Argument Realization of Chinese Result and Phase Complements[*]

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Abstract: This paper discusses result complements and phase complements in Chinese, both of which are postverbal elements. Despite their surface similarity, they are different with respect to argument realization. While the result complements allow complicated argument realization (in terms of semantic host, verbal transitivity, and subcategorization of objects), the phase complements function as lexical aspect markers, or *Aktionsarten*, and do not participate in argument realization. I adopt a constructional approach, particularly Boas's (2003) event-frames and linking rules. Inverted causative resultative constructions in Chinese are also discussed. They are strong evidence for "constructional participants" that interact with event participants in determining syntactic realizations.

1.0 Introduction

Verb-complement compounds, or VC compounds, are productive in Chinese. Based on formal and semantic criteria, a complement denotes the result or phase of the activity expressed by the verb.[1] A minimal pair of sentences is given below, where (1a) contains a result complement *ni* 'bored' and (1b) contains a phase complement *wan* 'finished':

(1) a. Zhangsan   kan-ni   le   zhe ben xiaoshuo.[2]

     Zhangsan   read-bored   asp   this   cl   fiction

     'Zhangsan read this fiction and got bored with it'

     b. Zhangsan   kan-wan   le   zhe ben xiaoshuo.

     Zhangsan   read-finished   asp   this   cl   fiction

     'Zhangsan finished reading this fiction'

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[1] The complements of Chinese VC compounds can be grouped at least as result complements, phase complements, light-verb complements, potential complements, intensifying complements, and directional complements. See discussions in Chao (1968) and Li and Thompson (1981). This paper focuses on result and phase complements.

[2] Throughout this paper the following shorthand terms are used: *asp* for aspect marker; *cl* for classifier; *poss* for possessive marker.

A result complement specifies a result state brought about by an activity denoted by the main verb. This result complement requires that some NP be its "semantic host". For example, in (1a) it is the person *Zhangsan* that got bored, and thus the NP *Zhangsan* is the semantic host of the result *ni* 'bored'.

A phase complement expresses the completion of an activity denoted by the main verb. It does not require a semantic host, as it is predicated of the activity instead of some NP. For example, in (1b), the phase complement *wan* 'finished' is predicated of the reading event.

This paper is organized as follows: Section 2 presents the data; Section 3 reviews previous works on Chinese result complements; Section 4 provides theoretical frameworks; Section 5 shows argument realization of result and phase complements; Section 6 discusses inverted causative resultative constructions; Section 7 concludes this paper.

2.0 Presenting the Data

Both result and phase complements appear after and adjacent to the main verbs in Chinese. Despite their superficial similarity, they have different functions. This section presents Chinese result and phase complement constructions and shows the intricacy with respect to transitivity, subcategorization, and argument realization.

Chinese result and phase complements appear in either intransitive sentences with the pattern of (2a), or transitive ones with the pattern of (2b). The patterns are common to both result and phase complements (despite the notation R for complement):

(2) a. NP1 V-R
     b. NP1 V-R NP2

2.1. Presenting Result Complements

The examples below show a variety of result complement constructions. The transitivity of the main verb and the semantic host of the result are shown in the parentheses. Note that *verbal*

transitivity does not equal *constructional* transitivity: (3a) and (3f) pattern with constructionally intransitive (2a) while the rest pattern with constructionally transitive (2b).

(3) a.   Ta   pao-lei   le.   (Vi, subject host)
          s/he run-tired asp
          'S/he ran her/himself tired'

     b.   Ta   ku-shi   le   shoupa.   (Vi, object host, unsubcategorized object)
          s/he cry-wet   asp   hankie
          'S/he cried and the hankie got wet'

     c.   Ta   chi-bao   le   fan.   (Vt, subject host, subcategorized object)
          s/he eat-full asp   rice
          'S/he ate (rice) and got full'

     d.   Ta   xi-ganjing   le   yifu.   (Vt, object host, subcategorized object)
          s/he wash-clean   asp   clothes
          'S/he washed the clothes clean'

     e.   Ta   ti-po   le   xiezi.   (Vt, object host, unsubcategorized object)
          s/he kick-worn   asp   shoes
          'S/he kicked (something, e.g. a ball) and the shoes wore out'

     f.   Ta   chi-bao   le.   (Vt, subject host)
          s/he eat-full asp
          'S/he ate and got full'

There are examples of result complements where the CAUSER can be optionally present or absent. (4a) (from Cheng and Huang 1994: 203) and (4b) alternate with respect to causativity:

(4) a.   Nei bei jiu   zui-dao   le   Zhangsan.
          that cl   wine   drunk-fall asp Zhangsan
          'That glass of wine got Zhangsan to be drunk and fall'

     b.   Zhangsan zui-dao   le.
          Zhangsan drunk-fall asp
          'Zhangsan got drunk and fell'

One of the tasks of this paper is to explain why the result complement constructions have

such a complicated argument realization.

