abandons the use of thematic roles in Croft’s (1998) assessment), most of the AGENT and PATIENT properties proposed by Dowty are in fact reminiscent of individual thematic roles used in the literature⁸ and they can be said to form pairs as well (though the relational nature of the two properties in each pair, in Croft’s (1998:37; 2012:192) view, is not truly recognized or captured by Dowty’s prototype approach to argument realization). For example, aside from the Causer and the Causee already identified and discussed above, the AGENT property of “sentience (and/or perception)” corresponds to Experiencer and the AGENT property of “movement (relative to the position of another participant)” is reminiscent of Theme, which is defined by Gruber as “the entity which

8. In Levin & Rappaport Hovav’s (2005:54) assessment of the AGENT and PATIENT properties proposed by Dowty, “[t]he only notion that does not figure in work on semantic roles is ‘incremental theme,’ an aspectually based notion.”

is conceived as moving” (Gruber 1965: 48) or as “the entity which is conceived as moving or undergoing transitions” (Gruber 1976: 38) and is utilized by Jackendoff (1987: 377–378; 1990: 46) to refer to “the object in motion or being located.” As for the pairing of the properties proposed by Dowty, we have seen that the AGENT property of “causing an event or change of state in another participant” and the PATIENT property of “causally affected by another participant” form a complementary pair. As another example, the AGENT property of “movement (relative to the position of another participant)” and the PATIENT property of “stationary relative to movement of another participant” also form a complementary pair. In fact, as pointed out by Croft (1998: 37; 2012: 191), these complementary pairings form “mini-hierarchies” (to use Croft’s (2012: 191) words) and are essentially like traditional rankings like “Agent > Patient” and “Theme > Location.” From this perspective, the recognition of Causer and Causee as two higher-ranked thematic roles does not truly complicate a successful account of argument realization. As argued in the previous section, such an explicit recognition actually offers a straightforward account of the argument realization of monotransitive causative predicates.

The proposal of the Causer and the Causee as two higher-ranked thematic roles has implication for any theory that utilizes thematic hierarchy because on the one hand none of the thematic hierarchies proposed in the literature (see (15) for some examples) include both of the roles of the Causer and the Causee and on the other hand a complete thematic hierarchy or a complete theory of thematic roles needs to take the two higher-ranked roles into consideration. On the basis of the discussion so far, it can be concluded that a complete thematic hierarchy should start as something shown in (16).

(15) Examples of thematic hierarchy

(see Levin & Rappaport Hovav 2005: 162–163 for more examples)

- a. Agent > Instrument > Patient/Theme > Goal/Location (Baker 1989: 544)
- b. Agent > Experiencer > Theme (Belletti & Rizzi 1988: 344, note 36)
- c. Agent > Beneficiary > Recipient/Experiencer > Instrument > Theme/
Patient > Location (Bresnan & Kanerva 1989: 23)
- d. Agent > Goal > Recipient > Beneficiary > Instrument > Location > Time
(Dik 1978: 70; 1997: 37, 266)
- e. Actor > Patient/Beneficiary > Theme > Goal/Source/Location
(Jackendoff 1990: 258)
- f. Causer > Experiencer > Target/Subject Matter (Pesetsky 1995: 59)
- g. Agent > Effector > Experiencer > Locative > Theme > Patient
(Van Valin 1990: 226, 230)

(16) Causer > Causee > ...

Regarding the listing of the Causer and the Causee as two higher-ranked thematic roles in (16) with respect to the argument realization of monotransitive predicates, several things related to previous proposals should be pointed out. First, while Reinhart (2002) proposes a “Cause” role, her theta system does not recognize a Causee role. Second, while Pesetsky (1995) includes a Causer role in his hierarchy used to account for the argument realization of psychological or psych verbs, the Causee role is not part of that hierarchy. Third, while Grimshaw (1990), in discussing the argument realization of causative psychological predicates like *frighten*, proposes that such predicates involve a “Cause” (i.e. our Causer) argument, she does not discuss notions like “Causee” either. Moreover, to Grimshaw (1990: 25), verbs like *frighten* involve two dimensions, one being the “causal dimension” (which involves “Cause” and other unspecified elements) and the other being the “thematic dimension,” under which *frighten* involves an Experiencer that ranks over a Theme. It can be seen from this that Grimshaw does not consider the causal relation a type of thematic relation, which is another difference between my proposal and Grimshaw’s. In addition, although Grimshaw does not make it explicit that the causal dimension outranks the thematic dimension, it is clear from her discussion that, for *frighten* to have the right argument realization, this outranking relation must be assumed. Given this, Grimshaw’s proposal of a causal dimension adds further support to my account of the argument realization of causative psych verbs that relies on the recognition of the Causer and the Causee as two higher-ranked thematic properties or roles. Fourth, Li (1995; 1999), in discussing Mandarin RVCs, proposes two causative roles, namely “Cause” and “Affectee.” However, he also proposes two hierarchies which are called the “thematic hierarchy” (cf. Grimshaw’s “thematic dimension”) and the “causative hierarchy” (cf. Grimshaw’s “aspectual dimension”) respectively, the latter of which only concerns the hierarchy of the two causative roles. This way of naming the two distinct hierarchies at least leaves the impression that Yafei Li does not truly consider his Cause and Affectee to be thematic roles. Finally, while Li (2008) recognizes the Causer and the Causee as two higher-ranked thematic or semantic roles on the basis of his study of Mandarin RVCs, no discussion of this recognition with respect to Dowty’s prototype approach to thematic roles and argument realization is conducted. Moreover, although Li (2013) relates the status of the Causer as a higher-ranked role to Dowty’s AGENT properties, no discussion of Dowty’s PATIENT properties is made and neither is there any examination of the significance of the recognition of the Causer and the Causee as higher-ranked roles in accounting for the argument realization of causative psych verbs and monotransitive morphological causatives.

Therefore, my proposal of the Causer and the Causee as two higher-ranked thematic roles is conceptually different than earlier proposals like Grimshaw’s and

Yafei Li's even though they may be viewed as sharing the same spirit. The current proposal is an attempt to explicitly recognize both the Causer and the Causee as two distinct thematic roles and to recognize their immediate relevance to argument realization when the eventuality expressed by a verb is causative in nature. This explicit recognition is necessary and important, given that the traditional thematic hierarchy normally does not include any of these two roles (unsurprisingly, Davis & Koenig (2000: 58) even suggest that the traditional thematic hierarchy cannot truly handle causatives, including the issue of why the Causer is consistently realized in the subject position). However, given the primacy of the Causer and the Causee in argument realization with respect to causative events, it is time to explicitly recognize these two roles not only as two distinct thematic roles but also as two higher-ranked roles in both Chinese linguistics and general linguistics.

