A Constructional Approach to Realization of Causer Argument in Chinese Resultative Construction

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Within the theoretical framework of construction grammar, the paper explores the principle by which causer argument is realized. Different from English resultatives which follows the semantic coherence principle strictly, causer argument in Chinese resultatives can fuse with verb’s agent, combine with verb’s theme, or be contributed by construction solely. As long as an entity has the ability to affect another entity and make it change state, no matter what semantic relation it has to the verb in V position, or whether they have semantic relation, it can be expressed as causer in Chinese causative resultatives. In order to emphasize the causer, it should be noun phrase with complex modifier or high degree of definiteness.

Keywords: Chinese resultatives, construction grammar, causer argument

Introduction

Resultative constructions are so common in Chinese that most monosyllabic verbs denoting actions can enter the V position and monosyllabic adjectives denoting change of state can be the complements. Syntactically, Chinese resultative construction is a sentence pattern composed of a predicate verb denoting an action followed by a complement verb describing result. Semantically, it expresses a complex event consisting of an activity subevent and a result subevent.

Chinese resultatives have drawn the attention of linguists and scholars both home and abroad with different theoretical background. They set Chinese resultatives as their research object from the perspective of valance grammar, cognitive grammar, and construction grammar. But all those approaches show various defects. The studies within the framework of valance grammar have achieved a lot but still been challenged by either language data which stand as counterexamples to the formulas or rules the valence grammarians stipulate or different valence numbers calculated by different methods on the same resultative sentence. The conceptual structure approach fails to catch the correspondence between syntax and semantics. Xiong Zhongru (2004) did not explain why the arguments independent of the predicate verbs can be causer in Chinese resultatives. By adopting construction grammar as theoretical framework and argument structure analysis as research tool, Zhao Qi (2008; 2009) presented a full account for the distributions and syntactic and semantic properties of English and Chinese resultatives, but he did not analyze the causer argument role systematically and consistently.

Based on classification of Chinese verbs and Chinese resultatives, and distinction between patient and theme, this paper focuses on realization of causer argument in Chinese causative resultatives within the framework of construction grammar. The principle of causer argument realization in Chinese resultatives is

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explored, which testifies that Chinese resultatives do not follow the Semantic Coherence Principle completely.

**Construction Grammar**

Constructions are taken to be the basic units of language. The definitions of construction given by Goldberg (1995; 2003; 2006; 2010) are slightly different. The development of the definition will be introduced first. Other central tenets including the nature of constructional meaning, the integration of verb and construction, the semantics of resultatives, and Full Argument Realization (FAR) are also concerned.

**Definitions of Construction**

According to Goldberg (1995, p. 4), a distinct construction is defined to exist if one or more of its properties are not strictly predictable from knowledge of other constructions existing in the grammar:

C is a construction if def C is a form-meaning pair \(<Fi, Si>\) such that some aspect of \(Fi\) or some aspect of \(Si\) is not strictly predictable from C’s component parts or from other previously established constructions.

A construction is postulated in grammar if its meaning and/or its form is not compositionally derived from other constructions.

The definition amended in some degree by Goldberg (2003, p. 219) is constructions that are stored pairings of “form” and “function”, including morphemes, words, idioms, partially lexically filled, and fully general linguistic patterns.

The main difference between the two definitions is that form-function pairing is substituted for “form-meaning” pairing. Though Goldberg does not define function specifically, she explains what function is with the following sentences: “More common patterns are understood to be learned pairings of form and (semantic and discourse) function…. Each pairs certain formal properties with a certain communicative function” (2003, p. 220). The words “semantic and discourse” are used to modify function here, and this phrase is put into her work in 2006 directly in capital: All levels of grammatical analysis involve constructions: learned pairings of form with semantic or discourse function, including morphemes or words, idioms, partially lexically filled and fully general phrasal patterns (Goldberg, 2006, p. 5). So long as some aspects of its form or function are not strictly predicable from its components or other constructions recognized exist, any linguistic pattern is recognized as a construction. Although some patterns are predicable, they are constructions if they occur with sufficient frequency (Goldberg, 2006, p. 5).

