

A Syntactic Account of the Direct Object Restriction in Chinese*

Niina Ning Zhang
(National Chung Cheng University)

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This paper proposes a syntactic account for the Direct Object Restriction, which states that resultatives must be object-oriented. The restriction is absent in the V-V resultative constructions in Chinese because the head movement from the resultative to the matrix verb extends the control domain, making both the subject and the object of the matrix verb available as an antecedent of the subject of the resultative. By contrast, in the *de* resultative constructions, as well as the resultative constructions in English, there is no head movement from the resultative to the matrix verb, and thus the subject of the resultative is controlled by only the nearest argument of the matrix verb, i.e., the direct object.

Keywords: resultative, depictive, secondary predication, Direct Object Restriction

1. Introduction: The Presence and Absence of the DOR

It has long been claimed that resultatives must be object-oriented, as shown in (1).

- (1) a. John hammered the metal flat.
- b. *John hammered the metal tired. (*on the resultative reading)

The constraint is called Direct Object Restriction (DOR) in Levin and Rappaport-Hovav (1995: 34). The existence of this restriction in English has been emphasized in Mateu (2005). However, as is generally the case in the studies of the DOR, the fact that Chinese resultatives do not fully obey the restriction is treated as an exception to the general pattern. The goal of this paper is to explain when and why the DOR is not attested in Chinese.

In Chinese, there are two ways to integrate a resultative predicate. The inte-

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gration is achieved either by the functional word, *de*, deriving the *de*-construction, or by the V-V construction, where the lexical heads of the two predicates are adjacent. (2a) is a V-V construction and (2b) is a *de*-construction.^{1,2}

- (2) a. Baoyu zhui lei le Daiyu. (V-V)
 Baoyu chase tired PRF Daiyu
 'Baoyu chased Daiyu and as a result Daiyu got tired.'
 'Baoyu chased Daiyu and as a result Baoyu got tired.'
- b. Baoyu zhui de Daiyu qichuanxuxu. (de)
 Baoyu chase DE Daiyu gasping
 'Baoyu chased Daiyu and as a result Daiyu gasped.'

The DOR is present only in the *de*-construction, but not in the V-V construction, as extensively discussed in the literature (Li 1990, 1998, 2005, Huang 1992, among others). The contrast is shown in (2) and (3).

- (3) a. Baoyu kan ni le na bu yingpian. (V-V)
 Baoyu watch fed.up PRF that CL video
 'Baoyu watched that video and as a result he got fed up with it.'
- b. *Baoyu kan de na bu yingpian dou ni le. (de)
 Baoyu watch DE that CL video even fed.up PRF

In the V-V construction in (2a), the subject of the resultative predicate is co-referential with either the subject or the object of the verb of the primary predicate (V_{pri} henceforth), i.e., either Baoyu or Daiyu got tired. In the second reading, the resultative is subject-oriented, a violation of the DOR. However, in the *de*-construction in (2b), the subject of the resultative predicate can only be co-referential with the object of the V_{pri}, i.e., only Daiyu gasped, not Baoyu. In the V-V construction (3a), the subject of the resultative predicate is co-referential with the subject of V_{pri}, i.e., Baoyu got fed up. It cannot be co-referential with the object of V_{pri}, since semantically, *na bu yingpian*, 'that video' cannot be the subject of the predicate *ni* 'get fed up'. Similarly, the subject of the resultative predicate in the V-V construction in (3a) is co-referential with the subject of the V_{pri}, a violation of the DOR. In the *de*-construction in (3b), the subject of the resultative predicate cannot be co-referential with the subject of the V_{pri}: It can only be co-referential with the object of V_{pri}. How-

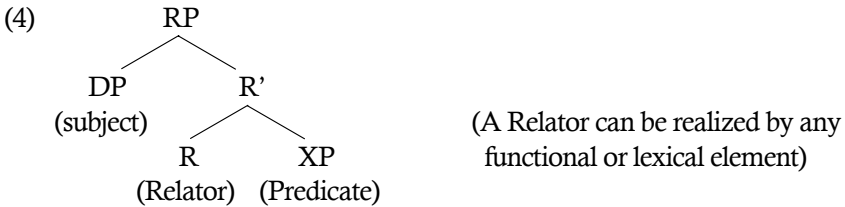
¹ The abbreviations used in the Chinese examples are: EXP: experience aspect, PRF: perfect aspect, PROG: progressive aspect, PRT: sentence-final aspect particle, CL: classifier.

² The subject of the primary predicate of (2a) can also be a theme causer. In that case, the reading of the sentence is 'Chasing Baoyu, Daiyu got tired.' See Zhang (2001) for a discussion.

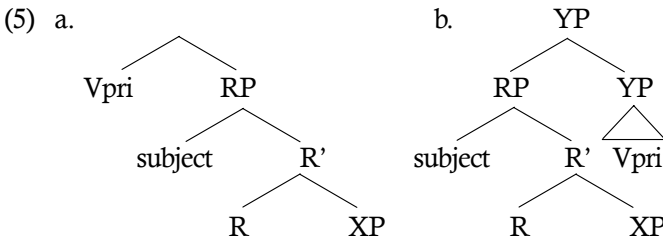
ever, since semantically, a video cannot get fed up with anything, a semantic clash occurs, and thus the secondary predication fails. The unacceptability of this sentence is parallel to that of (1b).

Since the two resultative constructions, the *de*-construction and the V-V construction are syntactically different, the presence of the DOR in the former and the absence of the DOR in the latter call for a syntactic account. In this paper, I argue that the DOR is a locality effect in the syntax, rather than a semantic constraint on resultatives (contra Rothstein 2001 and many others).

My argumentation will start with a defense of Bowers' (1993) and den Dikken's (2006) claim that the syntactic relation between a subject and a predicate is that between a Spec and Complement of the same syntactic head. In den Dikken (2006), this syntactic head is called Relator, and the projected phrase is called RP. However, Relator is not any independent syntactic category. It can be realized by any functional or lexical element.