With the above general point made, I would also like to make the following points with respect to thematic roles and the hierarchy in (16). First, I suggest that thematic roles can be used for two different purposes. On the one hand, thematic roles and their hierarchy can be used locally for a construction-specific and language-specific purpose. In fact, many, if not most, of the thematic hierarchies proposed in the literature are for this purpose. From this perspective, it is understandable why the same thematic role (e.g. Instrument) is in different positions of two different hierarchies. On the other hand, thematic roles and their hierarchy can be used for a crosslinguistic comparative purpose. Given that no theory can handle everything, it is not unreasonable to have a modest use of the thematic hierarchy to handle linguistic universals as well as a modest use of the thematic hierarchy to handle local argument realizations. While a full and successful account of argument realization must take into consideration of the semantics of the verbs or predicates involved, this does not mean that we cannot have both the general (near) uniform linkings and the particular linkings. I thus advocate that we can have both a macro view and a micro view of linking and argument realization. In the case of the macro view, it concerns the big picture and the (near) uniform patterns across languages and will be useful for us to better understand how human languages are generally structured. While we should acknowledge exceptions if necessary, we should not use exceptions to ignore the big picture and the (near) uniformity observed with respect to argument realization. Additionally, the macro view will also be very useful from an acquisitional perspective because the general linking patterns, which are associated with semantic bootstrapping, will aid a child or a second language learner to grasp the regularities in an efficient and effective way.

In my conception of the global hierarchy for purposes of crosslinguistic studies, an event named by the verb may use zero, one, or more than one thematic

roles on the hierarchy. However, as far as the focus of this paper is concerned, the point is that what is immediately relevant to argument realization is the Causer and the Causee as long as the monotransitive predicate in question expresses a causative event. Moreover, for comparative purposes as well as for the purpose of positing (near) universals of argument realization with respect to monotransitive predicates, I suggest that four roles in the form of the ranking shown in (17) be recognized.

(17) Causer > Causee > Agent > Patient

Drawing on the insights of Croft's (1991; 1993; 1998; 2012) and Talmy's (1976; 1988; 2000) study of force dynamics and causality, I couch the ranking in (17) in event semantics expressed by the verb, particularly in the causative directionality from the Causer to the Causee (see more discussion below) and in the transmission of physical force from the Agent to the Patient. Meanwhile, the ranking means that the Causer has the highest priority of being realized in the subject position and the Causee has the priority of being realized as the next highest grammatical relation, i.e. the direct object. If there is neither a Causer nor a Causee available, the Agent (i.e. the volitional or sentient doer) will have the highest priority of being realized in the subject position and the Patient (i.e. the entity being acted upon) will be realized in the direct object position. Given that the Agent is a volitional or sentient doer, the hierarchy in (17) nicely captures Koenig & Davis' (2001: 82–83) observation that the Causer is mapped to subject in causative verbs and the sentient or volitional participant is realized as subject in non-causative verbs.

With regards to the hierarchy in (17), it should also be pointed out that, when the same event participant assumes two (or more than two) roles, the role that is immediately relevant to argument realization is the highest role associated with that participant. For example, in (18) 'that basin of clothes' assumes both the Patient role and the Causer role and 'Zhangsan' both the Agent role and the Causee role.

(18) *Na-pen yifu xi-lei-le Zhangsan.* (=4)
 that-CL clothes wash-tired-PERF Zhangsan
 'That basin of clothes got Zhangsan tired after Zhangsan washed them.'

Because of the hierarchy in (17), it is the Causer role of 'that basin of clothes' that is immediately relevant to argument realization. In the same vein, it is the Causee role of 'Zhangsan' that is immediately relevant to argument selection. Due to the fact that the Causer outranks the Causee, 'that basin of clothes' is realized in the subject position and 'Zhangsan' in the object position as a result of prominence preservation in the mapping from the thematic hierarchy to the

grammatical relations hierarchy in (19), which is assumed in various linguistic frameworks (e.g. Bresnan et al.'s (2016:97) *Lexical-functional grammar* and Dik's (1997:37) *Functional grammar*) and has its roots in Keenen & Comrie's (1977:66) as well as in Comrie's (1989:156) use of an accessibility hierarchy to account for relative clause formation from a crosslinguistic perspective (see Levin & Rappaport Hovav 2005:141–142 for further discussion of the hierarchy of grammatical relations).

- (19) Grammatical relations hierarchy
 Subject > Direct Object > Indirect Object > Oblique

Second, as far as monotransitive predicates are concerned, the proposal of the Causer and the Causee as two higher-ranked roles is also compatible with many formal representations of causatives in tree diagrams and predicate decompositions that involve at least one of the following components: VoiceP, v_{Cause} node, CAUSP, light verb CAUS(E), and predicate primitive CAUS(E) (e.g. Lin 1998; Sybesma 1999; Lin 2001; Lin 2004; Folli & Harley 2006; Huang 2006; Pylkkänen 2008; Legate 2014; see also (20) for examples of predicate decompositions of causatives).⁹ The intuition of the core causative meaning expressed by causatives and the idea of the Causer occupying the highest syntactic position among all the arguments are shared by formal syntactic accounts and my own proposal, and the difference lies in how much of the causative meaning is dealt with in the realm of syntax. Meanwhile, my proposal of the Causer and the Causee as two higher-ranked roles can be readily translated into an Optimality-Theoretic (OT) account of the argument realization of monotransitive causatives in the spirit of Aissen (2003).

- (20) Examples of event structure decompositions of causative predicates¹⁰
 a. [x CAUSE [BECOME _{<MANNER>} [y <STATE>]]] (the 'pure' causative template) & [x CAUSE _{<MANNER>} [BECOME [y <STATE>]]] (the 'causing-with-a-manner' causative predicate) (Huang 2006: 24)

9. While it is true that, as pointed out by an anonymous reviewer, Causer and Causee have already been used in the literature on Chinese syntax and semantics (the present author's earlier work on Mandarin resultatives has also explicitly used Causer and Causee as two thematic roles), it is also true that argument realization studies utilizing thematic hierarchies rarely include Causer and Causee. The significance and contribution of this paper lies exactly in (i) relating Chinese linguistics to general linguistics, (ii) relating the study of Mandarin resultatives to Dowty's influential prototype approach to argument realization, (iii) advocating not only the explicit recognition of Causer and Causee as two thematic roles in general linguistics but also the inclusion of them as two higher-ranked thematic roles in the thematic hierarchy, and (iv) discussing the implication of this proposal for the studies of causatives and argument realization.