2.2. Presenting Phase Complements

The difference between a phase complement and a result complement is observed in Chao (1968): "There are a few complements which express the phase of an action in the first verb rather than some result in the action or goal" (p. 446). Phase complements are *Aktionsarten*, or lexical aspect markers that signal the completion of events.

Typical phase complements include *zhao* 'to be on target', *dao* 'to arrive', *jian* 'to meet a person', *wan* 'to finish', *hao* 'to be good', *zhu* 'to hold on' (Chao 1968: 446-50; Li and Thompson 1981: 65). Examples are given in (5). We will return to the issue of argument realization of phase complements later.

(5) a. Ta   pao-wan le   (zhe duan   lu).
        s/he run-finish asp   this cl   road
        'S/he finished running (this road)'

   b. Wo   zhao-dao   (na ben shu)   le.
        I   look:for-arrive that cl   book   asp
        "I found (that book)."

   c. Wo   kan-jian   (ta) le.
        I   look-meet   s/he asp
        'I saw (her/him)'

   d. Ta   xie-wan   (baogao) le.
        s/he write-finish   (report)   asp
        'S/he finished writing (the report)'

2.3. Function of Chinese Result and Phase Complements

Verbs in Chinese do not always entail (though they may imply) success or completion, and thus the implicature can be cancelled. For example:

(6) Ta zuotian wanshang   xie   baogao, keshi   mei xie-wan.

s/he yesterday evening   write   report, but   not write-finish.

'S/he was writing a report yesterday, but didn't finish it'

Unlike the superficially English equivalent *S/he wrote a report yesterday*, (6) does not imply the completion of writing a report, and thus the progressive form is used in English paraphrase. To guarantee the completion, one has to say something like (5d).

Likewise, result complements in Chinese specify resultant states. The difference is that while phase complements signal the completion of the same event denoted by the main verb, result complements express a different resultant state caused by the event denoted by the main verb. Comparing (1a) and (1b) again, we see that (1a) highlights a new event of getting bored resulting from the reading event, while (1b) simply highlights the completion of the reading event.

3.0 Previous Works on Chinese Result Complements

Result complement compounds, or more widely known as resultative verb compounds (RVCs), have long been a hotly-debated topic in Chinese linguistics. This section reviews significant works including Huang (1988), Li (1990, 1995), and Cheng and Huang (1994).

Huang (1988) argues for a transformational approach of RVC constructions. The causative alternations are explained by the addition of an external argument together with verb raising. The across-the-board analysis is fascinating, yet this causative alternation is not always the case. He gives two examples for this alternation (from Huang 1988: 298 with typographical modification) as shown in (7a) and (7b) below.

(7) a.   Ta xiao-si   le.

s/he laugh-die asp

'S/he laughed to death'

b.   Ni xiao-si   ta   le.

you laugh-die s/he asp

'You caused her/him to laugh to death'

c. Ni rang/shi ta xiao-si le.
you let/cause s/he laugh-die asp
'You caused her/him to laugh to death'

Periphrastic causative verbs *rang* 'to let' or *shi* 'to cause' are used in (7c), which is my example and is virtually equivalent to (7b). Following Huang's (1988) analysis, we expect that all sentences in (8) are grammatical.

(8) a. Ta die-dao le.
s/he stumble-fall asp
'S/he stumbled and fell down'

b. *Nei kuai shitou die-dao ta le.
that cl rock stumble-fall s/he asp
Intended: 'That rock caused her/him to stumble and fall down'

c. Nei kuai shitou rang/shi ta die-dao le.
that cl rock let/cause s/he stumble-fall asp
'That rock caused her/him to stumble and fall down'

(8b) is ungrammatical and the only way to save this sentence is to use periphrastic causative verbs (as in (8c)). This undermines the explanatory power of Huang's (1988) syntactic approach. Moreover, the contribution of the argument structures of the main verb and the complement to that of the compound is not mentioned in his paper.

Li's (1990) pivotal work on V-V compounds argues that the argument structure of the compound is determined compositionally from that of each component part. Under the Generative Grammar framework he proposes the following requirements: i) theta-identification; ii) structured theta-grid; iii) head-feature percolation.

Theta-identification is imperative in order to satisfy the Case Theory, since the arguments of both component parts must compete for the limited case-assigned position in syntax. Also, the theta-role prominency of the head must be strictly maintained in the theta-grid of the compound. Li claims that the argument structures of the component parts determine the argument structure

of the compound verb. However, his analysis has the following problems.

First, he fails to explain a non-subcategorized object like *xiezi* 'shoes' in (3e). This object is neither the logical subject nor the logical object of the transitive verb *ti* 'to kick', and there is no way for it to be "identified" with the argument in the result *po* 'worn'.