I will then argue for two distinctive ways of integrating a RP that encodes a secondary predication into the structure of the primary predication, as shown in (5a) and (5b). The RP that encodes a secondary predication is the complement of the Vpri in (5a), whereas it is an adjunct of the primary predicate in (5b).



After making this complement-adjunct distinction for the secondary predication RPs, I will show that the DOR is absent in the V-V constructions because the constructions have a complement structure as in (5a), and the head movement from X to Vpri extends the control domain, making both the subject and the object of the Vpri to be the possible antecedents of the subject of the resultative. By contrast, when *de* occurs, the head movement is blocked and thus the subject of the resultative is controlled by only the nearest argument of the Vpri,

i.e., the object. This gives the effect of the DOR. Moreover, there is no head movement from the resultative to the matrix verb in English, therefore, the DOR is observed. Furthermore, I will also clarify that cross-linguistically, there is no DOR effect in the adjunct structure in (5b).

The paper is organized as follows. In section 2, I present a series of shared properties of the two types of resultatives constructions in Chinese: the *de*-constructions and the V-V constructions. These shared properties support a unified syntactic analysis of the two constructions. In section 3, I provide evidence to support the structure in (4). In this structure, a predication relation is represented as the relation between a Spec element and a complement element of the same syntactic head, and the subjects of secondary predicates have an independent syntactic position. In section 4, I present Chinese evidence to show that a RP can be either a complement of the verb of the primary predicate, or an adjunct of the primary predicate, as seen in (5). In section 5, I argue for a syntactic account for the DOR on secondary predication. The paper is concluded in section 6.

2. Shared Properties of the *de*-constructions and V-V Constructions

In this section I provide six shared properties of the V-V and *de*-constructions to support the idea that both constructions are derived in the syntax. These correspondences have not been reported in the literature.

First, if a V_{pr} is intransitive, and there is no other overt nominal to serve as a subject of the resultative, the null subject of the resultative in both the *de* and the V-V constructions must be co-referential with the subject of the V_{pr}. In the following b-sentences, the null subject of the resultative must be co-referential with *Akiu* rather than any other person.

- (6) a. Akiu shui de zhentou dou diao di-shang le.
 Akiu sleep DE pillow even fall land-on PRF
 'Akiu slept and as a result even the pillow fell on the ground.'
- b. Akiu shui de wu-le huoche. (de)
 Akiu sleep DE miss-PRF train
 'Akiu slept and as a result he missed the train.'
- (7) a. Akiu ku xing le Taotao.
 Akiu cry awake PRF Taotao
 'Akiu cried and as a result Taotao woke up.'
- b. Akiu ku xing le. (V-V)
 Akiu cry awake PRF
 'Akiu cried (in his dream) and as a result he woke up.'

Second, if the object of a Vpri is absent, the verb is detransitivized, and the null subject of the secondary predicate must be co-referential with the subject of Vpri. In (8), the null subject of *lei* ‘tired’ is co-referential with *Taotao*, rather than anyone else in the discourse (e.g., the chaser of the event).

- (8) a. Taotao_i zhui de hen lei. (de)
 Taotao chase DE very tired
 ‘Taotao_i chased X_j and as a result {he_i/*X_j} got tired.’
 b. Taotao_i zhui lei le. (V-V)
 Taotao chase tired PRF
 ‘Taotao_i chased X_j and as a result {he_i/*X_j} got tired.’

The above two points follow the general constraint on resultatives that their subject must have an overt antecedent (Carrier and Randall 1992: 215, Rothstein 2000).

Third, in neither construction does the subject of the resultative predicate need to be the patient of the Vpri, which can be transitive in other contexts.

- (9) a. Akiu ti de qiuxie dou po le. (de)
 Akiu kick DE sneaker even broken PRF
 ‘Akiu kicked so much that even the sneakers were broken.’
 b. Akiu ti po le qiuxie. (V-V)
 Akiu kick broken PRF sneaker
 ‘Akiu kicked so much that the sneakers were broken.’
 (10) a. Akiu chi de ta fuqin dou mei qian le. (de)
 Akiu eat DE he father even not.have money PRF
 ‘Akiu ate and as a result his father even had no money.’
 b. Akiu chi qiong le ta fuqin. (V-V)
 Akiu eat poor PRF he father
 Akiu ate and as a result his father became poor.’

As noted by Cheng (1997), *qiuxie* ‘sneaker’ in (9) is not the patient of the verb *ti* ‘kick’. What Akiu kicked is a football, not his sneakers. Similarly, in (10), *ta fuqin* ‘his father’ is not the patient of the verb *chi* ‘eat’. In both cases, the Vpris function like intransitive verbs. Similar data in English, as shown in (11), are treated as constructions where Vpri is intransitive in Bowers (1993: 621).

- (11) John drank himself/ his friends under the table.

Fourth, in both the V-V and the *de*-construction, the subject of a Vpri can be a causer rather than an agent. In (12) below, the subject is both a causer and a

patient; whereas in (13), the subject is simply a causer.

- (12) a. zhe dun fan chi de Akiu hen bao. (de)
 This CL meal eat DE Akiu very full
 ‘Akiu ate the meal and as a result he got very full.’
 Lit: ‘This meal ate Akiu very full.’
- b. zhe shou ge chang hong le Akiu. (V-V)
 This CL song sing red PRF Akiu
 ‘Akiu sang this song and as a result he became famous.’
 Lit: ‘This song sang Akiu red.’
- (13) a. zhe ju hua xiao de Akiu liuchu-le yanlei. (de)
 this CL sentence laugh DE Akiu come.to-PRF tear
 ‘This sentence got Akiu to laugh so much that he came to tears.’
 Lit: ‘This sentence laughed Akiu to tears.’
- b. ta xiao si wo le. (V-V)
 he laugh die I PRF
 ‘He made me laugh to the extent that I felt dead.’
 Lit: ‘He laughed me dead.’