- b. [_{IP} This bottle of wine CAUSE [_{VP} drunk-fall a bunch of people]] (representation for (21)) (Lin 2001: 173)
- c. [[x ACT _{<MANNER>}] CAUSE [BECOME [y <STATE>]]] & [x CAUSE [BECOME [y <STATE>]]] (Rappaport Hovav and Levin 1998: 108)
- d. NP CAUS [_{VP} V [_{XP} le [_{SC} NP YP]]] (causative resultatives) (SC = small clause; *le* functioning as an aspect marker in Mandarin) (Sybesma 1999: 96)
- e. α CAUSE β , where α , β are “logical structures” of any type (Van Valin 2015: 717; see also Van Valin 1990: 224 and Van Valin & LaPolla 1997: 109)

- (21) *Zhe-ping jiu zui-dao-le yi-pi ren.*
 This-bottle wine drunk-fall-PERF a-bunch people
 ‘This bottle of wine made a bunch of people drunk.’ (Lin 2001: 173)

Third, while the mapping from (16) to the grammatical relations hierarchy in (19) is crosslinguistically uniform in the canonical argument realization of monotransitive causatives, the mapping can only be regarded as a near universal or a strong tendency when it comes to monotransitive-based morphological causatives (MMCs) (i.e. morphological causatives formed with a base that is a monotransitive predicate). Moreover, even when the mapping is viewed as a near universal or a strong tendency in the argument realization with respect to MMCs, it is still only true with respect to the default or canonical linear ordering of the arguments with the Causer as the starting reference point, not with respect to the specific morphological forms of the arguments involved. Specifically, when the base of a morphological causative is transitive, the adding of a causative affix also adds a Causer argument and makes the Agent argument of the original base become the Causee. In this case the Causee is not necessarily realized as an argument bearing the accusative or absolutive case in a case-marking language and in fact in most languages it is typically realized as an argument with the dative case or an oblique case, as shown in (22).

- (22) a. Japanese
Taroo-wa Hanako-ni zibun-no huku-o ki-sase-ta.
 TARO-TOP Hanako-DAT self-POSS clothes-ACC wear-CAUS-PAST
 ‘Taro made Hanako put on his/her own clothes.’ (Shibatani 1976: 20)

10. It should be pointed out that the lexical or event structure decompositions in (20), strictly speaking, do not use thematic roles although it is reasonable to assume that “x” is the Causer and “y” is the Causee (as confirmed, for example, by Huang’s (2006) and Lin’s (2001) explicit use of “Causer”).

b. Finnish

Matti rakennuttaa Pekalla talon.

Matti build.CAUS.PRES.3SG Pekka.ADESSIVE house.ACC

‘Matti makes Pekka build the house.’

(Paulsen 2011: 57)

It is reasonable to assume that the different formal realizations of the Causee argument in MMCs is due to the competition of the Causee argument and the original Patient argument of the base verb for the accusative or absolutive case in a case-marking language (see, for example, Comrie 1975, 1976; Song 1991, 1996; Dixon 2000; Li 2009 for discussion of the possibilities of the formal realization of the Causee and/or the ways of predicting such possibilities). The crucial question is whether there is any reliable diagnostic as to whether the Causee is the direct object or not. For the sake of argumentation, I shall use passivization as a diagnostic and adopt the assumption that only the direct object of an active transitive sentence can become the subject of its passive counterpart. As shown in (23–24), although in both Japanese and Turkish the Causee argument of an MMC is canonically realized as bearing the dative case (see (23a) and (24a)), only the Causee ‘the boys’ can be realized as the subject of the passive counterpart in Japanese ((23b)) and only the Patient argument (i.e. ‘this house’) of the base verb can be realized as the subject of the passive counterpart in Turkish ((24b)). That is, the use of passivization suggests that the direct object in (23a) is the Causee and the direct object in (24a) is the Patient although the argument realization patterns shown in these two examples can be said to be identical as far as the active surface form is concerned.

(23) Japanese (Mana Kobuchi-Philip, personal communication)

 a. *Karera-no chichioya-wa sono otokonoko-tachi-ni kono ie-o*

3PL-POSS father-TOP that boy-PL-DAT this house-ACC

tate-sase-ta.

build-CAUS-PAST

‘Their father made the boys build this house.’

 b. *Sono otokonoko-tachi-wa karera-no chichioya-ni kono ie-o*

that boy-PL-TOP 3PL-POSS father-DAT this house-ACC

tate-sase-rare-ta.

build-CAUS-PASS-PAST

‘The boys were made by their father to build this house.’

(24) Turkish (Ümit Atlamaz, personal communication)

 a. *Baba-lar-ı çocuk-lar-a bu ev-i yap-tır-dı.*

father-PL-POSS boy-PL-DAT this house-ACC build-CAUS-PAST

‘Their father made the boys build this house.’

- b. *Çocuk-lar-a baba-lar-ı tarafından bu ev yap-tır-ıl-dı.*
 boy-PL-DAT father-PL-POSS by this house build-CAUS-PASS-PAST
 ‘This house was built by the boys and it was their father who made the boys do so.’

Therefore, the use of passivization as a diagnostic does not lead to a crosslinguistically uniform pattern of associating the direct object with the Causee argument or with the Patient argument of an MMC. In this respect, it is worth mentioning that Kozinsky & Polinsky (1993) examine the cases of Dutch and Korean causatives where the Causee and the Patient of an MMC are both coded in the same way as how the canonical direct object of a monotransitive verb is coded in the two languages in question. They conclude that in those cases of causatives having a coding conflict, the Causee in Dutch is an IO (i.e. indirect object) and the one in Korean is a DO (i.e. direct object). If this is right, it also shows that the Causee of an MMC may bear different grammatical relations in different languages. It can thus be concluded that crosslinguistically the Causee of an MMC varies as to whether it is the direct object of the sentence.¹¹ Given the different case-marking realizations of the Causee of an MMC in different case-marking languages and given the existence of differential object marking in at least some languages with morphological causatives (e.g. Hindi and Nepali), it can also be concluded that the case marker of the Causee is not a reliable indicator of its grammatical relation.