A similar problem for his analysis occurs in the inverted causative sentence (4a). In (4a), the grammatical subject (a CAUSER) cannot be derived in Li's analysis, since the theta-grid of the RVC is compositionally derived from the theta-grids of component verbs in his analysis.

Moreover, Li's analysis does not consider the interaction of lexical semantics of the main verb and the result complement with the noun phrases that they predicate of. Their compatibility constrains the semantic host and grammaticality of RVC constructions.

Li (1995) modifies his own analysis in Li (1990). The inverted causative alternation is now observed. He first argues against a movement derivation of the inverted causatives. Then he proposes causative roles (Cause and Affectee) in parallel with traditional thematic roles[3] and argues that the inverted causatives can be best explained if thematic roles are assigned randomly before causative roles are assigned according to certain conditions. The causative hierarchy can override the thematic hierarchy. This proposal provides a plausible analysis of the inverted causatives, yet the same problematic issue, the nonsubcategorized object *xiezi* 'shoes' in (3e), remains unexplained.

From the verb-class point of view, Cheng and Huang (1994) (henceforth C&H) argue that "the argument structure of a compound is essentially a composition of the event structure rather than the transitivity properties, of its component parts" (p. 187). They claim that there are two paradigms: the active paradigm performs the unergative/transitive alternation, while the inactive paradigm performs the ergative/causative alternation. They argue that the unergative/transitive alternation involves the event type "activity", while the ergative/causative alternation involves the event type "(change of) state" (p. 188-89).

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3 This "tiered" model is similar to the distinction of "thematic tier" and "action tier" in Jackendoff (1990, Ch. 7).

(9) a.   Zhangsan   qi-lei   le.   (unergative)

         Zhangsan   ride-tired asp

         'Zhangsan rode himself tired'

     b.   Zhangsan   qi-lei   le   liang   pi   ma.   (transitive)

         Zhangsan   ride-tired asp   two   cl   horse

         'Zhangsan rode two horses tired'

     c.   Zhangsan   qi-si   le.   (ergative)

         Zhangsan   anger-dead   asp

         'Zhangsan got extremely angry' (Lit. 'Zhangsan was angered to death')

     d.   Zhe jian shi   zhen   qi-si   Zhangsan le.   (causative)

         this cl   matter   really   anger-dead   Zhangsan asp

         'This matter really angered Zhangsan' (Lit. 'This matter really angered Zhangsan

          to death')

They further argue that V1 is the head of an RVC and propose the dichotomy of "Active RVCs" and "Non-Active RVCs" according to the nature of V1 (p. 198-99). Since V2 is always unaccusative ("ergative" in their term), they argue, V1 alone determines the behavior of the RVC. Depending on semantics, Active RVCs can be further grouped into unergative RVCs, transitive RVCs, and mixed RVCs.

They also observe that the alternations based on verb classes are not always preserved. Some RVC constructions having unergative verbs as V1 can occur in both unergative/transitive alternation as well as ergative/causative alternation (examples typographically adapted):

(10) a.   Ta   ku-xing   le.   (unergative)

         s/he   cry-awake   asp

         'S/he cried and awoke'

     b.   Ta   ku-xing   le   xiaohai.   (transitive)

         s/he   cry-awake   asp   child

         'S/he cried (and made) the child awake'

     c.   (Meng   li   de)   nei jian shi   ku-xing   le   ta.   (causative)

         dream   in   poss that cl   matter   cry-awake   asp   s/he

         'The episode (in the dream) made her/him cry (her/himself) awake'

They argue that (10b) and (10c) exhibit ergative/causative alternation (with V1 assigning a Causee/Experiencer role instead of an Agent). Thus, the same verb *ku* 'to cry' behaves differently in different circumstances. The alternation in (10) also suggests that the four-way alternation as exemplified in (9) is not appropriate for RVC constructions, though it might be appropriate for simple verb constructions.

The problem in their analysis is related to their claim that V1 is the head and thus responsible for RVC behavior. While they provide much supporting evidence for the V1-as-head view, it is equally important to observe the influence of V2 in determining the behavior of RVCs. As we will see in this paper, both V1 (the main verb) and V2 (the result complement) are crucial in shaping the RVC distribution.

4.0 Theoretical Frameworks

This section presents theoretical frameworks related to the study in this paper. First, a brief introduction to the constructional approach is given. Then theories on the mapping from lexicon to syntax are also reviewed. Finally, we introduce the idea of Boas's (2003) event-frame to represent lexical-semantic information, and we illustrate how linking rules work by some examples.

4.1. A Constructional Approach

The importance of construction as the basic building block in language has long been recognized; among the literature are Fillmore et al. (1988), Jackendoff (1997), and Kay and Fillmore (1999). Goldberg's (1995) book on argument structure constructions defines a construction as "a form-meaning pair $<F_i, S_i>$ such that some aspect of F_i or some aspect of S_i is not strictly predictable from C's component parts or from other previously established constructions" (p. 4).