Goldberg (2010, p. 469) restated the definition of construction. Constructions are defined to be learned pairings of form and function, including words and idioms as well as phrasal linguistic patterns. The definition inherits this point of “pairing of form and function” and then she proposed that language is fundamentally a means of communication. Subtle facts about the functions of constructions are emphasized, including their semantic properties, their information structure or discourse properties, and their conditions of use (e.g., register, genre) (Goldberg, 2010, p. 469).

This paper will adopt the definition in Goldberg’s work of 2006 which states clearly what the function of a construction is.

**Constructions as Better Predictors of Sentence Meaning**

The main verb is considered to be the key word in a clause in the field of traditional linguistics. Verbs compared with other words, such as nouns are better predictors of sentence meaning (Goldberg, 2006, p. 104). The central thesis of construction grammar is that constructions are form-meaning pairs that exit independently
A CONSTRUCTIONAL APPROACH TO REALIZATION OF CAUSER ARGUMENT

of particular verbs. Constructional approach views that systematic differences between the same verb in different constructions are attributed directly to the particular constructions (1995, p. 4). For example, the VOL pattern with get is caused-motion construction, but the VOO pattern with get is ditransitive construction:

(1) Pat got the ball over the fence.
(2) Pat got Bob a cake.

The verb get alone cannot be a predictor of two sentence meanings. Many verbs appear in more than one construction with different interpretations, and we can do well if we understand the interpretation involving caused motion or intended transfer to attend to the respective constructions. This example shows clearly that constructions are better predictors of overall meaning than many verbs. It also presents the advantages of the construction grammar: Implausible verb senses are avoided and semantic parsimony.

Another convincing example is from Goldberg’s instance of caused-motion construction.

(3) Pat sneezed the napkin off the table.

The verb sneeze is intransitive and does not require an object. And its basic sense is “to have air come suddenly out through nose and mouth uncontrollably” which does not express the meaning “sneezing causes something to move”. It is the caused-motion construction that gives the sentence the meaning “Pat causes the napkin to move by sneezing”.

The Integration of Verb and Construction

Verbs are associated with frame-specific roles—participant roles. Participant roles should be distinguished from the roles associated with constructions—argument roles, such as agent, patient, and goal which are more general than participant roles. Participant roles are instances of the more general argument roles (1995, p. 43). For instance, the verb kick has two participants: kicker and kicked which are more specific than argument roles agent and patient respectively.

Verbs lexically determine which aspects of their frame-semantics knowledge are obligatorily profiled as the case of nouns. In the frame semantics associated with the verb, the participant roles with a special degree of prominence are obligatorily accessed and function as focal points within the scene. Profiling is lexically determined and highly conventionalized, and it cannot be altered by context (1995, p. 44).

Profiled participant roles are obligatorily expressed roles in finite clauses. In the case of argument roles, profiled ones are those which are expressed as direct grammatical relations. Goldberg (1995, p. 50) proposed that the participant roles of a verb may be semantically fused with argument roles of the argument structure construction if the verb is a member of a verb class which is conventionally associated with a construction. Two principles determine the fusion between participant roles and argument roles.

The Semantic Coherence Principle. Only roles which are semantically compatible can be fused. Two roles r1 and r2 are semantically compatible if either r1 can be construed as an instance of r2, or r2 can be construed as an instance of r1. For example, the kicker participant of the kick frame may be fused with the agent role of the ditransitive construction because the kicker role can be construed as an instance of the agent role. Whether a role can be construed as an instance of another role is determined by general categorization principles.