In the current literature, a causer is base-generated at Spec of VP. It does not need to be an agent. In addition, verbs like *chi* ‘eat’ or *chang* ‘sing’ do not assign an agent theta role. An agent, if it occurs, gets its theta role from *v* (Kratzer 1994). Huang (1994, 1997: 56) indeed assumes that the causer subject of the *de*-constructions like (13a) is merged at a higher verbal projection, although he does not apply his analysis to the V-V construction. A unified approach to the two constructions proposed here correctly predicts that the two constructions can have the same type of *v*P projection in the structure of their primary predication.

Fifth, if the subject of a *V_{pri}* is a non-causer theme, no agentive adverbial such as *guyi* ‘deliberately’ is allowed. Compare (14), where the subject of the *V_{pri}* is a non-causer theme, with (15), where the subject of the *V_{pri}* is an agent. The former cannot have *guyi*, whereas the latter can.

- (14) a. Niurou (*guyi) dun de hen lan. (de)
 beef deliberately stew DE very pappy
 ‘The beef stewed pappy (*deliberately).’
- b. Niurou (*guyi) dun lan le. (V-V)
 beef deliberately stew pappy PRF
 ‘The beef stewed pappy (*deliberately).’

- (15) a. Akiu guyi da de erzi haotaodaku. (de)
 Akiu deliberately beat DE son cry.loudly
 ‘Deliberately, Akiu beat the son so that the son cried loudly.’
- b. Akiu guyi da po le yi ge beizi. (V-V)
 Akiu deliberately hit broken PRF one CL cup
 ‘Deliberately, Akiu hit a cup so that it was broken.’

According to Den Dikken and Sybesma (1998), the ban of an agentive adverbial and the absence of the causative meaning in sentences like (14) indicate that vP, which hosts either an agent or causer, is not projected in the structure of the primary predication. The predication is encoded by the relationship between the surface position of the subject (SpecIP) and the complement of I (VP). Similar data can be found in Yorùbá (Dechaine 1993: 4.3.3.), and Japanese (Nishiyama 1998: 189). As pointed out correctly by Nishiyama (1998: 199) ‘it is *not* that “a transitive verb must have the external argument”, but it is the *other way around*: the external argument must have a transitive verb.’ It is possible that the null subject of the secondary predicate is co-referential with the theme internal argument of the Vpri, which surfaces as the subject of the Vpri. The same constraint on the V-V and the *de*-construction again calls for a unified treatment of the two constructions.

Sixth, the *de*-construction and the V-V construction show the same pattern of A'-movement possibilities. A Li (1999) presents quite a few arguments to show that topicalization in Chinese can be a movement operation. I adopt her conclusion as a background assumption. The following contrast between (16a) and (16b) shows that the internal argument of the Vpri can be topicalized whereas the subject of a resultative which is not co-referential with any argument of the Vpri cannot be topicalized. The contrast between (16c) and (16d) shows that the internal argument of Vpri can be relativized, whereas the subject of a resultative which is not co-referential with any argument of the Vpri cannot be relativized.

- (16) a. na ben shu_i Akiu fan da t_i dou lan le.
 that CL book Akiu page.through DE even broken PRF
 ‘That book, Akiu paged though and as a result it was broken.’
- b. *Taotao_i Akiu ku de t_i hen shangxin.
 Taotao Akiu cry DE very sad
- c. Akiu kan de t_i dou po le de na ben shu_i;
 Akiu page.through DE even broken PRF MOD that CL book
 ‘the book that Akiu paged through and as a result became broken.’
- d. *Akiu ku de t_i hen shangxin de na ge ren_i;
 Akiu cry DE very sad MOD that CL person

The same contrasts are observed in the V-V construction:

- (17) a. Na ge beizi, Akiu da po le t_i.
 that CL cup Akiu hit broken PRF
 ‘That cup, Akiu hit and as a result it was broken.’
- b. *Akiu_i, Taotao ku xing le t_i.
 Akiu Taotao cry awake PRF
- c. Akiu da po le t_i de na ge beizi.
 Akiu hit broken PRF MOD that CL cup
 ‘the cup that Akiu hit and as a result became broken’
- d. *Taotao ku xing le t_i de na ge ren_i.
 Taotao cry awake PRF MOD that CL person

In fact, the subjects of the resultative predicates in (9), (10), (12), and (13) cannot undergo topicalization and relativization, either. They all pattern with the data where Vpri is intransitive. I will discuss this extraction issue in section 4.

The V-V forms in the V-V resultative constructions are treated as compounds in the literature. The shared syntactic properties of the constructions with the *de*-constructions are in concord with the assumption of the Distributive Morphology framework (Marantz 1997) that compounds are derived in the computational component rather than in the lexicon. My unitary syntactic approach is thus different from Y Li’s (1999, 2005) non-unitary approach, which deals with the V-V constructions in the lexicon. It needs to be clarified that, although one may derive the V-V constructions in the lexicon, such a lexical approach does not capture the shared properties of the constructions with the *de*-construction. My approach here concludes that the V-V constructions and the *de*-constructions in Chinese occur as derivational twins. Both are derived in syntax, and their shared properties are expected.

3. A Predication Relation is Represented by a Spec-Comp Relation

In this section I discuss the RP projection in (4).

3.1. The Head of RP is Attested

In both Bowers’ PrP and den Dikken’s RP theories, a predication relation is encoded by the relation between a Spec element and a Complement element of the same syntactic head. We present one more argument for the existence of the head from the perspective of secondary predication in Chinese.

Recall that there are two constructions in which resultatives occur to the right of the Vpri in Chinese: the *de*-construction and the V-V construction. The

two constructions are shown in (18a) and (18b), respectively.

