

The Direct Object Restriction on Resultatives in Chinese and English

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(English Linguistics/Chinese Linguistics)

0. Introduction

This article is concerned about the Direct Object Restriction (DOR) on resultative constructions in Chinese and English. Unlike their English counterparts, it is said that Chinese resultatives do not comply with the DOR, which specifies that resultatives can only be predicated of the direct object of the matrix verb (Levin and Rappaport Hovav 1995:34). Our aim in this article is to show that Chinese also respect the DOR, though rather differently from the way English does, and that prima facie counter-examples to the DOR in Chinese can be attributed to the specific morphological process involved in Chinese resultative constructions.

1. DOR effects in English and Chinese

Unlike English resultatives, which appear in regular phrasal constructions as illustrated in (1), Chinese counterparts take the form of a compound verb construction as shown in (2):

(1) John hammered the metal *flat*.

(2) wo didi shuai-sui-le yi-zhi huaping
My brother smash-broken-asp a vase
'My brother smashed a vase into pieces.' (Li 1999)

Two verbal stems in (2) form a compound consisting of $[V^1 + V^2]$, with the morpheme on the left (*shuai* 'smash') denoting the causing event and the second one (*sui* 'broken') the resulting event. We will call it a resultative compound verb (RCV).

Notwithstanding the obvious similarities in the basic semantics of these constructions, there is a striking difference between the English resultatives and Chinese RCVs. As is well known, English respects the DOR, which restricts the AP *dirty* in (3) to describing the direct object of the matrix verb and denies it a subject oriented interpretation:

- (3) Mary baked the cake dirty.
 ≠Mary baked the cake and got dirty as a result.

The subject-orientation of the AP is only possible when it is interpreted as a depictive secondary predicate. Another evidence for the DOR comes from (4):

- (4) a. *John shouted hoarse.
 ‘John shouted and got hoarse from it.’
 b. John shouted *himself* hoarse.
 c. The audience shouted the *actor* off the stage.

When the matrix verb is unergative as in (4a), no resultative interpretation is possible with the AP unless a fake object is added inside the matrix VP as in (4b,c).

The DOR effects in English can be explained by the semantic structure of resultative constructions. The NP-[V-NP-XP] structure in English is realized by the causative verbs, which typically take the following lexical conceptual structure (LCS):

- (5) [x ACT y] CAUSE [BECOME [y <STATE>/<PLACE>]]
 (Rappaport Hovav and Levin 1998)

Resultatives, which correspond to the constant <STATE>, and the lower *y* variable, which is linked to the direct object, semantically constitute an inchoative statement in which the latter is the semantic subject and the former is its predicate. This subject-predicate relation is responsible for the DOR. Hence resultatives are prohibited with unergative verbs since their sole argument serves as an actor, not as an argument that undergoes a change of state, i.e., the semantic subject of <STATE>:

- (6) a. Mary struggled tired. ≠ Mary became tired from struggling.
b. The horse galloped limp. ≠ The horse got limp from galloping.¹

The DOR phenomena in English, however, contrast with Chinese, where the restriction is regularly broken. Indeed, resultatives can be predicated of the subject of the unergative RCV construction, as illustrated in (7a,b):

- (7) a. neige lieren han-lei-le
that hunter shout-tired-aspect
'That hunter shouted and became tired.'
b. ta xiao-feng-le
he cry-silly-aspect
'He cried himself silly.' (Li 1999)

The DOR may also be violated in transitive-verb constructions:

- (8) a. ta he-zui-le jiu
he drink-drunken-aspect wine
'He drunk wine and got drunk as a result.'
b. wo de pengyou dou ting-gou-le neishou ger le.
My friend all hear-fed-up-aspect that song aspect
'My friends listened to that song and all got fed up with it.' (Li 1999)

2. DOR Effects in Chinese

In the previous section, we have seen that Chinese does not necessarily respect the DOR. There are, however, cases which indicate that it indeed observes the restriction:

- (9) a. ta kao-zang-le mian bao
he bake-dirty-aspect bread

¹ These APs can only be interpreted as depictives. Thus (6a) is paraphrased as 'Mary struggled while she was tired.'

‘He baked bread dirty.’
(≠He baked bread and got dirty.)

b. wo shua-hong-le qiang
I paint-red-as pthe wall
‘I painted the wall red.’
(≠I painted the wall and got red.)