The following example illustrates how a constructional approach is preferred to the traditional view (*Andrew's Loose Tooth* by Robert Munsch, cited from Goldberg 2003: 220):

(11) He sneezed his tooth right across town.

Since the verb *sneeze* is intransitive, we might need to add a caused-motion sense to *sneeze* to account for (11). This not only proliferates verbal senses but also loses generalization when more and more systematic patterns are found. A constructional approach is more reasonable and economical in claiming that construction itself contributes to meaning and has its own argument structure. The surface form (11) is the result of superimposition of verbal argument structure and constructional argument structure. This approach keeps verbal semantics simple, and explains productivity found across the board.

4.2. Mapping from Lexical Semantics to Syntax

In order to explain the difference in argument realization of the bare XP pattern (12a) and reflexive pattern (12b) in English resultatives, Rappaport Hovav and Levin (2001: 779) propose a Argument-per-Subevent Condition: "There must be at least one argument XP in the syntax per subevent in the event structure."

(12) a.   The pond froze solid.
     b.   He ran himself tired.

They argue that the difference in surface form reflects the difference in event structure: "The bare XP pattern, then, lacks a consistent association of notions of cause and result with verb and XP. In contrast, in the reflexive pattern the verb consistently represents the cause and the XP the result" (Rappaport Hovav and Levin 2001: 781). Hence, the Argument-per-Subevent Condition correctly predicts the distribution of the English bare XP and reflexive resultative patterns since (12a) contains only a simple event, while (12b) contains a complex events composed of two subevents.

This condition, if correct, is at best language-specific, as Chinese does not require (and even exclude) the presence of a distinct reflexive:

(13)   Ta   pao-lei   le   (*ziji).

s/he run-tired asp   self

'S/he ran her/himself tired'

There is no evidence showing that (13) is distinct from (12b) with respect to event structure. Basically, they both specify a running subevent and a becoming-tired subevent. Thus the Argument-per-Subevent Condition makes a wrong prediction for the Chinese resultative (13).

Goldberg (1995) proposes that not only verbal arguments, but also constructional arguments, are crucial in determining the well-formedness of resultatives. A construction may also inherit properties from another construction. Goldberg and Jackendoff (2004) view resultative constructions as a family of constructions and discuss the relations between the two events involved. They distinguish between the "verbal subevents" and the "constructional subevents",[4] arguing that the former are the means of the latter, despite that in some noncausative path resultatives, the verbal subevents denote results. For example (Goldberg and Jackendoff 2004: 549, (41a)):

 (14) Willy watered the plants flat.

This sentence has two subevents. The constructional subevent has three arguments: *Willy* as Agent; *the plants* as Patient; *flat* as Predicate. The verbal subevent has two arguments: *Willy* as Agent; *the plants* as Patient. Both Agent and Patient are shared in the two subevents. The sharing is mandatory in order to fulfill the Full Argument Realization (FAR) in Goldberg and Jackendoff (2004: 547): "All of the arguments obligatorily licensed by the verb and all of the syntactic arguments licensed by the construction must be simultaneously realized in the syntax, sharing syntactic positions if necessary in order to achieve well-formedness."

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[4] Note that the term "subevent" here is used in a difference sense. While Rappaport Hovav and Levin (2001) use the term "subevent" in a temporal sense, Goldberg and Jackendoff (2004) use it to represent a *tier* spanning the complete duration of event. In this sense, subevents can overlap in time.

4.3. Event-Frames and Linking Rules in Boas (2003)

Whether linguistic knowledge and encyclopedic (real world) knowledge are separable is a controversial topic in linguistics. Boas (2003: 168-173) claims that both kinds of knowledge must be part of the lexical semantic information and thus are inseparable. Lexical information is enough for ordinary expressions such as *He ran*, yet resultative expressions such as *He ran his shoes threadbare* requires world knowledge of running: the coordination of limbs, the wearing of shoes, and so on. Collocational restrictions can be accounted for if encyclopedic information is incorporated.

To express both on-stage and off-stage information, Boas (2003: 168) suggests using an event-frame "to denote an abstract event or scene from the beginning to its end." Typical on-stage event participants are Agent (Ag) and Patient (Pt), and the off-stage event participant is notated W which stands for "world knowledge".

Temporal, spatial, and force-dynamic information are also included in an event-frame. Boas uses the labels SOURCE, PATH, and GOAL in a temporal rather than spatial sense to denote the beginning, the middle, and the end state of an event. Since the focus is on resultative constructions, only the GOAL frame is shown.