- (18) a. Wusong da **de** laohu liu xue le.
 Wusong beat DE tiger shed blood PRT
 ‘Wusong beat the tiger so that it bled.’
 b. Wusong da-si-le laohu.
 Wusong beat-die-PRF tiger
 ‘Wusong beat the tiger to death.’

The alternation between the *de*-construction and the V-V construction in secondary predication is further shown by the contrast between (19a) and (19b). In (19a), the verb *da* ‘beat’ and the verb *liu* ‘shed’ are not adjacent, and thus the construction is not a V-V construction. In this case, the occurrence of *de* is obligatory. In (19b), the verb *da* and the verb *si* ‘die’ are adjacent, and thus the construction is a V-V construction. In this case, *de* is not allowed.

- (19) a. Wusong da *(de) laohu liu xue le.
 Wusong beat de tiger shed blood PRT
 ‘Wusong beat the tiger so that it bled.’
 b. Wusong da-si-le (*de) laohu.
 Wusong beat-die-PRF DE tiger
 ‘Wusong beat the tiger to death.’

It is obvious that the syntactic operation that introduces *de* and the operation that derives a V-V construction exclude each other. The interaction can be accounted for if we assume that the two operations affect the same syntactic position. The existence of the interaction indicates the existence of the R position in (4). It is possible that *de* is the realization of R in (4).

The functional word *de* occurs not only in resultative constructions, but also in other secondary predication constructions. It occurs in a depictive construction in (20), a manner construction in (21), and an evaluative construction in (22). The secondary predicate follows the Vpri in (18), (21b), and (22b), and precedes Vpri in (20), (21a), and (22a). I will discuss the two orders in section 4.³

³ Pre-Vpri *de* and post-Vpri *de* are graphically different in Mandarin Chinese and phonologically different in some Chinese dialects. However, the different phonological or written forms do not mean that they are syntactically different. The different forms can be viewed as positional variants of the same category, as we often see in phonology. Crucially, the two forms of *de* occur in secondary predication only, and they themselves do not have any semantic features to distinguish each other.

- (20) Wusong ruanruan **de** pu-le yi ge dianzi.
 Wusong soft DE lay-prf one CL mattress
 ‘Wusong laid a mattress soft.’
- (21) a. Akiu hen man **de** pao-le yi xiaoshi.
 Akiu very slow DE run-PRF one hour
 ‘Akiu ran very slowly for an hour.’
 b. Akiu pao **de** hen man.
 Akiu run DE very slow
 ‘Akiu ran very slowly.’
- (22) a. Akiu hen zhengque **de** huida-le na ge wenti.
 Akiu very correct DE answer-PRF that CL question
 ‘Akiu answered that question very correctly.’
 b. na ge wenti, Akiu huida **de** hen zhengque.
 That CL question Akiu answer DE very correct
 ‘That question, Akiu answered very correctly.’

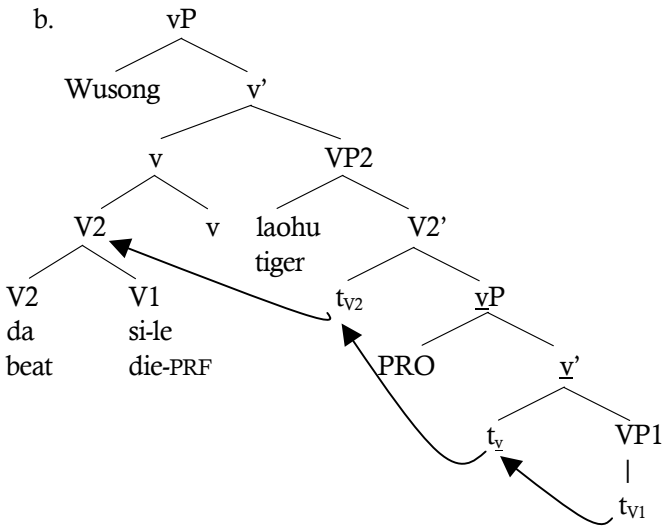
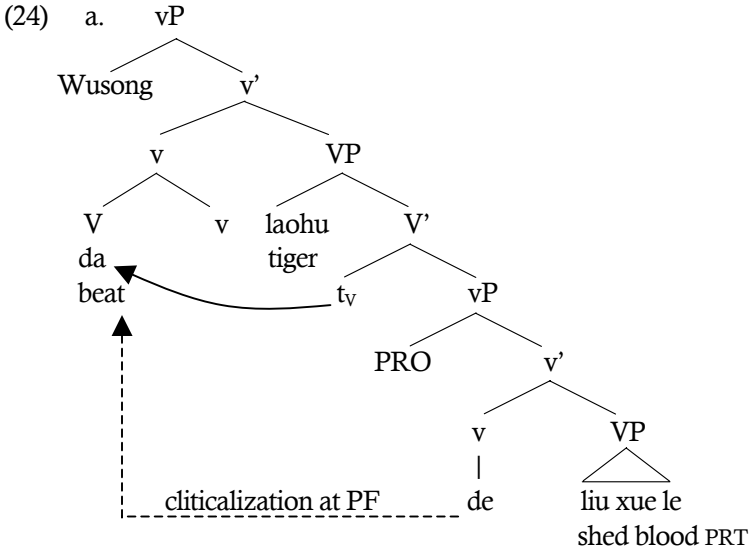
In (19a), the secondary predicate is a verbal phrase, whereas in (20) through (22), the secondary predicate is an AP. The functional word *de* is compatible with various categories. The compatibility can be accounted for if we assume that the categorial features of *de* are valued by its complement, i.e., the secondary predicate. After the valuation, the category of the RP is identical to that of the secondary predicate. For instance, if the secondary predicate is encoded by a VP, the RP that takes the VP as its complement is vP, which is also a [V] element.