(10) a. *wo chi-pang-le mifan
I eat-fat-asþ rice
‘I ate rice and got fat.’
b. *ta ca-shi-le zhuo zi
he wipe-wet-asþ the table
‘He wiped the table and got wet.’

In (9a,b), the resultative morphemes *zang* ‘be dirty’ and *hong* ‘be red’ can only be predicated of the direct objects. The resultatives in (10a,b), which are only understood to describe the subject NP, are impossible.

The evidence that the DOR is also respected in Chinese is further given by fake object constructions:

(11) a. ta ku-shi-le shoupa
he cry-wet-le handkerchief
‘He cried the handkerchief wet.’
b. ta kan-hua-le tade yanjing.
he read-blurred-asþ his eyes
‘He read his eyes blurred.’ (Cheng and Huang 1994)

In (11a,b), since the verbs *ku* ‘cry’ and *kan* ‘read’ do not take such object NPs as seen here, it is clear that the resultatives are responsible for licensing these direct objects. In fact, their absence leads to ungrammaticality:

(12) a. *ta ku-le shoupa
 *‘He cried handkerchief.’
b. *ta kan-le tade yanjing

*‘He read his eyes.’

3. Subject-Oriented Resultatives

Let us turn to the contrast between (9)-(10), where subject-orientation is prohibited, and (13), where the resultative morphemes can be predicated of the subject:

- (13) a. ta chi-bao-le fan le
he eat-full-asp rice asp
‘He ate rice and got full.’
- b. ta qi-lei-le ma le
he ride-tired-asp horse asp
‘He rode a horse and got tired.’ (Cheng and Huang 1994)

What is noticeable of these examples is that there is a remarkable difference between the argument structures of the resultative predicates in (9)-(10) and (13). The object-oriented resultatives such as *zang* ‘be dirty’, *hong* ‘be red’, *pang* ‘be fat’, and *shi* ‘be wet’ take a theme argument as the external argument, whereas the external argument of the subject-oriented resultatives *bao* ‘be full’ and *lei* ‘be tired’ bear the experiencer role. To confirm this point, let us compare the following minimal pair:

- (14) a. wo chi-ni-le miantiao
I eat-fed-up-asp noodle
‘I ate noodle and fed up with it.’
- b. *wo chi-pang-le miantiao
I eat-fat-asp noodle
‘I ate noodle and grew fat.’

From these contrasts, we can make a first approximation to the descriptive generalization that governs Chinese resultative: subject-oriented resultatives must be an experiencer predicate. This hypothesis is manifested in the following RCVs, the resultative stems of which uniformly take an animate sentient object:

- (15) a. unergatives

xiao-lei 'laugh-tired', pao-lei 'run-tired', tiao-fan 'jump-annoyed',
ku-lei 'cry-tired', shui-jiao 'fall-asleep'

b. transitives

he-zui 'drink-drunk', chi-bao 'eat-full', ku-xing 'cry-awake', qi-lei 'ride-tired',
ma-fan 'scold-annoyed', han-ya 'shout-hoarse', ku-fan 'cry-annoyed'

(Cheng and Huang 1994)

On the other hand, those resultatives that refer to the object denote a state or a becoming (change of state) and thus take solely a theme argument:

(16) ti-po 'kick-broken', tui-kai 'push-open', la-ping 'pull-even', sha-si 'stab dead',
da-si 'hit-dead', si-po 'tear-broken', sao-ganjing 'sweep-clean'

(Cheng and Huang 1994)

4. Compound Formation

To explain the cases of the DOR violation in Chinese, let us consider the formation of RCVs. We assume that two verbal morphemes that constitute an RCV form a composite predicate (Li 1990, 1999; Cheng and Huang 1994). We further adopt the morphological process of 'argument fusion' by which two verbal stems are combined to come to share an argument. An empirical generalization concerning the composite predicate formation appears to be that it as a whole cannot duplicate theta-roles (Durie 1998). Thus there cannot be two agents or two themes in a single argument structure. Another important constraint is the 'semantic coherence principle', which specifies a semantic condition on the two arguments to be fused (Goldberg 1995:50):

(17) Only roles which are semantically compatible can be fused.

For example, this constraint bans the fusion of an agent and theme arguments for semantic incompatibility. Let us see how the fusion process proceeds:

(18) a. ta ti-po-le men
 he kick-broken-asp the door

‘He kicked open the door.’