For example, the event-frames for the intransitive verb *run* and the transitive verb *paint* are shown in (15a) and (15b) respectively (Boas 2003: 190-91), where Ag, W, Pt, p1, p2, and p3 are called "event participants". The properties p1, p2, and p3 belong to Ag, W, and Pt, respectively. Note that since the event-frame is a kind of construction, both the form (type of event participants) and the meaning (properties of the event participants) are specified.

(15) a. event-frame for *run*

GOAL
Ag (p1)
(W p2)

Ag: animate object moving legs quickly

p1: directional PP

b. event-frame for *paint*

GOAL
Ag
(W p2)
Pt (p3)

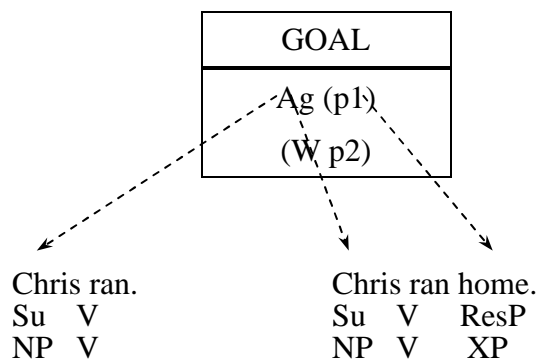Ag: object covering a surface with paint

Pt: surface or object exhibiting a surface

p3: AP or NP denoting a color or a property associated with the prototypical
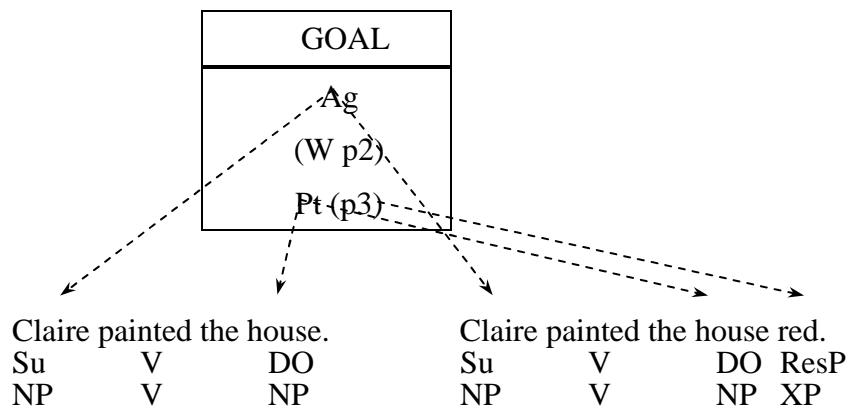
intended end result of applying paint to a surface

Boas (2003: 190) uses linking rules to map from the event-frames to surface realization. Examples below with the schemas are from Boas (2003: 191-92). The line immediately below the sentence marks grammatical relations, and the line in the bottom marks syntactic categories:

(16) a.

GOAL
Ag (p1)
(W p2)

Chris ran.
Su   V
NP   V

Chris ran home.
Su   V   ResP
NP   V   XP

b.

GOAL
Ag
(W p2)
Pt (p3)

Claire painted the house.
Su   V   DO
NP   V   NP

Claire painted the house red.
Su   V   DO ResP
NP   V   NP XP

4.4. Event-Frames and Linking Rules in Chinese Result Complements

Chinese result complement constructions can be analyzed in a way similar to Boas (2003). The event-frames for intransitive and transitive verbs are shown in (17a) and (17b) respectively.

(17) a. event-frame for Chinese intransitive verbs

GOAL
Ag (p1)
(W p2)

b. event-frame for Chinese transitive verbs

GOAL
Ag (p1)
(W p2)
Pt (p3)

Comparing the transitive version in (15) and (17), we see that Chinese allows an optional event participant p1 (the property of Ag) while English does not. This reflects the possibility of a subject-hosted transitive sentence in Chinese as exemplified by (3c).

As Chinese exhibits complicated semantics-to-syntax mapping in resultatives, we stipulate that (i) obligatory event participants in the event-frames must be linked to surface elements, and (ii) every surface element must get linked *at least once* from verbal and/or constructional event participants. We leave the illustration of linking to the next section.

5.0 Argument Realization of Chinese Result and Phase Complements

This section shows how arguments are realized for Chinese result and phase complements. Omissible grammatical objects of transitive verbs will also be discussed.

5.1. Result Complements

This section shows how Boas's (2003) analysis can be adapted to Chinese. Below we express the linking in a somewhat different way from that in Boas (2003). The event-frame is

represented linearly, and the NP that is the semantic host is marked by a square. Consider (3a-d) again, repeated here as (18a-d) for convenience.