The Correspondence Principle. Each participant role that is lexically profiled and expressed must be fused with a profiled argument role of the construction. If a verb has three profiled participant roles, then one of them may be fused with a non-profiled argument role of a construction.
English Resultatives and Full Argument Realization

Goldberg (1995, p. 180) predicated the occurrence of resultatives in purely semantic terms: Resultatives can only be applied to arguments which potentially undergo a change of state as a result of the action denoted by the verb. The argument must be identified as patient. The traditional test to determine whether the argument is patienthood is:

(4) a. What X did to <patient> was, …
b. What happened to <patient> was, …

The resultative construction is independent of particular verbs that instantiate it. In order to account for resultatives with fake objects which bear no semantic relation with the main verb, it is claimed that the construction can add a patient argument as profiled argument. The verb retains its intrinsic semantic representation, and is integrated with the constructional meaning (Goldberg, 1995, p. 189). The resultative construction can be represented as follows:

![Figure 1. Resultative Construction.](image)

Goldberg and Jackendoff (2004) proposed that the meaning of a resultative sentence contains two subevents. One is the “verbal subevent” determined by the verb of the sentence. The other is the “constructional subevent” determined by the construction. According to the semantics of the constructional subevent, Goldberg and Jackendoff (2004) distinguished non-causative resultatives from causative resultatives specifically. A resultative sentence means more than just the conjunction of the verbal subevent and the constructional subevent. For instance, the sentence “Willy watered the plants flat” not only means that “Willy both made the plants flat and watered them”, but also “Willy made the plants flat by watering them”. That is, the verbal subevent is the means by which the constructional subevent takes place. The verbal subevent has two arguments: Willy as agent, the plants as patient; the constructional subevent has three arguments: Willy as agent, the plants as patient, and flat as predicate. This sentence is a causative transitive resultative, and the correspondences between the syntactic arguments and the corresponding semantic arguments are indicated in (5):

(5) Causative resultatives

Syntax: NP1 V NP2 AP3
Semantics: X CAUSE [Y BECOME Z]
MEANS: [VERBAL SUBEVENT]

The sentence “The pond froze solid” is a non-causative resultative, and sentence (6) discerns the semantic contribution of the construction itself:

(6) Non-causative resultatives
Syntax: NP1 V AP/PP2
Semantics: X BECOME Y

MEANS: [VERBAL SUBEVENT]

In order to solve the problem of five arguments to be mapped into only three syntactic positions, Goldberg and Jackendoff (2004, p. 547) proposed Full Argument Realization (FAR) which requires that: “All the arguments obligatorily licensed by the verb and all the syntactic arguments licensed by the construction must be simultaneously realized in the syntax, sharing syntactic positions if necessary in order to achieve wellformedness”. An argument is considered obligatorily licensed by a verb if and only if an expression involving the verb in active, simple past tense without the argument is ill-formed.

Goldberg and Jackendoff (2004) proposed Semantic Coherence Principle which is stated as follows:

Principle of Semantic Coherence: roles of the construction (rC) and roles of the verb (rV) may only unify if they are semantically compatible; role rV and rC are semantically compatible if and only if rV can be construed as an instance of rC.

The principle prevents incompatible roles from combining. For example, a causer role cannot combine with a theme role. Therefore, the following English sentence is ill-formed which can be accounted for by the principle of semantic coherence.

(7) *The pile of clothes washed me tired.

The constructional subevent of sentence (7) is X CAUSES Z to BECOME Y; the first argument of the sentence in the subject position is causer of the constructional subevent, since the pile of clothes is the reason “I became tired”. Meanwhile, the first argument in (7) is also theme of the verbal subevent, because “the clothes are something that I washed”. Since a causer role cannot be construed as a type of theme, the resultative sentence is ill-formed. But the Chinese sentence (8) corresponding to (7) is well-formed and acceptable.

(8) 这堆衣服洗累了我。（I washed the pile of clothes and as a result I was tired.）

To summarize, it appears that all acceptable English resultatives follow the conditions of Full Argument Realization and Semantic Coherence. That is, only the agent role can be shared with agent role and patient role with patient role. But it seems that the Semantic Coherence Principle cannot be applied to Chinese resultatives effectively.

Preliminary Preparation

Before main research questions are touched, it is necessary to clarify some related points, including the classification of Chinese verbs and Chinese resultatives, the distinction between patient and theme.

Verb Classification

Chinese resultatives consists of predicate verb and complement verb. In general, a large number of verbs are allowed to be predicate verb and verbs permitted to be complement verb are limited and constrained. Verbs are classified in this thesis based on Ma Qingzhu’s analysis about Chinese verbs.