While crosslinguistically whether the Causee of an MMC is the direct object of the sentence differs from language to language, in terms of linear ordering of the Causee and the Patient there is a strong tendency for the Causee to be placed before the Patient (as far as canonical realization is concerned) and this is particularly true in an SO language (i.e. an SVO, SOV, or VSO language) where the subject of a monotransitive verb precedes the direct object, as pointed out by Kozinsky & Polinsky (1993). Given that the vast majority of human languages with a dominant word order have the S preceding the O (see Dryer 2005), it can thus be reasonably postulated that in the majority of human languages the Causee of an MMC precedes the Patient, as evidenced by languages from different regions and families in (22), (23a), and (24a) above and in (25) below. Meanwhile, it seems that this also holds true as a strong linguistic tendency in the case of periphrastic causatives that involve three participants, as shown in (26).

11. There are analyses of specific languages in which the Patient is placed in a higher position than the Causee in a syntactic representation (e.g. López 2012). This is consistent with the fact that in some languages the Causee in a monotransitive-based causative can be better analyzed as bearing a grammatical relation lower than what is borne by the Patient.

- (25) a. Modern Standard Arabic
Kattaba l-muḥallim-u ṭ-ṭulla:b-a d-dars-a.
 CAUS.write the-teacher-NOM the-students-ACC the-lesson-ACC
 ‘The teacher made the students write the lesson.’ (Salih 1985: 256)
- b. Chicheŵa
Nūngu i-na-phík-ítsa kadzidzi maūngu.
 porcupine SUBJ-PAST-cook-CAUS owl pumpkins
 ‘The porcupine made the owl cook the pumpkins.’ (Alsina & Joshi 1991: 8)
- c. Javanese
Sri nguyak-ake asu-ne marang Bambang.
 Sri chase-CAUS dog-DEF DAT Bambang
 ‘Sri held out [i.e. got] the dog to chase Bambang.’ (Suhandano 1994: 67)
- d. Imbabura Quechua
Taita-ca wambra-man papa-ta alla-chi-rca.
 Father-TOP boy-DAT potato-ACC dig-CAUS-3PAST
 ‘Father let [or had] the boy dig potatoes.’ (Jake 1983: 260)
- e. Swahili
Mwalimu hu-wa-som-esha wanafunzi kurani.
 teacher HAB-3PL-study-CAUS students Koran
 ‘The teacher teaches the students the Koran.’ (Vitale 1981: 156)
- (26) a. They had him bake that cake.
- b. Greek
O ḍáskalos vázi tus maθités na γράψun
 the teacher.NOM put.3SG the student.PL.ACC SUBJ write.3PL
ékθesi.
 composition.ACC
 ‘The teacher is getting the students to write a composition.’
 (Kaili et al. 2009: 408)
- c. Macushi
Imakui’pî kupî Jesus-ya emapu’tî yonpa-’pî Makui-ya teuren.
 bad do Jesus-ERG CAUS try-PAST Satan-ERG FRUST
 ‘Satan unsuccessfully tried to make Jesus do bad.’ (Abbott 1991: 40)
- d. Mandarin
Zhanzheng shi tamen sangshi-le henduo tudi.
 war CAUS them lose-PERF many land
 ‘The war made them lose many lands.’
- e. Portuguese
Eu fiz Carlos pintar a parede.
 I make.PAST.1SG Carlos paint the wall
 ‘I had Carlos paint the wall.’ (Aissen 1974: 354)

f. Tariana

Nuha pina kalisi Yuse isiu nu-a-de nu-kalite-de.

1SG 2SG story José for 1SG-CAUS-FUT 1SG-tell-FUT

'I will make you tell a story to José.'

(Dixon 2000: 42)

While Kozinsky & Polinsky (1993) attribute the predominant Causee-Patient order largely to the information structure and communicative function of the Causee (being a secondary topic and being typically given) and the Patient (being a focus and being typically new), the Causee-Patient order, I contend, is also a good reflection of the extension of the Causee-over-Patient ranking to MMCs. Moreover, the predominant order of Causer-Causee_i-Agent_i-Patient in MMCs in different languages is arguably an iconic linguistic reflection of the directionality of the causative chain in the real world from the Causer to the Causee (which is coreferential with the Agent) and then from the Causee to the Patient.¹²

If the above reasoning is reasonable, then between case-marking and linear order the latter is a better indicator of the thematic hierarchy proposed when all the different types of causatives are considered together.¹³ That is, in the sense of iconic linear argument realization, the ranking in (16) holds as a strong tendency crosslinguistically, regardless of whether the predicate involves two or three participants.¹⁴ As to why the Causee of the MMC typically bears the dative or oblique

12. Given that the Causer of an MMC can be said to be always (or at least normally) realized in the subject position, the Patient-Causee-Causer order is expected to be the typical order in OS languages (i.e. languages displaying the OVS, VOS, or OSV order as the dominant word order) if the subject Causer is regarded as a starting reference point of the causative chain. Due to lack of enough data, the test of this prediction has to be left to future research.

13. There is thus good reason for Keenan (1976: 324) to place position at the top of the hierarchy for the three coding properties of subject, namely position, case marking, and agreement. Moreover, with position as the most important coding property of subject and with the Causer as a starting reference point, it can be said that, as far as canonical linear realization is concerned, the Causee typically occupies the direct object position even in the case of MMCs (the validity of this claim relies on the assumption that position, not case-marking or behavior and control properties like passivization, should be given the primary role in the determination of grammatical relations). From this perspective, with respect to MMCs, prominence is also generally preserved in the mapping from the thematic hierarchy to the grammatical relations hierarchy. Finally, it is worth pointing out that in the case of monotransitive causatives we have actually also used position and canonical linear realization instead of case marking (note that there are languages without a case system) in discussing the mapping from the thematic hierarchy in (17) to the grammatical relations hierarchy in (19).

14. In this paper, I do not take a position as to how to analyze the internal structure of the sentences containing an MMC; however, in terms of the number of participants, these MMCs, as far as the surface form is concerned, do involve three event participants. This, as far as I can tell, is also a standard view in functional and typological linguistics. In this respect, it should

case in a case-marking language, it is due to the fact that morphological causatives result from the competition and compromise between the causative morpheme and the other part of the verb complex. That is, the causative morpheme contributes the Causer and this argument normally bears the nominative or ergative case in a case-marking language. The other part of the verb complex in an MMC contributes the other two arguments. To maintain the base function of the original verb and to make sure that the beginning and the end of the causative chain are fully represented, the original Patient of the base verb thus typically gets more attention in terms of case marking and then assumes the accusative or absolutive case in a case-marking language, a case that is normally associated with the direct object of a monotransitive verb.