Moreover, as an enclitic hosted by a verbal element, *de* always surfaces to the right of the leftmost verbal element at PF, regardless of the syntactic status of the element. The host is the secondary predicate *man* ‘slow’ in (21a), but the primary predicate *pao* ‘run’ in (21b).

As for the V-V resultative constructions, following Zou (1994) and Sybesma (1999), I claim that they are derived by head movement: the head of the secondary predicate XP (i.e., X) adjoins to the Vpri.

Why does the merger of *de* exclude the head movement that derives V-V constructions? Plausibly, the head movement from the secondary predicate to Vpri is blocked on its way by the occurrence of *de* (Head Movement Constraint, Travis 1984). We have just claimed that *de* is a realization of R in (4). Then the verb movement from the secondary predicate to Vpri must affect R. The structure in (5a) should be the structure of the V-V construction, and the relevant *de* construction. The two sentences in (19), repeated here as (23a) and (23b), are then derived in the way illustrated in (24a) and (24b), respectively. We will discuss the PRO in the structures in the next subsection.

- (23) a. Wusong da **de** laohu liu xue le.
 Wusong beat DE tiger shed blood PRT
 ‘Wusong beat the tiger so that it bled.’
 b. Wusong da-si-le laohu.
 Wusong beat-die-PRF tiger
 ‘Wusong beat the tiger to death.’



(Note: This PRO, as the internal argument of the unaccusative verb *si*, ‘die’, has moved from VP1. I put this detail aside here)

The above discussion of the interaction between the two constructions

shows that the head of RP is attested in Chinese.

3.2. The Independent Position of the Subjects of Secondary Predicates

In PrP and RP theories, like the subject of a primary predicate, the subject of the secondary predicate has its independent syntactic position.

An argument for the independent structural position of the external argument of a secondary predicate is that in both resultative and depictive constructions, there are cases where argument-sharing is absent. In the following data, the underlined part, which is the subject of the secondary predicate, does not share with any argument of the primary predication (data like (25a) have been analyzed as ECM constructions in Bowers (1997)).

- (25) a. Johni [t_i ran [the pavement thin]].
 b. Akiui [t_i ku de [shoujuan dou shi le]].
 Akiu cry DE handkerchief also wet PRT
 ‘Akiu cried so that the handkerchief became wet.’
- (26) a. Baoyui [t_i da de Daiyu [shou dou teng le]]. (resultative)⁴
 Baoyu beat DE Daiyu hand also painful PRT
 ‘Baoyu beat Daiyu so that his_{Baoyu} own hand was painful.’
 b. (obj-related depictive)
 Akiui [xue linlin de] [t_i chi-le na tiao yu].
 Akiu blood drip DE eat-PRF that CL fish
 ‘Akiu ate that fish, the blood of which dripped.’
 c. (subj-related depictive)
 Akiui [yanlei wangwang de] [t_i ku-le yi shangwu].
 Akiu tear full DE cry-PRF one morning
 ‘Akiu cried for one morning, (in a way that) his tears were full (in his eyes).’

The Vpri is an intransitive verb in (25), but a transitive verb in (26a). Data like (26a), however, exhibit the constraint that the overt subject of the secondary predicate must have a part-whole relation with an argument of the Vpri. In (26a), the subject of Vpri, *Baoyu*, is an inalienable possessor of *shou* ‘hand’, which is the subject of the secondary predicate *teng* ‘painful’. (27a) is unacceptable because no such relation occurs between the subject of the secondary predicate, *caidao* ‘knife’, and any argument of the Vpri. In (26b), *xue* ‘blood’ is the subject of the depictive *linlin* ‘drip’, and it has a part-whole relation with

⁴ I thank Zo Xiu-Zhi Wu for helping me with the Chinese example (26a). Korean data similar to (26) can be found in Kim and Maling (1997).

the object of the V_{pri}, *na tiao yu* ‘that CL fish’. (27b) is not acceptable, because there is no part-whole relation between the overt subject of the depictive, *tian* ‘sky’, and any argument of the V_{pri}.

- (27) a. *Akiu qie de rou caidao dou dun le.
 Akiu cut DE meat knife even blunt PRF
 Intended: ‘Akiu cut the meat so that Akiu’s knife became blunt as a result.’
- b. *na zhi laohu tian hei de chi le yi kuai rou.
 that CL tiger sky dark DE eat prf one CL meat
 Intended: ‘That tiger ate a piece of meat when the sky was dark.’

The independent overt subjects of the secondary predicates require an independent structural position. The subject of a secondary predicate is a PRO if argument sharing occurs (Hornstein and Lightfoot 1987, Bowers 1993, 2001), assuming that each nominal has only one θ -role, and each predicate may assign only one θ -role.⁵ Manners are predicates of events (e), so are certain event-oriented evaluatives.

I conclude that the subjects of secondary predicates have independent syntactic position, supporting the PrP and RP theories.

In this section, I have defended two common parts of Bower’s and den Dikken’s theory of predication: the relation of subjects and predicates is that between the specifier and the complement of the same syntactic head, and the subjects of secondary predicates have independent syntactic position. However, den Dikken’s RP hypothesis is different from Bowers’ (1993, 2001) PrP theory in the following way. RP is not an independent syntactic category, whereas PrP is. The argument for treating Pr as an independent syntactic category is that predicates in different categories can be coordinated, as shown in (28).

- (28) I consider Fred crazy and a fool.

The PrP theory claims that if conjuncts must be identical in their category, the two conjuncts in (28) should both be PrPs. However, conjuncts do not have to be of the same category in English (Sag et al. (1985: 165), see Zhang (2006) for a discussion of the issue). The two conjuncts in (29) are not predicates, and they cannot be covered by Pr.