- b. *ti* + *po* → *ti-po*
 <Ag, Th¹> + <Th²> → <Ag, Th¹/Th²>

By the argument fusion, *men* ‘the door’ in (18a) denotes an entity that undergoes change of state receiving a kick. Th¹ and Th², being semantically compatible, are fused into one argument that is syntactically realized as the direct object of the derived RCV. As a consequence, the resultative appears to describe the object NP, which produces a DOR effect.

Now the notion ‘semantic coherence’ should be elaborated more specifically. We will assume that two arguments that share an inherent property are ‘semantically coherent’. Thus Agent and Experiencer are coherent in that both denote sentient animate objects, whereas Theme and Agent are not since the former denotes a non-sentient inanimate entity. Consequently, the theme argument of a resultative will not be fused with the agent argument (subject) of the host predicate:

- (19) a. **wo chi-pang-le miantiao*
 I eat-fat-asp noodle
 * <Ag/Th^{fat}, Th^{eat}>
 ‘I ate noodle and grew fat.’
- b. *ta kao-zang-le mianbao*
 he bake-dirty-asp bread
 * <Ag/Th^{dirty}, Th^{bake}>; <Ag, Th^{dirty}/Th^{bake}>
 ‘He baked bread dirty.’

In (19b), *zang* ‘be dirty’ is a good resultative if it is understood to be oriented to the direct object *mianbao* ‘bread’, a physical entity, whereas it may not refer to the subject because the argument fusion of Ag and Th^{dirty} is prohibited by their semantic incoherence.

Thus we can conclude that the semantic condition on argument fusion can explain why only experiencer predicates such as *lei* ‘be tired’, *ni* ‘be fed-up/bored’, and *bao* ‘be full’ count as subject-oriented resultatives.

5. The Fusion of Experiencer and Theme

In the previous section, we have asserted that Agent and Experiencer, being semantically compatible, can fuse. We further assume that Experiencer and Theme are also semantically coherent in that they denote entities that undergo a change of state. Consequently, an experiencer argument can be fused with either an agent or a theme argument, hence the ambiguity of the resultative in (20):

- (20) ta qi-lei-le ma le
he ride-tired-asp horse asp
 'He rode a horse and got tired.'/ 'He rode a horse tired.'

Experiencer can be classified in two ways: it is of the same class not only as Agent by being sentient but as Theme by undergoing a change of state, which can be neatly captured by the feature approach to thematic roles by Rozwadowska (1988). According to her, thematic roles are decomposed into complexes of three distinctive features, i.e., [\pm sentient], [\pm cause] and [\pm change]. Within this system, Agent, Experiencer, and Theme are specified as follows:

- (21) a. Agent [+sentient, +cause, -change]
 b. Experiencer [+sentient, -cause, +change]
 c. Theme [-sentient, -cause, +change]

According to these feature specifications, Experiencer/Agent and Experiencer/Theme form a natural class, but there is no feature-sharing between Agent and Theme. Rozwadowska presents evidence for the feature analysis of theta-roles. For example, single argument nominals in (22) are only possible with a [+change] specifier:

- (22) a. Rome's destruction (*Rome* = Theme)
 b. *the barbarians' destruction (*barbarians* = Agent)
 c. John's love, Mary's hatred, John's amusement
 (the possessive NPs = Experiencer) (Rozwadowska 1988)

Rozwadowska (1986) also argues for a thematic similarity between Agent and Experiencer on the evidence from binding facts concerning anaphors in English and impersonal constructions in Polish. We skip the details of her discussion here, however.

To sum up, within the present approach, the notion of ‘semantic coherence’ relevant to argument fusion can be refined by feature-sharing.

With respect to the orientation of resultatives, there is another question to be addressed. As pointed out by Cheng and Huang (1994), resultatives of experiencer predicates are oriented to the subject only when a direct object NP can be taken to be a non-referential argument. Thus according to them, *lei* in (23) may be oriented to the subject when *ma* is non-referential and thus *qi-ma* describes the activity of horse-back riding. Otherwise it is predicated of the direct object:

- (23) ta qi-lei-le ma
 he rode-tired-asp horse
 ‘He did horse-back riding and got tired.’
 ‘He rode the horse tired.’ (Cheng and Huang 1994)

In (24a), where the direct objects *wu-pi ma* ‘5 horses’ refers to specific objects, *lei* ‘be tired’ is only predicated of the object, and the definiteness of *neiping jiu* ‘that bottle of wine’ in (24b) blocks the subject-orientation of *zui* ‘drunk’:

- (24) a. ta qi-lei-le wu-pi ma
 he ride-tired-asp 5-pl horses
 ‘He rode 5 horses tired.’
 b. *Zhangsan he-zui-le neiping jiu
 Zhangsan drink-drunk-asp that bottle wine
 ‘Zhangsan drunk that bottle of wine and got drunk.’