Therefore, from the perspective of the mapping from the thematic hierarchy to the grammatical relations hierarchy, the mapping is crosslinguistically uniform and can be regarded as a universal as far as monotransitive causative predicates – the focus of the paper – are concerned. The reason why this can be a universal lies in the fact that in the case of monotransitive causatives, there are only two core arguments (i.e. the Causer and the Causee) directly relevant to argument realization. Meanwhile, there are two core grammatical relations (i.e. subject and direct object). In such a scenario, it is like a perfect match for the Causer to be realized as one of the core grammatical relations and the Causee as the other core grammatical relation.

The mapping universal discussed above, however, cannot be readily extended to MMCs because of three arguments competing for two core grammatical relations and because of the complexity of determining which argument in this case is realized as the direct object, the second highest grammatical relation. However, regardless of whether a causative predicate involves two or three event participants, the ranking in (16) can be understood as showing the directionality of the causative chain among the core arguments of a causative predicate. This directionality in fact naturally explains why the Causer outranks the Causee and why the Causer, not the Causee, is universally realized as the subject of a regular active sentence, the highest grammatical relation. Linguistically, this directionality is also reflected in the canonical linear realization of the core arguments of a causative predicate, a realization using the Causer as a starting reference point and being constrained by the dominant word order option(s) of a specific language.

be pointed out that this view, however, is not inconsistent with an analysis that regards two of the three participants as components of a small clause. Moreover, as we focus on linear argument realization of MMCs, (25–26) can be used to support the hierarchy proposed in the paper regardless of whether these examples, in their fine analysis, involve sentence embedding or not.

That is, there is an iconic relationship between the causative directionality in the real world and the linear realization of the causal chain in human language.

5. Summary and conclusion

This paper has shown that not all the AGENT and PATIENT properties proposed by Dowty (1991) are created equal. There is strong evidence from the argument realization of Mandarin monotransitive RVCs that what is immediately relevant to the argument realization of such resultatives are the Causer and the Causee roles. This shows that the AGENT property corresponding to the Causer and the PATIENT property corresponding to the Causee are in fact two higher-ranked properties.

The paper has also demonstrated that, with the recognition of the Causer and the Causee as two higher-ranked properties (or, even better, as two higher-ranked distinct thematic roles), the argument realization associated with monotransitive causative predicates (e.g. lexical causatives, morphological causatives, and resultatives) can be given a simpler, more effective, and more straightforward account than Dowty's numerical comparison approach.

Moreover, this study has implications for any theory using thematic hierarchy to account for argument realization because (i) none of the thematic hierarchies proposed in the literature includes both the Causer and the Causee and (ii) a complete theory of thematic roles needs to take these two higher-ranked roles into consideration.

In addition, this study has provided a reasonable account of why there is more uniformity in the argument realization of monotransitive causatives than in the argument realization of MMCs. Specifically, in the case of monotransitive causatives, there are only two core arguments (i.e. the Causer and the Causee) directly relevant to argument realization. At the same time, there are two core grammatical relations (i.e. subject and direct object). Thus, in the mapping from the thematic hierarchy to the hierarchy of grammatical relations, the above facts create the perfect scenario in which the Causer is realized as one of the core grammatical relations and the Causee as the other core grammatical relation. However, in the case of MMCs, it creates a situation in which three arguments compete for two core grammatical relations. The fact that the Causee of the MMC typically bears the dative or oblique case in a case-marking language is a result from the competition and compromise between the causative morpheme and the other part of the verb complex. In order to maintain the base function of the original verb and to make sure that the beginning and the end of the causative chain are prominently represented, the original Patient of the base verb typically receives

more attention in terms of case marking and thus assumes the accusative or absolutive case in a case-marking language.

Finally, the paper shows that, regardless of whether a causative predicate involves two or three participants, the “Causer > Causee” hierarchy reflects the directionality of the causative chain among the core arguments of the causative predicate. This directionality naturally accounts for why the Causer outranks the Causee and why in terms of linear ordering, one important aspect of argument realization, the Causer typically precedes the Causee. In this case, an iconic relationship between the causative directionality in the real world and the linear realization of the causal chain in human language can be observed. This relationship offers additional support for Halliday & Matthiessen’s (2014) proposal that one of the metafunctions of language is “ideational” or “experiential” and is to represent patterns of experience, among which causality is one of the most important parts of human experience.

Acknowledgements

This paper was presented at The International Conference on Language Form and Function held in Soochow University, China, from March 27th to 29th, 2015, and I thank the participants for their valuable comments. I am grateful to my consultants for sharing their judgments on some data related to Japanese, Mandarin, and Turkish. Meanwhile, I am grateful to the anonymous reviewers for their constructive and encouraging comments and suggestions, from which this paper has benefited greatly.

Abbreviations

ACC	accusative	MMC	monotransitive-based
AGENT	Proto-Agent		morphological causative
CAUS	causative	NOM	nominative
CL	classifier	PART	partitive
DAT	dative	PASS	passive
DEF	definite	PATIENT	Proto-Patient
DO	direct object	PERF	perfective
ERG	ergative	PL	plural
FRUST	frustrative	POSS	possessive
FUT	future	PRES	present
HAB	habitual	RVC	resultative verb compound
ILL	illative	SG	singular
IO	indirect object	SUBJ	subject
MM	modifier marker	TOP	topic