⁵ Hornstein (1999) claims that control is movement and a nominal can have more than one theta role. This is different from the Theta-Criterion. Kayne (2002) also claims that control is derived by movement. However, Kayne’s analysis does not require the change of the Theta-Criterion. I am open to any analysis of control, so long as both the subject of a secondary predicate and that of a primary predicate can get their theta features licensed.

(29) You can depend on my assistance and that he will be on time.

If conjuncts do not have to be of the same category, the empirical argument for the category Pr disappears. Theoretically, PrP is redundant, since its relation to vP is unclear in primary predication. I thus adopt RP theory instead of PrP theory.

4. Two Ways of Integration: RP as an Adjunct or Complement

In this section I discuss the contrast between the complementation structure in (5a) and the adjunction structure in (5b).

Cross-linguistically and language internally, secondary predicates are hosted by either complements of Vpri or adjuncts of the primary predicate. It is generally assumed that subject-oriented depictives are hosted by adjuncts, whereas resultatives are hosted in the complement of verbs in English (Bowers 1993, 2001, Hornstein and Lightfoot 1987, Larson 1991, among others).

In Chinese, postverbal secondary predicates are (hosted by) complements of verbs (Huang (1988), Y Li (1998), also see Ernst (1996)), whereas preverbal ones are hosted by an adjunct, regardless of the semantic type of the relevant secondary predicate (resultative, depictive, manner, or evaluative). I present two main arguments for this contrast.

4.1. Extraction

One argument for the contrast between a preverbal and postverbal RP in terms of the contrast between adjuncts and complements is seen in extraction (also A Li 1998: 249). Extraction from a secondary predicate which follows the Vpri is possible, as shown in the topicalization and relativization data in (30) (we have seen similar data in (16a) and (17a)), whereas extraction from a secondary predicate which precedes the Vpri is not possible, as shown in the topicalization and relativization data in (31) and (32).

- (30) a. Daiyu chaoxiao de Baoyu zhongyu fangqi-le na ge niantou.
 Daiyu mock DE Baoyu finally give.up-PRF that CL idea
 ‘Daiyu mocked Baoyu so that finally Baoyu gave up that idea.’
- b. na ge niantou, Daiyu chaoxiao de Baoyu zhongyu fangqi-le.
 (topicalization)
 ‘That idea, Daiyu mocked Baoyu so that finally Baoyu gave up.’
- c. na ge [_{RC} Daiyu chaoxiao de Baoyu zhongyu fangqi-le de] niantou (relativization)
 ‘the idea that Daiyu mocked Baoyu so that finally Baoyu gave up’

(31) Obj-oriented depictive

- a. Akiu_i [xue linlin de] [t_i chi-le na tiao yu].
 Akiu blood drip DE eat-PRF that CL fish
 ‘Akiu ate that fish, the blood of which dripped.’
- b. *xue, Akiu linlin de chi-le na tiao yu. (topicalization)
 *[_{RC} Akiu linlin de chi-le na tiao yu de] xue (relativization)

(32) Subj-oriented depictive

- a. Akiu_i [yanlei wangwang de] [t_i ku-le yi shangwu].
 Akiu tear full DE cry-PRF one morning
 ‘Akiu cried for one morning, (in a way that) his tears were full.’
- b. *yanlei, Akiu wangwang de ku-le yi shangwu.
 (topicalization)
- c. *[_{RC} Akiu wangwang de ku-le yi shangwu de] yanlei
 (relativization)

4.2. The Hierarchical Structure

Another argument for the contrast between preverbal and postverbal secondary predicates is that different types of preverbal secondary predicates are structurally ordered in the hierarchy which is also seen in adverbials. This can be seen in two aspects.

First, multiple secondary predicates are ordered when they occur on the same side of the Vpri. When multiple depictives co-occur, we see mirror images of the orders in English and Chinese: In English, the order is Vpri > object-oriented depictive > subject-oriented depictive (Carrier and Randall 1992), while in Chinese the order is just opposite: subject-oriented depictive > object-oriented depictive > Vpri. However, in both languages, object-oriented depictives are closer to the Vpri than subject-oriented ones, as shown in the following:

- (33) a. V depictive_{obj} depictive_{subj} (English)
- b. depictive_{subj} depictive_{obj} V (Chinese)

- (34) a. John_i sketched the model_j nude_j [drunk as a skunk]_i.
- b. *John_i sketched the model_j nude_i [drunk as a skunk]_j.

- (35) a. Akiu_i gaogaoxingxing_i de rere_j de he le [na wan cha]_j.
 Akiu happy DE hot DE drink PRF that bowl tea
 ‘Akiu drank that bowl of tea hot happy.’
- b. *Akiu_i rere_j de gaogaoxingxing_i de he le [na wan cha]_j.
 Akiu hot DE happy DE drink PRF that bowl tea

In (34), the depictive *nude* is closer to the Vpri *sketched* than the depictive *drunk as a skunk*. In the acceptable (34a), the subject of *nude* is co-referential with *the model*, which is the object of the Vpri, and the subject of *drunk as a skunk* is co-referential with *John*, which is the subject of the Vpri. (34b), with the opposite co-indexing, is unacceptable. Thus the object-oriented depictive is closer to the Vpri than the subject-oriented one. In (35), there are also two depictive predicates, *rere* ‘hot’ and *gaogaoxingxing* ‘happy’. In both sentences the subject of *rere* is co-referential with *na wan cha* ‘that bowl of tea’, which is the object of the Vpri *he* ‘drink’, and the subject of *gaogaoxingxing* is co-referential with *Akiu*, which is the subject of *he*. *Rere* is closer to *he* ‘drink’ than *gaogaoxingxing* in the acceptable (35a), whereas it is the other way around in the unacceptable (35b). Like (34), (35) also shows that the object-oriented depictive is closer to the Vpri than the subject-oriented one.

The pattern of the orders is similar to that of adverbials. In the following data ((37) is from Hornstein (2001: 116)) the adjunct which has a dependency relation with the object of the matrix verb must be ordered closer to the matrix verb than the adjunct which has a dependency relation with the subject of the matrix verb.