These observations can be partly accounted for as follows. According to Hoekstra (1992) and Rapoport (1993), resultatives are restricted to stage-level predicates, which describe a specific spacio-temporal entity:

- (25) a. The barking of the dog frightened the baby *awake*.

- b. *The witch frightened the children *intelligent*.
- c. John laughed himself *sick*/ **intelligent*.

The reason that a non-referential object NP cannot be associated with a resultative, namely, a stage-level predicate, can be explained by the general truism that a non-referential thing cannot be interpreted as an appropriate spacio-temporal entity.

The other aspect of resultatives to be discussed concerning this problem is the fact that a referential object has a priority over the subject regarding the target of argument fusion, which accounts for the ill-formedness of (24b) and (26):

- (26) a. ??wo he-zui-le xiaozhangde jiu
 I drink-drunken-asp zhang's beer
 ‘I drunk zhang’s beer and got drunk.’
- b. ??wo chi-bao-le zhetiao yu
 I eat-full-asp his fish
 ‘I ate this fish and got full.’

Hence subject-oriented resultatives (i.e., experiencer predicates) are only possible with unergatives or with transitives whose objects are non-referential or suppressed:

- (27) a. ta xiao-feng-le
 he laugh-silly-asp
 ‘He cried himself silly.’
- b. ta qi-lei-le ma
 he rode-tired-asp horse
 ‘He did horse-back riding and got tired.’
- c. ta song-lei-le
 he give-tired-asp
 ‘He gave (something) and became tired.’ (Cheng and Huang 1994)

In this article we will not pursue this ‘priority’ issue, which we suppose may be resolved by the syntactic configurations between the subject and its predicate.

6. Fake Objects

This section turns to fake object constructions. Specifically we will discuss how two predicates fuse to license a fake object:

- (28) a. ta ku-shi-le shoupa
 he cry-wet-asp handkerchief
 ‘He cried handkerchief wet.’
 b. ta ti-po-le liang-shuang xie
 he kick-broken-asp two-pairs shoes
 ‘He kicked two pairs of shoes broken.’

The object NPs in (28) are not true arguments of the host verbs. Since the theme argument of *shi* ‘be wet’ cannot find any target of fusion in the argument structure of *ku* ‘cry’, the former simply becomes the argument of the whole predicate *ku-shi*.

The argument fusion in (28b) is a little complicated. Here the theme argument of the resultative *po* ‘be broken’ fuses with the covert instrument argument of the transitive verb *ti* ‘kick’. We assume that the surface contact verb *kick* has the following argument structure:

- (29) kick <Ag, Th, (Inst)>
 (cf. kick the wall with one’s toe)

In the lexical meaning of *kick*, what actually undergoes a change is not Theme, an impinged entity, but Instrument, an object that goes through a change of location.² Therefore the theme argument of *po* is more coherent to the implicit instrument argument of *ti* than its theme argument with respect to [+change] feature. Hence the argument fusion in this case proceeds as follows:

- (30) *ti* + *po* → *ti-po*
 <Ag, Th¹, (Inst)> <Th²> →<Ag, Th²/(Inst)>

² The theme argument, on the other hand, may be understood to be a potential undergoer of a change by the kicking action. See (18).

Here Th¹ is suppressed by a new internal argument of *ti-po*, i.e., Th²/(Inst).

Let us further assume that the [+change] argument of resultatives is responsible for establishing the theme argument of an entire RVC by either fusing with an argument of the main verb or taking that job on itself. On the other hand, the [+sentient] argument of the matrix verb is responsible for establishing the external argument of a compound either by directly taking that task or by fusing with an [+sentient] argument of a resultative. Thus in (28), *shi* and *po* determine the internal argument of the whole CVs, whose external arguments directly come from the main verbs *ku* and *ti*.