Ma Qingzhu (2004, p. 20) put forward a new classification of Chinese verbs: volitional verbs and non-volitional verbs. As the names predict, volitional verbs express conscious or intentional actions which are decided and done by agent freely and subjectively, like 洗 xi (wash). Whereas the non-volitional verbs are unconscious and unintentional actions which cannot be controlled by the agent and they express changes and attributes of the entities they describe. Changes are dynamic and attributes are static and both of them are out of
control from agent. The non-volitional verbs presenting attributes denote certain states the entities are in or the properties the entities have. While the non-volitional verbs presenting changes denote changed states of the entities, like 脏 zang (dirty) and 红 hong (red).

To sum up, four types of verbs are classified as follows: (1) verbs denoting activity: 吃 chi (eat), 打 da (hit), 洗 xi (wash), 研究 yanjiu (research), etc.; (2) verbs denoting states or attributes: 热 re (hot), 红 hong (red), etc.; (3) verbs denoting change of state: 脏 zang (dirty), 红 hong (red), 病 bing (fall ill), 累 lei (tired), etc.; (a) verbs denoting externally caused change of state: 累 lei (tired), 呛 qiang (be choked), 腻 ni (be tired of), 急 ji (anxious), etc.

Verbs of the first type, especially monosyllabic verbs, always can be the predicate verbs in resultatives. Activity verbs are either transitive ones which can assign argument role of both agent and theme or intransitive ones which can assign only agent. And verbs of the second type are fit to be complement verbs because they denote certain states the entities retain. Verbs denoting change of state, as the name implies, present particular achieved states. It is common for verbs of the third type to be complement verbs, only some of them are fit to be predicate verbs. For example:

(9) 爷爷 累倒了。
Yeye lei-dao-le.
Grandpa fell ill by being tired.

(10) 姐姐 急晕了。
Jiejie ji-yun-le.
The sister became dizzy by being anxious.

Causative verbs can either be predicate verbs or complement verbs. For example:

(11) 农活 累病了 爷爷。
Nonghuo lei-bing-le yeye.
Grandpa did too much farm work and as a result he became sick.

(12) 他 玩累 了。
Ta wan-lei le.
He played with something and as a result he was tired.

As the classification above suggests, some verbs are overlapped in the four types. A verb can express certain state, denote change of state, or externally cause change of state. For example, the verb 脏 zang (dirty) in (13) expresses the attribute of the entity 衣服 yifu (clothes); the same verb in (14) denotes the change of the entity from 干净 ganjing (clean) to 脏 zang (dirty); the changed state 脏 zang (dirty) in (15) is caused by the external entity 泥巴 niba (mud).

(13) 这衣服 真 脏。
Zhe-yifu zhen zang.
The clothes are so dirty.

(14) 这衣服 脏 了。
Zhe-yifu zang le.
The clothes became dirty.

(15) 泥巴 弄脏了 衣服。
Niba nong-zang-le yifu.
Mud made the clothes dirty.
Patient/Theme and Causer

Carnie Andrew (2007) defined the semantic roles patient and theme respectively like the following: “Patient: the entity undergoing the effect of some action, often undergoing some change of state. Theme: the entities that undergo actions, are moved, experienced or perceived” (p. 221). Some entities bear both patient and theme relation to the verbs. For instance:

(16) She broke her arm.

Her arm is the entity undergoing change of being broken, and at the same time, it is the entity that undergoes the action of breaking.

Goldberg (1995) did not distinguish patient from theme in English resultatives. While a distinction between them is necessary in this research. For Chinese verbs, most volitional verbs assign theme role, such as 擦 ca (wipe) and 洗 xi (wash); non-volitional verbs assign patient role, such as 病 bing (fall ill) and 累 lei (tired). Theme describes an entity that undergoes action, and patient is the entity that undergoes a change of state. It is possible for an entity to undergo certain action and change state at the same time. That is, theme and patient refer to the same entity in some Chinese resultatives. Compare the two sentences (17) and (18):

(17) 妈妈 洗干净了 苹果。

Mother washed an apple and it became clean.