(18) a.   Ta   pao-lei   le.   (Vi, subject host)
          s/he run-tired asp
          'S/he ran her/himself tired'

      b.   Ta   ku-shi   le   shoupa.   (Vi, object host, unsubcategorized object)
          s/he cry-wet   asp hankie
          'S/he cried and the hankie got wet'

      c.   Ta   chi-bao   le   fan.   (Vt, subject host, subcategorized object)
          s/he eat-full   asp rice
          'S/he ate (rice) and got full'

      d.   Ta   xi-ganjing   le   yifu.   (Vt, object host, subcategorized object)
          s/he wash-clean   asp clothes
          'S/he washed the clothes clean'

(18a) and (18b) contain intransitive verbs *pao* 'to run' and *ku* 'to cry' respectively, but they have a different syntax and thus a different realization pattern. (19a) shows that two participants, Ag and p1 are realized; (19b) shows that three participants, Ag, W, and p2 are realized. Both satisfy the linking requirement.

(18c) and (18d) contain transitive verbs *chi* 'to eat' and *xi* 'to wash' respectively but differ in semantic hosts. As shown in (19c) and (19d), the semantic host of (18c) is the subject NP, while that of (18d) is the object NP. They fulfill the linking requirement since both Ag and Pt are realized in syntax.

(19) a.

	Ta *pao lei* *le*.		
Syntactic form	NP V R		
Event participant	Ag	p1	

     b.

	Ta *ku* *shi le* *shoupa*.		
Syntactic form	NP V R NP		

	Event participant	Ag	p2	W

c.

	Ta	*chi*	*bao*	*le*	*fan.*
Syntactic form	NP	V	R		NP
Event participant	Ag		p1		Pt

d.

	Ta	*xi*	*ganjing*	*le*	*yifu.*
Syntactic form	NP	V	R		NP
Event participant	Ag		p3		Pt

5.2. Omitted Grammatical Objects

(3e) and (3f), repeated here as (20a) and (20b), contain transitive verbs respectively but no grammatical objects. This violates the linking requirement because Pt is an obligatory participant in transitive event-frames.

(20) a.   Ta ti-po   le   xiezi.   (Vt, object host, unsubcategorized object)
           s/he kick-worn   asp   shoes
           'S/he kicked (something, e.g. a ball) and the shoes wore out'

       b.   Ta   chi-bao   le.   (Vt, subject host)
           s/he eat-full   asp
           'S/he ate and got full'

(21) shows the realization of (20). The question is: How can we account for the obligatory Pt that never surfaces?

(21) a.

	Ta	*ti*	*po*	*le*	*xiezi.*
Syntactic form	NP	V	R		NP
Event participant	Ag		p2	W	Pt?

       b.

	Ta	*chi*	*bao*	*le*
Syntactic form	NP	V	R	

Event participant	Ag	p1	Pt?

In a resultative construction, the result is usually unpredictable and highlighted. It is the focus in terms of information structure and has higher prominence than other parts of a sentence. Goldberg (2005) discusses the omission of transitive verb objects under low discourse prominence: "[O]mission is possible when the patient argument is not *topical* (or *focal*) in the discourse, and the action is particularly *emphasized*" (Goldberg 2000, cited in Goldberg 2005: 29). For example (from Goldberg 2005: 29):

(22) a. *The chef-in-training chopped and diced all afternoon.*

b. *Tigers only kill at night.*

Thus our linking rules must take into account the influence of information structure. We stipulate that:

(23) The event participant Pt of a transitive verb, with low discourse prominence, is not necessarily realized in syntax.

Take (20a) for example: the NP *xiezi* 'shoes' is new information and highlighted in discourse. What was kicked (say, a ball) is either already known or irrelevant. Similarly in (20b), it is the state of being full that concerns the interlocutors, not the food consumed.

5.3. Phase Complements

Phase complements do not participate in argument realization. Sentences in (5) are repeatedly as (24).

(24) a. Ta   pao-wan le   (zhe duan   lu).
      s/he run-finish asp this cl   road
      'S/he finished running (this road)'

b. Wo zhao-dao   (na ben shu)   le.
      I   look:for-arrive that cl   book   asp

'I found (that book)'

c. Wo kan-jian   (ta) le.

I   look-meet   s/he asp

'I saw (her/him)'

d. Ta xie-wan   (baogao) le.

s/he write-finish   (report)   asp

'S/he finished writing (the report)'

(24a) contains an intransitive verb *pao* 'to run' with an optional path NP *zhe duan lu* 'this road'. Postverbal path NP is not uncommon for intransitive verbs in Chinese even when the phase complement is absent, as illustrated by (25):

(25) Ta zou   jiejing.

s/he walk   shortcut

'S/he made a shortcut'

(24b-d) contain transitive verbs and omissible grammatical objects. We attribute this phenomenon not to the phase complement, but to (23), the omission of transitive verb objects under low discourse prominence. (26) illustrates this omission without the presence of a phase complement:

(26) Ta chi le.

s/he eat asp

'S/he has eaten'

Therefore, we do not need event-frames or linking rules for phase complements, as they contribute nothing to argument realization.