References

- Abbott, Miriam. 1991. Macushi. In Derbyshire, Desmond C. & Pullum, Geoffrey K. (eds.), *Handbook of Amazonian languages*, vol. 3, 23–160. Berlin & New York: De Mouton Gruyter.
- Aissen, Judith. 1974. Verb raising. *Linguistic Inquiry* 5. 325–366.
- Aissen, Judith. 2003. Differential object marking: Iconicity vs. economy. *Natural Language and Linguistic Theory* 21(3). 435–483. <https://doi.org/10.1023/A:1024109008573>
- Alsina, Alex & Joshi, Smita. 1991. Parameters in causative constructions. In Dobrin, Lise M. & Nichols, Lynn & Rodriguez, Rosa M. (eds.), *Papers from the 27th Regional Meeting of the Chicago Linguistic Society*, 1–15. Chicago: Chicago Linguistic Society.
- Baker, Mark C. 1989. Object sharing and projection in serial verb constructions. *Linguistic Inquiry* 20(4). 513–553.
- Beavers, John. 2012. Resultative constructions. In Binnick, Robert I. (ed.), *The Oxford handbook of tense and aspect*, 908–933. Oxford: Oxford University Press.
- Belletti, Adriana & Rizzi, Luigi. 1988. Psych-verbs and θ -theory. *Natural Language & Linguistic Theory* 6(3). 291–352. <https://doi.org/10.1007/BF00133902>
- Bickel, Balthasar. 2011. Grammatical relations typology. In Song, Jae Jung (ed.), *The Oxford handbook of linguistic typology*, 399–444. Oxford: Oxford University Press.
- Bickel, Balthasar & Rai, Manoj & Paudyal, Netra P. & Banjade, Goma & Bhatta, Toya N. & Gaenszle, Martin & Lieven, Elena & Rai, Ichchha Purna & Rai, Novel Kishore & Stoll, Sabine. 2010. The syntax of three-argument verbs in Chintang and Belhare (Southeastern Kiranti). In Malchukov, Andrej L. & Haspelmath, Martin & Comrie, Bernard (eds.), *Studies in ditransitive constructions: A comparative handbook*, 382–408. Berlin: De Gruyter Mouton. <https://doi.org/10.1515/9783110220377.382>
- Bresnan, Joan & Asudeh, Ash & Toivonen, Ida & Wechsler, Stephen. 2016. *Lexical-functional syntax*. 2nd edn. Malden: Wiley-Blackwell.
- Bresnan, Joan & Kanerva, Jonni M. 1989. Locative inversion in Chicheŵa: A case study of factorization in grammar. *Linguistic Inquiry* 20(1). 1–50.
- Cheng, Lisa Lai-Shen & Huang, C.-T. James. 1994. On the argument structure of resultative compounds. In Chen, Matthew Y. & Tzeng, Ovid J. L. (eds.), *In honor of William S-Y. Wang: Interdisciplinary studies on language and language change*, 187–221. Taipei: Pyramid.
- Comrie, Bernard. 1975. Causatives and universal grammar. *Transactions of the Philological Society* 73(1). 1–32. <https://doi.org/10.1111/j.1467-968X.1974.tb01155.x>
- Comrie, Bernard. 1976. The syntax of causative constructions: Cross-language similarities and divergences. In Shibatani, Masayoshi (ed.), *Syntax and semantics*, vol. 6: *The grammar of causative constructions*, 261–312. New York: Academic Press. https://doi.org/10.1163/9789004368842_011
- Comrie, Bernard. 1989. *Language universals and linguistic typology: Syntax and morphology*. 2nd edn. Chicago: The University of Chicago Press.
- Croft, William. 1991. *Syntactic categories and grammatical relations: The cognitive organization of information*. Chicago: The University of Chicago Press.
- Croft, William. 1993. Case marking and the semantics of mental verbs. In Pustejovsky, James (ed.), *Semantics and the lexicon*, 55–72. Dordrecht: Kluwer. https://doi.org/10.1007/978-94-011-1972-6_5
- Croft, William. 1998. Event structure in argument linking. In Butt, Miriam & Geuder, Wilhelm (eds.), *The projection of arguments: Lexical and compositional factors*, 21–63. Stanford: CSLI.

- Croft, William. 2012. *Verbs: Aspect and causal structure*. Oxford: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199248582.001.0001>
- Davis, Anthony R. & Koenig, Jean-Pierre. 2000. Linking as constraints on word classes in a hierarchical lexicon. *Language* 76(1). 56–91. <https://doi.org/10.1353/lan.2000.0068>
- Dik, Simon C. 1978. *Functional grammar*. Amsterdam: North-Holland.
- Dik, Simon C. 1997. *The theory of functional grammar, part 1: The structure of the clause*. 2nd revised edn. Berlin: De Gruyter Mouton.
- Dixon, R. M. W. 2000. A typology of causatives: Form, syntax and meaning. In Dixon, R. M. W. & Aikhenvald, Alexandra Y. (eds.), *Changing valency: Case studies in transitivity*, 30–83. Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9780511627750.003>
- Dowty, David R. 1991. Thematic proto-roles and argument selection. *Language* 67(3). 547–619. <https://doi.org/10.1353/lan.1991.0021>
- Dryer, Matthew S. 2005. Order of subject, object and verb. In Haspelmath, Martin & Dryer, Matthew S. & Gil, David & Comrie, Bernard (eds.), *The world atlas of language structures*, 330–333. Oxford: Oxford University Press.
- Fodor, Jerry A. 1970. Three reasons for not deriving “kill” from “cause to die.” *Linguistic Inquiry* 1(4). 429–438.
- Folli, Raffaella & Harley, Heidi. 2006. On the licensing of causatives of directed motion: Waltzing Matilda all over. *Studia Linguistica* 60(2). 121–155. <https://doi.org/10.1111/j.1467-9582.2006.00135.x>
- Goldberg, Adele E. & Jackendoff, Ray. 2004. The English resultative as a family of constructions. *Language* 80(3). 532–568. <https://doi.org/10.1353/lan.2004.0129>
- Green, Georgia M. 1975. Tracing the source of a lexical gap. In Saltarelli, Mario & Wanner, Dieter (eds.), *Diachronic studies in Romance linguistics*, 55–62. The Hague: Mouton. <https://doi.org/10.1515/9783110811827.55>
- Grimshaw, Jane B. 1990. *Argument structure*. Cambridge: The MIT Press.
- Gruber, Jeffrey S. 1965. *Studies in lexical relations*. Cambridge: MIT. (Doctoral dissertation.)
- Gruber, Jeffrey S. 1976. *Lexical structures in syntax and semantics*. Amsterdam: North-Holland.
- Gu, Yang. 1992. The syntax of resultative and causative compounds in Chinese. Ithaca: Cornell University. (Doctoral dissertation.)
- Halliday, M.A.K. & Matthiessen, Christian M.I.M. 2014. *Halliday's introduction to functional grammar*. 4th edn. London & New York: Routledge. <https://doi.org/10.4324/9780203431269>
- Hartmann, Iren & Haspelmath, Martin & Taylor, Bradley (eds.). 2013. *Valency patterns Leipzig*. Leipzig: Max Planck Institute for Evolutionary Anthropology. (<http://valpal.info/>) (Accessed 2018-02-08.)
- Haspelmath, Martin. 2011. On S, A, P, T, and R as comparative concepts for alignment typology. *Linguistic Typology* 15(3). 535–567. <https://doi.org/10.1515/LITY.2011.035>
- Her, One-Soon. 2007. Argument-function mismatches in Mandarin resultatives: A lexical mapping account. *Lingua* 117(1). 221–246. <https://doi.org/10.1016/j.lingua.2006.01.002>
- Huang, Chu-Ren & Lin, Fu-Wen. 1992. Composite event structures and complex predicates: A template-based approach to argument selection. In Stvan, Laurel Smith & Ryberg, Stephen & Olsen, Mari Broman & Macfarland, Talke & DiDesidero, Linda & Bertram, Anne & Adams, Larin (eds.), *FLSM III: Papers from the Third Annual Meeting of the Formal Linguistics Society of Mid-America*, 90–108. Bloomington: Indiana University Linguistics Club.
- Huang, C.-T. James. 2006. Resultatives and unaccusatives: A parametric view. *Chuugoku Gogaku* [Bulletin of the Chinese Linguistic Society of Japan] 253. 1–43. <https://doi.org/10.7131/chuugokugogaku.2006.1>