(18) 苹果 吃坏了 肚子。

I got a stomachache by eating apple.

In sentence (17), the argument 苹果 pingguo (apple) is verb’s theme as well as construction’s patient. Theme is co-referential with patient. In sentence (18), the argument 苹果 pingguo (apple) is verb’s theme and the argument 肚子 duzi (stomach) is construction’s patient. Theme is separated from patient in this sentence.

The causer argument in Chinese resultatives refers to the entity in subject position which causes the patient argument to change state. In English resultative constructions, only sentences with animate instigators are acceptable. Different from English resultatives, there is no such constraint on the causer argument in Chinese resultative constructions.

Classification of Chinese Resultatives

According to the difference in constructional meaning, Chinese resultatives are classified into two classes. The constructional meaning of the first class is “X causes Z to become Y by V-ing” and the second one is “X becomes Y by V-ing”. In the first class, X is construction’s causer, Z is construction’s patient, and Y is the result which is designated by the complement verb. The subscripts in (19) indicate the correspondence between the syntax and the corresponding semantics:

(19) Syntax: NP1 V NP2 Comp
Semantics: X CAUSE [Z BECOME Y]
MEAN: [VERBAL SUBEVENT]

The Chinese resultatives with causer in subject position is termed causative resultatives.

While in the second class, X stands for patient and Y is the result. There is only one argument role, i.e., patient in this class. Therefore, it is non-causative resultatives.

Only Chinese causative resultatives with causer argument are concerned about in this thesis. For Chinese
causative resultatives, the entities in subject position can be proto-agent who volitionally involves in the events or states and cause change of states of other participants. The predicate verbs in this construction are volitional verbs which assign the argument role of agent and theme. These resultative sentences are agentive causative resultatives. For example:

(20) 爷爷砍钝了斧头。
Yeye kan-dun-le futou.
Grandfather chopped (something) and as a result the ax became blunt.

(21) 他哭哑了嗓子。
Ta ku-ya-le sangzi.
He cried himself hoarse.

In some resultative sentences, the predicate verbs are non-volitional verbs which only assign the argument role of patient in object position. Therefore, the entities in subject position bear no argument relation with predicate verbs. These kind of resultative sentences are non-agentive causative resultatives.

(22) 太阳晒黑了我的脸。
Taiyang shai-hei-le wode-lian.
My face was suntanned by the sun shining on it.

(23) 枪声惊醒了工人。
Qiangsheng jing-xing-le gongren.
A gunshot made workers awake by startling them.

And in some other resultative sentences, the subjects and objects of predicate verbs are inverted to be objects and subjects of these resultative sentences. In sentences (24) and (25), 剩饭 shengfan (leftover) and 电视 dianshi (TV), the objects of predicate verbs 吃 chi (eat) and 看 kan (watch), are put in subject position; the subjects 大家 dajia (we) and 眼睛 yanjing (eyes) are inverted from subject position to object position.

Sentences generated like this are inverted resultatives.

(24) 剩饭吃腻了大家。
Shengfan chi-ni-le dajia.
We ate leftover so frequently and as a result we became tired of it.

(25) 电视看坏了孩子的眼睛。
Dianshi kan-huai-le haizi-de-yanjing.
Watching TV too much did harm to children’s eyes.

Three subconstructions of causative resultatives are listed below:

Chinese causative resultatives

- Chinese agentive causative resultative
- Chinese non-agentive causative resultatives
- Chinese inverted resultatives

**Realization of Causer Argument in Chinese Causative Resultatives**

The causative resultative construction is associated with the semantics “X causes Z to become Y”, which will be represented as:

CAUSE-BECOME <causer patient result>

The causative resultative construction can be represented as follows:
A CONSTRUCTIONAL APPROACH TO REALIZATION OF CAUSER ARGUMENT

Figure 2. Chinese Causative Resultative Construction.

Construction frame in this thesis is considerably revised by adding verbal subevent (VS) and constructional subevent (CS) to the semantics of resultatives. PRED is a particular verb that is integrated into the construction. And Full Argument Realization is employed to indicate how arguments between the verbal subevent and constructional subevent share syntactic position in order to be well-formed.