- (36) a. John_i arrested Bill_j [for PRO_j driving his car too fast]
 [after PRO_i leaving the party]
 b. ??John_i arrested Bill_j [after PRO_i leaving the party]
 [for PRO_j driving his car too fast]
- (37) a. John_i bought Moby Dick_j [for Mary to review e_j]
 [PRO_i to annoy Sam]
 b. *John_i bought Moby Dick_j [PRO_i to annoy Sam]
 [for Mary to review e_j]

There is no doubt that the non-finite clauses above are adverbials. Hornstein (2001: 97) claims that the adjunct which has a dependency relation with the object of the matrix verb is adjoined lower than the adjunct which has a dependency relation with the subject of the matrix verb. This difference in height indicates that the former has a closer structural relation to the matrix verb than the latter. In the linear order, the former is also closer to the matrix verb than the latter. The order restriction in (34) and (35) indicates that like the adverbials in (36)-(37), object-oriented and subject-oriented secondary predicates are ordered in a certain structural hierarchy.

Second, the interactions with adverbs show the structural order of different types of depictives. For instance, subject-oriented pre-Vpri secondary predicates can occur to the left of the adverb *like* ‘immediately,’ while object-oriented ones cannot, as shown in (38):

- (38) a. Akiu (like) gaoxing de (like) chang le
 Akiu immediately glad DE immediately sing PRF
 yi shou ge.
 one CL song
 ‘Akiu sang a song glad (immediately).’
- b. Akiu (like) rere de (*like) he le yi bei cha.
 Akiu immediately hot DE immediately drink PRF one cup tea
 ‘Akiu drank a cup of tea hot (immediately).’

This restriction shows that the RP that hosts the object-oriented depictive is ordered lower than both the adverb and the RP that hosts the subject-oriented depictive on the adverbial hierarchy, and thus has a closer structural relation with the Vpri.

The similarity of the order-patterns of depictives to the order-patterns of adverbials, and the interactions with other adverbs suggest that the RP that hosts pre-Vpri secondary predicates has properties of adverbials. This order fact supports my claim that a pre-Vpri RP that hosts a secondary predicate in Chinese has an adjunct status in its integration into the structure of primary predication.

A remaining issue is what syntactic operation enables co-reference between the null subject of a pre-Vpri secondary predicate and an argument of the Vpri. In other words, what are the syntactic representations of the contrast between the so-called subject-oriented and object-oriented adjunct-type secondary predication? In Hornstein and Lightfoot (1987: 27), the phrase hosting a subject-oriented depictive is a VP-adjunct, whereas the phrase hosting an object-oriented depictive is a V'-adjunct. Following Hornstein and Lightfoot's (1987) analysis of depictives, I assume that the pre-Vpri secondary predication constructions in Chinese have a control-into-adjunct structure. In other words, the null subject of a pre-Vpri secondary predicate is a PRO, controlled by an argument of the relevant Vpri.

5. A Derivational Account for the DOR

In section 1, we presented the fact that the DOR is present only in the *de*-constructions, but not in the V-V constructions.

- (39) a. Baoyu zhui lei le Daiyu.
 Baoyu chase tired PRF Daiyu
 ‘Baoyu chased Daiyu and as a result Daiyu got tired.’
 ‘Baoyu chased Daiyu and as a result Baoyu got tired.’

- b. Baoyu zhui de Daiyu qichuanxuxu.
 Baoyu chase DE Daiyu gasping
 ‘Baoyu chased Daiyu and as a result Daiyu gasped.’

Two more facts are important for us to understand the nature of the restriction. First, the DOR is supposed to cover all resultative constructions, however, resultatives which occur to the left of the Vpri, i.e., in an adjunct RP, do not have the DOR. In (40), *baobao* ‘full’ is a subject-oriented resultative.

- (40) Akiu baobao de chi-le yi dun nian-ye-fan.
 Akiu full DE eat-PRF one CL year-night-meal
 ‘Akiu ate a New-Year-eve-meal so that he became full.’

Second, the DOR is supposed to cover resultatives only, excluding depictives, however, depictives also have the DOR, if they occur to the right of the Vpri, i.e., in a complement RP, the same position where the resultative occurs and the DOR appears.

- (41) a. Lao Wang hen xingfen de mai-le na jian chenshan.
 Lao Wang very excited DE buy-PRF that CL shirt
 ‘Lao Wang bought that shirt very excited.’
 b. Na jian chenshan, Lao Wang mai de {*hen xingfen/tai da le}.
 that CL shirt Lao Wang buy DE very excited/too big PRT
 ‘That shirt, Lao Wang bought, and it is too big.’

In (41a), the subject-oriented depictive *hen xingfen* ‘very excited’ occurs in the adjunct position (i.e., pre-Vpri). The same depictive cannot occur in the complement position (i.e., post-Vpri), as shown in (41b). The object-oriented depictive *tai da le* ‘too big’, however, can occur in the complement position. The contrast between *hen xingfen* and *tai da le* in (41b) is the effect of the DOR, although the secondary predicates are depictives rather than resultatives.