- Jackendoff, Ray S. 1987. The status of thematic relations in linguistic theory. *Linguistic Inquiry* 18(3), 369–411.
- Jackendoff, Ray S. 1990. *Semantic structures*. Cambridge: The MIT Press.
- Jake, Janice Lynn. 1983. *Grammatical relations in Imbabura Quechua*. Urbana & Champaign: University of Illinois at Urbana-Champaign. (Doctoral dissertation.)
- Kaili, Hasan & Spyropoulos, Vassilios & Georgalidou, Marianthi & Çeltak, Aytaç. 2009. Causative constructions in the Turkish variety of the bilingual Muslim community of Rhodes: A preliminary research. In Ay, Sila & Aydın, Özgür & Ergenç, İclâl & Gökmen, Seda & İşsever, Selçuk & Peçenek, Dilek (eds.), *Essays on Turkish linguistics: Proceedings of the 14th International Conference on Turkish Linguistics*, 403–412. Wiesbaden: Harrassowitz.
- Keenan, Edward L. 1976. Towards a universal definition of “subject.” In Li, Charles N. (ed.), *Subject and topic*, 303–333. New York: Academic Press.
- Keenan, Edward L. & Comrie, Bernard. 1977. Noun phrase accessibility and universal grammar. *Linguistic Inquiry* 8(1), 63–99.
- Koenig, Jean-Pierre & Davis, Anthony R. 2001. Sublexical modality and the structure of lexical semantic representations. *Linguistics and Philosophy* 24(1), 71–124. <https://doi.org/10.1023/A:1005616002948>
- Kozinsky, Isaac & Polinsky, Maria. 1993. Causee and patient in the causative of transitive: Coding conflict or doubling of grammatical relations? In Comrie, Bernard & Polinsky, Maria (eds.), *Causatives and transitivity* (Studies in Language Companion Series 23), 177–240. Amsterdam: John Benjamins. <https://doi.org/10.1075/slcs.23.09koz>
- Legate, Julie Anne. 2014. *Voice and v: Lessons from Acehnese*. Cambridge: The MIT Press. <https://doi.org/10.7551/mitpress/9780262028141.001.0001>
- Levin, Beth & Grafmiller, Jason. 2013. Do you always fear what frightens you? In King, Tracy Holloway & de Paiva, Valeria (eds.), *From quirky case to representing space: Papers in honor of Annie Zaenen*, 21–32. Stanford: CSLI.
- Levin, Beth & Rappaport Hovav, Malka. 1991. Wiping the slate clean: A lexical semantic exploration. *Cognition* 41(1–3), 123–151. [https://doi.org/10.1016/0010-0277\(91\)90034-2](https://doi.org/10.1016/0010-0277(91)90034-2)
- Levin, Beth & Rappaport Hovav, Malka. 1995. *Unaccusativity: At the syntax-lexical semantics interface*. Cambridge: The MIT Press.
- Levin, Beth & Rappaport Hovav, Malka. 2004. The semantic determinants of argument expression: A view from the English resultative construction. In Guéron, Jacqueline & Lecarme, Jacqueline (eds.), *The syntax of time*, 477–494. Cambridge: The MIT Press.
- Levin, Beth & Rappaport Hovav, Malka. 2005. *Argument realization*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9780511610479>
- Li, Chao. 2008. *Mandarin resultative verb compounds: Where syntax, semantics, and pragmatics meet*. München: Lincom Europa.
- Li, Chao. 2009. On the argument realization of causatives. In Sutcliffe, Patricia & Stanford, Lois M. & Lommel, Arle R. (eds.), *LACUS forum XXXIV: Speech and beyond*, 137–146. Houston: The Linguistic Association of Canada and the United States.
- Li, Chao. 2013. Mandarin resultative verb compounds: Simple syntax and complex thematic relations. *Language Sciences* 37, 99–121. <https://doi.org/10.1016/j.langsci.2012.11.001>
- Li, Chao. 2018. Argument realization of psychological verbs. *Studies in Language* 42(4), 755–797. <https://doi.org/10.1075/sl.17016.li>
- Li, Linding. 1980. Dongbuge jushi [Sentence types containing the verb-complement construction]. *Zhongguo Yuwen* [Studies of the Chinese Language] 1980(2), 93–103.
- Li, Linding. 1984. Jiujing nage “bu” nage? [Which on earth complements which?]. *Hanyu Xuexi* [Chinese Language Learning] 1984(2), 1–10.