In order to enter into causative resultative construction, the arguments associated with the verbal subevent must fuse with the arguments associated with the constructional subevent. During the process of argument integration between verbal subevent and constructional subevent, if two argument roles fuse, they are indicated by a solid line; if two argument roles are semantically incoherent, but they can combine with each other, we still link them with solid line. Roles which are contributed solely by construction are indicated by a dashed line. If two argument roles of the first line are separated by a slash, it means that they belong to different subevents. The first one is the argument role of verbal subevent, and the second one is the argument role of constructional subevent.

Chinese Agentive Causative Resultatives

The constructional meaning of agentive causative resultatives is that an instigator X causes Z to become Y by doing something, in which X, Y, and Z correspond respectively to the subject, complement, and object in a resultative sentence. X is causer and Z which undergoes the change of state is patient. In this subconstruction, construction’s patient is fused with verb’s theme or provided by construction, which abides by the Semantic Coherence Principle. The patient in object position can be any entity affected by the action denoted by the predicate verb. It can be the theme directly acted upon by an action, or the instrument with which the agent does certain action. No matter how the patient is fused, for this subconstruction, the causer is realized by fusing with verb’s agent and they share the subject position. Dowty (1991) defined that pro-agent has the property of causing an event or a change of state in another participant. Therefore, agent is a kind of causer. In agentive causative resultatives, the causer argument of constructional subevent can only fuse with the agent argument of verbal subevent, because the agent is the only role with which the causer role is semantically compatible. The following sentences and their respective construction frames provide a detailed and distinct explanation for the realization of causer argument.

(26) 妈妈 摔碎了 杯子。
Mama shuai-sui-le beizi.
My mother made the glass broken by throwing it.

Semantics: CS: mama CAUSE [beizi BECOME sui]
VS: mama shuai beizi
In this sentence, the verb 摔 shuai (throw) is obligatorily transitive, since *妈妈摔 mama shuai (mother throw) is ill-formed. Thus, by Full Argument Realization, the two arguments of the verb 摔 shuai (throw), agent 妈妈 mama (mother) and theme 杯子 beizi (glass) must appear in the syntax. The constructional subevent has three arguments: a causer 妈妈 mama (mother), a patient 杯子 beizi (glass) and a predicate 碎 sui (break). Full Argument Realization demands that all the arguments of verbal and constructional subevent are expressed and permit two of them to share one syntactic position. So, construction’s causer is fused with verb’s agent and they are mapped into subject position; construction’s patient is fused with verb’s theme and they are mapped into object position.

(27) 他 走肿了 双脚。
    Ta zou-zhong-le shuangjiao.

His feet were swollen as a result of walking too much.

Semantics: CS: ta CAUSE [shuangjiao BECOME zhong]
    VS: ta zou

In this sentence, the verb 走 zou (walk) is intransitive, and the verbal subevent has only one argument, the agent 他 ta (he). The constructional subevent has three arguments: a causer 他 ta (he), a patient 双脚 shuangjiao (feet) and a predicate 肿 zhong (be swollen). In order to meet Full Argument Realization to express the four arguments in three syntactic positions, construction’s causer is fused with verb’s agent and they are mapped into the subject position. The patient is contributed by construction solely and is mapped into the object position.

For agentive causative resultatives, the verbs in V position can be transitive or intransitive volitional verbs which must be able to assign the agent argument. The causer is realized by fusing with agent of verbal subevent and mapped into subject position. Patient argument of this subconstruction is the entity in the object position.
However, the argument in subject position is not limited to animate and volitional instigator in this subconstruction. It can be instruments 锤子 chuizi (hammer) and 刺刀 cidao (bayonet) in sentences (28) and (29):

(28) 锤子 砸平了 铁块。
Chuizi za-ping-le tie-kuai.
The hammer made the iron flat by hitting it.

(29) 刺刀 撬开了 木窗。
Cidao qiao-kai-le mu-chuang.
Wood window was open by prying it with a bayonet.