7. Inchoative RCVs

As already noted, English does not allow subject-oriented resultatives. The necessary association between resultatives and the direct object will result because resultatives in English are understood in the LCS as a goal-like argument that denotes the culmination of a change of state that a theme argument undergoes. On the other hand, Chinese counterparts are not a regular phrasal construction but a CV involving argument-fusion that may apply to either the external or the internal argument as long as the ‘coherence condition’ is met. The fusion of Agent and Experiencer based on the common [+sentient] feature creates an inchoative predicate that take an external argument of [+sentient, +cause, +change] as illustrated in (31):

(31) *ta xiao-feng-le.*

he laugh-silly-asp

$$\langle \text{Ag}^{[+Sentient, +Cause, -Change]} \rangle + \langle \text{Exp}^{[+Sentient, -Cause, +Change]} \rangle$$

$$\rightarrow \langle \text{Ag}^{[+Sentient, +Cause, +Change]} \rangle^3$$

Finally let us take a brief look at *prima facie* subject-oriented RVCs in Japanese, which suggest that they are also derived undergoing the same process that forms Chinese RVCs:

³ Rozwadowska (1988) cites *John rolled down the hill.* as the manifestation of this feature complex.

- (32) a. *boku-wa niku-o/ni tabe-aki-ta.*
I-TOP meat-ACC/DAT eat-tired-PAST
'I ate meat and got fed up with it.'
- b. *boku-wa niku-o/ni tabe-tukare-ta.*
I-TOP meat-ACC/DAT eat-tired-PAST
'I ate meat and got tired as a result.'
- (33) a. **boku-wa niku-o tabe-futot-ta.*
I-TOP meat-ACC eat-fat-PAST
'I ate meat and got fat as a result.'
- b. **boku-wa pan-o tabe-yogore-ta.*
I-TOP bread-ACC eat-dirty-PAST
'I ate bread and got dirty as a result.'

However, the compounds in (32) are different from Chinese RCVs in that resultative predicates are strictly restricted. In Chinese, experiencer predicates are generally allowed subject-orientation (see (15)), whereas in Japanese alleged subject-oriented resultatives are limited to a few predicates such as *tukareru* 'get tired', *akiru* 'get bored', or *nareru* 'get used':

- (34) a. *warai-tukareru* 'laugh-tired', *hasiri-tukareru* 'run-tired', *asobi-akiru* 'play-bored', *hanasi-nareru* 'speak-used' *yomi-tukareru* 'read-tired', *tabe-akiru* 'eat-fed-up', *kaki-nareru* 'write-used'
- b. **nomi-you* 'drink-drunk', **tabe-mitiru* 'eat-full', **donari-siwagareru* 'shout-hoarse', **naki-mezameru* 'cry-awake'

We thus conclude that argument fusion is not involved in Japanese compounds in (34a), and thus, unlike Chinese, Japanese has no RCVs. Instead, these predicates are a kind of synthetic compounds, the second element of which can take VP as a complement. For example, *warai-tukareru* can be interpreted as *warau-no-ni tukareru* 'tired of laughing'. Thus the process involved here is the same one as operative in the derivation of *tabe-wasureru* 'forget to eat'. We leave details of this process to a future study (see Nakamura 1998).

8. Conclusion

To sum up, we have seen that Chinese DOR phenomena are produced by the fusion of the two argument structures, i.e., those of the host verb and the resultative predicate. In most cases, resultatives denote a stage-level eventuality that involves a theme participant. Thus, in the formation of RCVs, the resultative predicate looks for an argument of the same property, i.e., [+change] in this case, on the argument structure of the host verb. In the absence of a [+change] target argument, the argument of the resultative will come to serve as a theme argument of the entire derived RCV. After the argument fusion, the resulting theme argument is realized in the direct object position according to the general linking principles, hence DOR effects will result. When a resultative takes a sentient argument, it may fuse with the agent argument of the host verb under certain conditions. This fusion produces an (agentive) inchoative meaning, and in this case the fused argument is linked to the subject, an apparent violation of the DOR. Thus DOR effects are simply a manifestation of the deep morphological process and general linking principles.

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要 約

This article is concerned about the Direct Object Restriction (DOR) on resultative constructions in Chinese and English. Unlike their English counterparts, it is said that Chinese resultatives do not exhibit the DOR effect. We have demonstrated, however, that Chinese also respect the DOR at the semantic level just like English resultatives, and its prima facie counter-examples can be reduced to the specific morphological process involved in Chinese resultatives, namely the fusion of the argument structures of the host verb and the resultative predicate, which form a composite predicate with a single argument structure. We have argued that the resultative constructions that violate the DOR is actually produced by the fusion of an experimenter argument with the external agent argument of the host verb, though this process is restricted to a certain semantic condition.