6.0 The Inverted Causative RVC Constructions

This section shows how the inverted causative RVC constructions can be incorporated in our framework. First, an additional layer of "constructional participants" is needed to account for

the causative nature of the sentences. Then we present the complexity involved in the inverted causatives and propose that a semantic constraint exists on the property of the external Causer.

6.1. Analyzing the Inverted Causatives

Now we turn to the analysis of inverted causatives. The causative alternation (4) are repeated here as (27). The realizations are shown in (28).

(27) a.　Nei　bei　jiu　　　　zui-dao　le　Zhangsan.
　　　　　that　cl　wine　　　drunk-fall asp　Zhangsan
　　　　　'That glass of wine got Zhangsan to be drunk and fall'
　　　b.　Zhangsan zui-dao　le.
　　　　　Zhangsan drunk-fall asp
　　　　　'Zhangsan got drunk and fell'

(28) a.

	Nei-bei-jiu	*zui*	*dao*	*le*	*Zhangsan.*
Syntactic form	NP	V	R		NP
Event participant	??		p1		Ag

　b.

	Zhangsan	*zui*	*dao*	*le.*
Syntactic form	NP	V	R	
Event participant	Ag		p1	

The analysis in (28a) is problematic in that the grammatical subject NP *nei bei jiu* 'that glass of wine' is neither an argument of the verb *zui* 'to be drunk' nor one of the result complement *dao* 'to fall'. What kind of participant is it?

We propose that a construction itself provides semantic roles that we call "constructional participants", analogous to the event participants. It is the superimposition of both kinds of participants that determines the meaning of a resultative sentence. Thus, a revised version of

linking for (27a) is shown in (29), where the subject NP *nei bei jiu* 'that glass of wine' is

assigned a CAUSER role by the construction.

(29)

	Nei-bei-jiu	*zui*	*dao*	*le*	*Zhangsan.*
Syntactic form	NP	V	R		NP
Event participant	??		p1		Ag
Const participant	CAUSER				

6.2. Complexity in the Inverted Causatives

There are situations when an added external Causer is not allowed in an inverted causative

resultative construction. Compare (30a) with (30b), and (30c) with (30d):

(30) a. Nei bei jiu   zui-dao   le Zhangsan. (=(4a))
        that cl   wine   drunk-fall   asp Zhangsan
        'That glass of wine got Zhangsan to be drunk and fall'

    b. *Lisi   zui-dao   le   Zhangsan.
        Lisi   drunk-fall   asp Zhangsan
        Intended: 'Lisi made Zhangsan drunk and fall'

    c. Nei duan   lu   pao-lei le   Zhangsan.
        that cl   road run-tired asp Zhangsan
        'That road made Zhangsan tired by his running on it'

    d. *Lisi   pao-lei le   Zhangsan.
        Lisi   run-tired asp Zhangsan
        Intended: 'Lisi made Zhangsan tired by forcing him to run'

(30a) and (30b) contain the unaccusative verb *zui* 'to be drunk', and (30c) and (30d) contain

the unergative verb *pao* 'to run'. The examples show that the possibility of adding an external

Causer is conditioned by the nature of causation instead of verb classes, contrary to what Cheng

and Huang (1994) have claimed.

In (30a), the events of getting drunk and falling are closely related to the wine. In (30c), the

events of running and getting tired are closely related to the road. Both the wine and the road do not directly take part in the events specified by the verbs, but they are crucial in bringing about those events.

Contrarily, the guy named *Lisi* in (30b) and (30d) is the external instigator of the events, but he does not take part in the events himself. He only causes the events to happen by solicitation or commands. The ungrammatical (30b) and (30d) suggest that the inverted causative RVC constructions require a kind of *direct*, *non-agentive* Causer.

Sentences in (30) can be paraphrased by using causative verbs *rang* 'to let' or *shi* 'to cause' as in (31). It seems that *rang/shi*-causative RVC constructions have wider distribution than inverted causative RVC constructions.

(31) a.　Nei　bei　jiu　　　rang/shi　Zhangsan　zui-dao　　　le.
　　　　that　cl　wine　　　let/cause　Zhangsan　drunk-fall　　asp
　　　　'That glass of wine got Zhangsan to be drunk and fall'

　　b.　Lisi　rang/shi　Zhangsan　　　zui-dao　　　le.
　　　　Lisi　let/cause　Zhangsan　　　drunk-fall　　asp
　　　　'Lisi made Zhangsan drunk and fall'

　　c.　Nei　duan　　　lu　rang/shi　Zhangsan　pao-lei　le.
　　　　that　cl　　　　road　let/cause　Zhangsan　run-tired　asp
　　　　'That road made Zhangsan tired by his running on it'

　　d.　Lisi　rang/shi　Zhangsan　pao-lei　le.
　　　　Lisi　let/cause　Zhangsan　run-tired　asp
　　　　'Lisi made Zhangsan tired by forcing him to run'

(30) and (31) show that a derivational analysis of inverted causatives from *rang/shi*-causatives is not tenable. While the Causer in the inverted causatives must be direct and non-agentive, that in the *rang/shi*-causatives can be either direct and non-agentive, or indirect and agentive. This difference cannot be explained structurally and must be encoded in the semantics of individual constructions.