The object of agentive causative resultatives is obligatory and never can be omitted because the object is the patient which is indispensable in resultatives. If it is omitted, the resultative sentence is either unacceptable or changed into non-causative resultative sentence. The two pairs below will prove this point:

(30) 妈妈 洗干净了 衣服。
Mama xi-gan-jing-le yifu.
Mother washed the clothes and they became clean.

(30’) 妈妈 洗干净了。
Mama xi-gan-jing-le.
Mother washed clean.

(31) 她 唱红了 那首歌。
Ta chang-hong-le na-shou-ge.
She sang that song and as a result that song became popular.

(31’) 她 唱红了。
Ta chang-hong-le.
She sang song and as a result she became popular.

Sentences (30) and (31) are sentences of agentive causative resultatives. When objects are omitted, (30’) is unacceptable; while (31’) is acceptable but is changed into sentence of Chinese non-causative resultatives. Since in (31), it is the object 那首歌 na-shou-ge (that song) that is the patient which changes from unpopularity to popularity, but in (31’), the entity 她 ta (she) in subject position undergoes the change of being popular.

**Chinese Non-agentive Causative Resultatives**

The causers in constructional subevent are not limited to animate and sentient beings. They can be something independent of predicate verbs. Chinese Causative resultatives with inanimate agent are named Chinese non-agentive causative resultatives which have the same constructional meaning as that of Chinese agentive causative resultatives. X is the external causer and the patient Z must be in object position as in Chinese agentive causative resultatives. Construction’s patient is fused with verb’s patient, since verbs that enter into this construction are limited to non-volitional verbs, such as 笑 xiao (laugh) and 惊 jing (starle) in sentences (32) and (33) which only assign patient argument.

For non-agentive causative resultatives, the verbal subevent has only patient argument. Constructional subevent has three arguments: a causer, a patient, and a predicate. Construction’s patient must be fused with verb’s patient. However, the causer argument of constructional subevent does not correspond to any argument
of the verb. It is the mismatch in number of argument roles since construction can contribute an argument role which is not associated with the argument role of the verb. Sentences (32) and (33) are examples of mismatch in the number of argument roles:

(32) 一场好梦 笑醒了 妹妹。
Yichang-hao-meng xiao-xing-le meimei.
Sister laughed when she had a sweet dream and as a result she woke up.
Semantics: CS: yichang-hao-meng CAUSE [meimei BECOME xing]
VS: meimei xiao

The verb 笑 xiao (laugh) in sentence (32) is a non-volitional verb, because the action 笑 xiao (laugh) is caused by inanimate and unconscious entity 一场好梦 yichang-hao-meng (a sweet dream). In this case, there is only a patient argument in the verbal subevent. The constructional subevent has three arguments: a causer 一场好梦 yichang-hao-meng (a sweet dream), a patient 妹妹 meimei (sister), and a predicate醒 xing (wake up). The only shared argument is 妹妹 meimei (sister) which is patient in both subevents, and they can be fused together since they are semantically compatible. The causer, which is not associated with the argument role of the verb 笑 xiao (laugh), is contributed by the construction solely and mapped into subject position.

(33) 巨大的爆炸声 惊醒了 乘客。
Juda-de-baozhasheng jing-xing-le chengke.
Loud explosion made the passages awake by startling them.
Semantics: CS: juda-de-baozhasheng CAUSE [chengke BECOME xing]
VS: chengke xing

In sentence (33), the causer argument is contributed by construction solely as well since it does not correspond to any argument of the verbal subevent.

For non-agentive resultatives, the verbs that enter in V position are non-volitional verbs. So, the verbal subevent has only one argument, i.e., patient. The causer argument added by construction can not correspond to an argument of verbal subevent; therefore, the causer of non-agentive resultatives is contributed by construction solely. The causer of this subconstruction is mapped into subject position and the patient is mapped into object position.