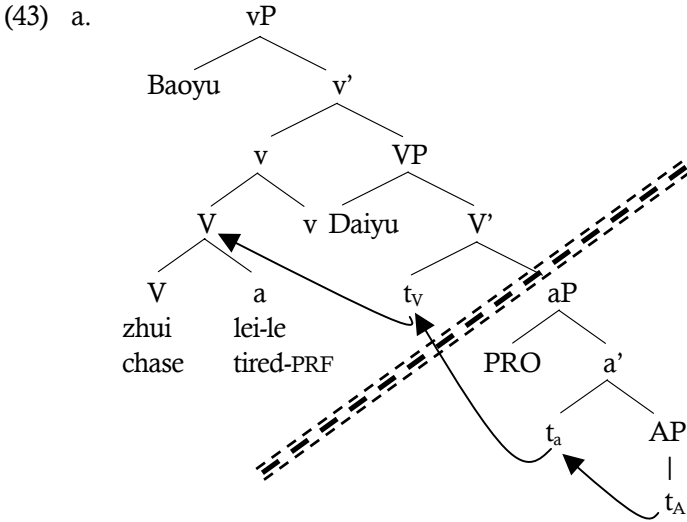
What I have shown so far is that the effect of the DOR is seen only when the secondary predicate occurs to the right of the Vpri and with *de*. The effect is not seen in either the V-V resultative constructions, or the *de*-constructions in which the secondary predicate occurs to the left of the Vpri. The latter constructions are similar to depictive constructions in English in the sense that the RP is an adjunct.

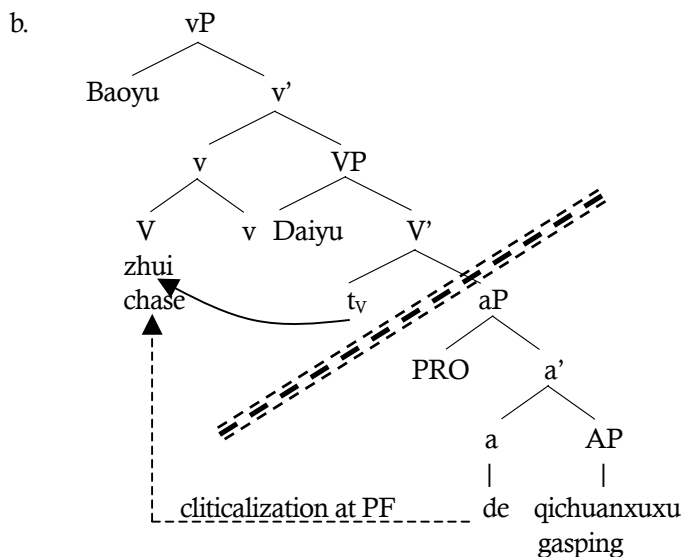
Based on these observations, I make the following generalization: only in the complement-type, and only when no head movement occurs, regardless of whether the secondary predicate is resultative or depictive, the DOR occurs.

Since a V-V construction is derived by head movement, the absence of the DOR in the construction is expected from the view point of the interactions

between the Vpri and the secondary predicate. I claim that the head movement in the V-V construction has the effect of domain extending, in the sense of Chomsky’s (1993, 1995) equi-distance theory. According to this theory, head movement makes the Spec element of the hosting head element in the landing site becomes local to the Spec or Complement of the moving head in its launching site. The structure of the V-V construction in (42a) and the *de*-construction in (42b) are represented by (43a) and (43b), respectively. I use the $\equiv\equiv\equiv\equiv$ line to separate the RP, which denotes the secondary predication and is realized as an aP in this case, from the rest of the structure.

- (42) a. Baoyu zhui lei le Daiyu.
 Baoyu chase tired PRF Daiyu
 ‘Baoyu chased Daiyu and as a result Daiyu got tired.’
 ‘Baoyu chased Daiyu and as a result Baoyu got tired.’
- b. Baoyu zhui de Daiyu qichuanxuxu.
 Baoyu chase DE Daiyu gasping
 ‘Baoyu chased Daiyu and as a result Daiyu gasped.’





In (43a), the head movement launches from AP and lands at the matrix v , via a . If the head movement does not reach the matrix v , PRO must be controlled by the nearest DP, *Daiyu*. However, since the movement reaches the matrix v , *Baoyu*, which is the Spec of the matrix v , becomes an available controller of PRO. We thus get either object-oriented or subject-oriented resultative. The DOR has no effect. In contrast, in (43b), there is no such head movement. PRO has to be controlled by the nearest DP, *Daiyu*, which is the object of the matrix predicate. The DOR is seen.

Summarizing, in the absence of head movement, as in the Chinese *de*-construction and the resultative constructions in English, the PRO subject of the resultatives is controlled by the nearest overt c-commanding argument of the primary predicate, i.e., the direct object, rather than the subject. The Chinese V-V constructions, however, are derived by head movement, and thus the control domain is extended. Consequently, either the overt direct object or the subject of the primary predicate can control the PRO subject of the secondary predicate.

As for secondary predicates which are hosted by adjuncts, their control patterns are the same as that of adverbials (Hornstein and Lightfoot 1987, Hornstein 2001), i.e., the PRO can be either subject-controlled or object-controlled, depending on the merger position of the RP. Therefore, such predicates can be either subject-oriented or object-oriented.

6. Summary

In this paper, I first of all presented a series of shared properties of the *de* resultative constructions and the V-V resultative constructions in Chinese. These shared properties support a unified syntactic analysis of the two constructions. I then provided evidence to support the claim made by the PrP and RP theories that a predication relation must be encoded by the relation between a Spec element and a complement element of the same syntactic head, and that the subjects of secondary predicates have independent syntactic positions. Thirdly, I presented Chinese evidence to show that the assumed RP can be either the complement of the verb of the primary predicate, or an adjunct of the primary predicate. Finally, I argued for a syntactic account for the Direct Object Restriction on secondary predication. I showed that the restriction is absent in the V-V resultative constructions because the head movement from the resultative to the matrix verb extends the control domain, making both the subject and the object of the matrix verb possible antecedents of the subject of the resultative. By contrast, in the *de* resultative constructions, the head movement is blocked by *de*, and thus the subject of the resultative is controlled by only the nearest argument of the matrix verb, i.e., the object, obeying the Direct Object Restriction.

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Niina Ning Zhang
Graduate Institute of Linguistics
National Chung Cheng University
Min-Hsiung, Chia-Yi 621
Taiwan
E-mail: lngnz@ccu.edu.tw

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