To summarize, the inverted causative RVC construction contributes a *direct, non-agentive Causer* to the grammatical subject position. The sentence becomes ill-formed if this requirement is not met.

7.0 Conclusion

This paper discusses Chinese result and phase complements from a constructional point of view. We show the importance of off-stage (world) knowledge in understanding resultatives and how this knowledge is incorporated in the event-frames, lexical-semantic specification of verbs. Semantic compatibility must be observed when an event participant is linked to a surface element. We also propose and refine the linking rules which moderate the linking.

The inverted causative resultatives activate the presence of a Causer. Our proposal here thus conforms to the thematic hierarchy. Baker's (1988: 46) Uniformity of Theta Assignment Hypothesis (UTAH) states that "NPs bearing identical semantic roles to a verb have to be realized in the same syntactic relation to that verb." Basically, the idea is that in active sentences, the grammatical subjects have higher thematic hierarchy than the grammatical objects and oblique complements. CAUSE ranks highest, followed by Agent and Patient. Suggesting a CAUSE role in the examples above thus gives the grammatical subject a highest rank in thematic hierarchy.

The constructional approach observes the equal significance in different aspects of grammar (syntax, semantic, pragmatic, information structure, etc.). The discussion of Chinese RVC constructions in this paper illustrates how constructions at various scales interact with one another and how they together shape the language.

By comparing result and phase complements, we also find identical surface form (a main verb followed by a complement) and similar semantics (result vs. completion) but very different ways in argument realization: while phase complements do not participate in argument realization, the result complements take part in the argument realization and allow complicated semantics to reside in simple syntax.

References:

Baker, Mark C. 1988. *Incorporation: A theory of grammatical function changing*. Chicago: The University of Chicago Press.

Boas, Hans C. 2003. *A constructional approach to resultatives*. Stanford, CA: CSLI Publications.

Chao, Yuen Ren. 1968. *A grammar of spoken chinese*. Berkeley, CA: University of California Press.

Cheng, Lisa Lai-Shen, and C-T. James Huang. 1994. On the argument structure of resultative compounds. In *In honor of William S-Y. Wang: Interdisciplinary studies on language and language change*, Matthew Y. Chen and Ovid J. L. Tzeng (eds.), 187–221. Taipei: Pyramid Press.

Fillmore, Charles J., Paul Kay, and Catherine O'Connor. 1988. Regularity and idiomaticity in grammatical constructions: The case of let alone. *Language* 64(3): 501-38.

Goldberg, Adele E. 1995. *Constructions: A construction grammar approach to argument structure*. Chicago: The University of Chicago Press.

Goldberg, Adele E. 2000. Patient arguments of causative verbs can be omitted: The role of information structure in argument distribution. *Language Science* 23: 503-24.

Goldberg, Adele E. 2003. Constructions: a new theoretical approach to language. *Trends in Cognitive Sciences* 7(5): 219-24.

Goldberg, Adele E. 2005. Argument realization. In *Construction grammars: Cognitive grouping and theoretical extensions*, Jan-Ola Östman and Mirjam Fried (eds.), 17-43. Amsterdam: John Benjamins.

Goldberg, Adele E., and Ray Jackendoff. 2004. The English resultative as a family of constructions. *Language* 80(3): 532-68.
Huang, C-T. James. 1988. *Wo pao de kuai* and Chinese phrase structure. *Language* 64(2): 274-311.

Jackendoff, Ray. 1990. *Semantic structures*. Cambridge, MA: The MIT Press.

Jackendoff, Ray. 1997. Twistin' the night away. *Language* 73(3): 534-59.

Kay, Paul, and Charles J. Fillmore. 1999. Grammatical constructions and linguistic generalizations: The What's X doing Y? construction. *Language* 75(1): 1-33.

Li, Charles N., and Sandra A. Thompson. 1981. *Mandarin Chinese: A functional reference grammar*. Berkeley, CA: University of California Press.

Li, Yafei. 1990. On V-V compounds in Chinese. *Natural Language and Linguistic Theory* 8: 177-207.

Li, Yafei. 1995. The thematic hierarchy and causativity. *Natural Language and Linguistic Theory* 13: 255-82.

Rappaport Hovav, Malka, and Beth Levin. 2001. An event structure account of English resultatives. *Language* 77(4): 766-97.