- Li, Yafei. 1990. On V-V compounds in Chinese. *Natural Language & Linguistic Theory* 8(2). 177–207. <https://doi.org/10.1007/BF00208523>
- Li, Yafei. 1995. The thematic hierarchy and causativity. *Natural Language & Linguistic Theory* 13(2). 255–282. <https://doi.org/10.1007/BF00992783>
- Li, Yafei. 1999. Cross-componential causativity. *Natural Language & Linguistic Theory* 17(3). 445–497. <https://doi.org/10.1023/A:1006236828263>
- Lin, Huei-Ling. 1998. *The syntax-morphology interface of verb-complement compounds in Mandarin Chinese*. Urbana-Champaign: University of Illinois at Urbana-Champaign. (Doctoral dissertation.)
- Lin, Jimmy. 2004. *Event structure and the encoding of arguments: The syntax of the Mandarin and English verb phrase*. Cambridge: MIT. (Doctoral dissertation.)
- Lin, Tzong-Hong Jonah. 2001. *Light verb syntax and the theory of phrase structure*. Irvine: University of California at Irvine. (Doctoral dissertation.)
- Liu, Mingming. 2014. Mandarin resultative verb compound involves VP complementation. *University of Pennsylvania Working Papers in Linguistics* 20(1). (*Proceedings of the 37th Annual Penn Linguistics Conference*). 1–9. (Article 24.) (<http://repository.upenn.edu/cgi/viewcontent.cgi?article=1725&context=pwpl>) (Accessed 2017-08-16.)
- López, Luis. 2012. *Indefinite objects: Scrambling, choice functions, and differential marking*. Cambridge: The MIT Press. <https://doi.org/10.7551/mitpress/9165.001.0001>
- Lu, Jianming. 1990. “VA le” shubu jiegou yuyi fenxi [A semantic analysis of VA-le verb-complement constructions]. *Hanyu Xuexi* [Chinese Language Learning] 1990(1). 1–6.
- Ma, Xiwen. 1987. Yu dongjieshi dongci youguan de mouxie jushi [Certain syntactic structures related to resultative verb compounds]. *Zhongguo Yuwen* [Studies of the Chinese Language] 1987(6). 424–441.
- Paulsen, Geda. 2011. *Causation and dominance: A study of Finnish causative verbs expressing social dominance*. Åbo: Åbo Akademi University Press.
- Pesetsky, David. 1995. *Zero syntax: Experiencers and cascades*. Cambridge: The MIT Press.
- Pylkkänen, Liina. 2008. *Introducing arguments*. Cambridge: The MIT Press. <https://doi.org/10.7551/mitpress/9780262162548.001.0001>
- Rappaport Hovav, Malka & Levin, Beth. 1998. Building verb meanings. In Butt, Miriam & Geuder, Wilhelm (eds.), *The projection of arguments: Lexical and compositional factors*, 97–134. Stanford: CSLI.
- Rappaport Hovav, Malka & Levin, Beth. 2001. An event structure account of English resultatives. *Language* 77(4). 766–797. <https://doi.org/10.1353/lan.2001.0221>
- Reinhart, Tanya. 2002. The theta system—an overview. *Theoretical Linguistics* 28(3). 229–290.
- Salih, Mahmud Husein. 1985. *Aspects of clause structure in Standard Arabic: A study in relational grammar*. Buffalo: State University of New York at Buffalo. (Doctoral dissertation.)
- Shi, Chunhong. 2008. *Hanyu dongjieshi de jufa yuyi yanjiu* [Syntactic and semantic studies of Chinese resultative verb compounds]. Beijing: Beijing Language and Culture University Press.
- Shibatani, Masayoshi. 1976. The grammar of causative constructions: A conspectus. In Shibatani, Masayoshi (ed.), *Syntax and semantics, vol. 6: The grammar of causative constructions*, 1–40. New York: Academic Press. https://doi.org/10.1163/9789004368842_002
- Song, Jae Jung. 1991. Causatives and universal grammar: An alternative interpretation. *Transactions of the Philological Society* 89(1). 65–94. <https://doi.org/10.1111/j.1467-968X.1991.tb01057.x>
- Song, Jae Jung. 1996. *Causatives and causation: A universal-typological perspective*. London: Longman.

- Suhandano. 1994. *Grammatical relations in Javanese: A short description*. Canberra: Australian National University. (Master's thesis.)
- Sybesma, Rint. 1999. *The Mandarin VP* (Studies in Natural Language and Linguistic Theory 44). Dordrecht: Kluwer. <https://doi.org/10.1007/978-94-015-9163-8>
- Talmy, Leonard. 1976. Semantic causative types. In Shibatani, Masayoshi (ed.), *Syntax and semantics, vol. 6: The grammar of causative constructions*, 41–116. New York: Academic Press. https://doi.org/10.1163/9789004368842_003
- Talmy, Leonard. 1988. Force dynamics in language and cognition. *Cognitive Science* 12(1). 49–100. https://doi.org/10.1207/s15516709cog1201_2
- Talmy, Leonard. 2000. *Toward a cognitive semantics, vol. I: Concept structuring systems*. Cambridge: The MIT Press.
- Tham, Shiao Wei. 2015. Resultative verb compounds in Mandarin. In Wang, William S-Y. & Sun, Chaofen (eds.), *The Oxford handbook of Chinese linguistics*, 306–321. Oxford: Oxford University Press.
- Thompson, Sandra A. 1973. Resultative verb compounds in Mandarin Chinese: A case for lexical rules. *Language* 49(2). 361–379. <https://doi.org/10.2307/412459>
- Tokunaga, Misato. 1997. External control in causatives of English and Japanese. In Melby, Alan K. (ed.), *The Twenty-third LACUS Forum*, 289–299. Chapel Hill: The Linguistic Association of Canada and the United States.
- Van Valin, Robert D. 1990. Semantic parameters of split intransitivity. *Language* 66(2). 221–260. <https://doi.org/10.2307/414886>
- Van Valin, Robert D. 2015. Role and Reference Grammar as a framework for linguistic analysis. In Heine, Bernd & Narrog, Heiko (eds.), *The Oxford handbook of linguistic analysis*, 707–741. 2nd edn. New York: Oxford University Press.
- Van Valin, Robert D. & LaPolla, Randy J. 1997. *Syntax: Structure, meaning and function*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9781139166799>
- Vitale, Anthony J. 1981. *Swahili syntax*. Dordrecht: Foris. <https://doi.org/10.1515/9783110847444>
- Wang, Hongqi. 1996. Dongjieshi shubu jieyou de yuyi shi shenme [What is the semantics of the verb-complement construction]. *Hanyu Xuexi* [Chinese Language Learning] 1996(1). 24–27.
- Wang, Lingling. 2001. *A study of resultative constructions in Mandarin Chinese*. Hong Kong: Hong Kong Polytechnic University. (Doctoral dissertation.)
- Williams, Alexander. 2005. Complex causatives and verbal valence. Philadelphia: University of Pennsylvania. (Doctoral dissertation.)
- Williams, Alexander. 2014. Causal VVs in Mandarin. In Huang, C.-T. James & Li, Y.-H. Audrey & Simpson, Andrew (eds.), *The handbook of Chinese linguistics*, 311–341. Malden: Wiley-Blackwell. <https://doi.org/10.1002/9781118584552.ch12>
- Yuan, Yulin. 2001. Shujieshi peijia de kongzhi–huanyuan fenxi [A control-reduction analysis of the valency of the verb-result construction]. *Zhongguo Yuwen* [Studies of the Chinese Language] 2001(5). 399–410.

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Publication history

Date received: 7 November 2017

Date accepted: 7 April 2018