The process of causer argument realization is cognitively grounded in this subconstruction. Though the causer in this construction is inanimate external causer from the objective world rather than agent, it has the similar function as agent which has the power to influence the entity in object position. It is completely understandable that the external entities, like the loud explosion or the sun, have the power to shock the
passenger and then make them wake up or make skin be sunburned by illuminating sunshine. Any entity which is able to change the state of another entity is possible to be causer in Chinese resultatives. The causers can be natural force, such as 太阳 taiyang (sun), 冰雪 bingxue (ice), 大雨 da-yu (heavy rain), or any entity which can cause another participant to change state. More instances are given below:

(34) 医生的话 急哭了 他。
Yisheng-de-hua ji-ku-le ta.
Doctor’s words made him worried and as a result he cried.

(35) 冰雪 冻僵了 手。
Bing-xue dong-jiang-le shou.
Ice was so cold that my hands were stiff.

(36) 大雨 淋湿了 衣服。
Aa-yu lin-shi-le yifu.
I soaked myself in the heavy rain and as a result my clothes were wet.

Inverted Chinese Resultatives

Dowty (1991) suggested two general macro-role types (pro-agent and pro-patient) list their properties which are associated with subject and object crosslinguistically. The pro-agent properties include: (1) volitional involvement in the event or state; (2) sentience (and/or perception); and (3) causing an event or change of state in another participant. The pro-patient properties are: (1) undergoes change of state; (2) incremental theme; and (3) causally affected by another participant. Given these properties of pro-agent and pro-patient, Dowty (1991) proposed the argument selection principle, in which he states that the argument which entails the greatest number of pro-agent properties will be lexicalized as the subject; the argument which entails the greatest number of pro-patient properties will be lexicalized as the direct object. However, Chinese inverted resultatives stands as the counterexamples to the principle. In this construction, the argument with pro-agent properties is lexicalized as object and the one with pro-patient properties is lexicalized as subject in syntax.

Chinese inverted resultatives has the same constructional meaning as Chinese agentive causative resultatives, that is, X causes Z to become Y by doing something. Z is construction’s patient and X is verb’s theme that undertakes action. Construction’s patient is realized either by fusing with verb’s agent or being contributed by construction.

Verbs that insert into the V position in this subconstruction are transitive volitional verbs which have two arguments: agent and theme. Therefore, the verbal subevent of inverted resultatives has two arguments: agent and theme, and the constructional subevent has three arguments: causer, patient, and predicate. By Full Argument Realization, all arguments of the two subevents must be expressed in the three syntactic positions. So, there must be two arguments of the two subevents share one syntactic position. For inverted resultatives, construction’s patient is integrated with verb’s agent or contributed by construction solely and it is mapped into object position. Verb’s theme is combined with construction’s causer which changes the state of the entity in the object position and they share the subject position. The following sentences are examples of this construction:

(37) 电视 看坏了 孩子的眼睛。
Dianshi kan-huai-le haizi-de-yanjing.
It is harmful for children’s eyes to watch too much TV.
A CONSTRUCTIONAL APPROACH TO REALIZATION OF CAUSER ARGUMENT

Semantics: CS: dianshi CAUSE [yanjing BECOME huai]
VS: yanjing kan dianshi

Figure 6. Inverted Chinese Resultative Construction + kan (watch).

The predicate verb of sentence (37) has two arguments: agent 眼睛 yanjing (eyes) and theme 电视 dianshi (TV) and the construction has three arguments: causer 电视 dianshi (TV), patient 眼睛 yanjing (eyes) and predicate 坏 huai (harmful). The causer 电视 dianshi (TV) contributed by construction is combined with the theme 电视 assigned by verb 看 kan (watch).

(38) 一首歌 唱红了 一部电影。
Yishou-ge chang-hong-le yibu-dianying.
A song sung by someone in a movie made the movie popular.

Semantics: CS: 一首歌 CAUSE [一部电影 BECOME 红]
VS: 唱 一首歌

Figure 7. Inverted Chinese Resultative Construction + chang (sing).

In sentence (38), the verb only assigns a theme 一首歌 yishou-ge (a song), but the construction still assigns three arguments: causer 一首歌 yishou-ge (a song), patient 一部电影 yibu-dianying (a movie), and predicate 红 hong (popular). Construction’s patient does not correspond to an argument of the verb 唱 chang (sing), so the patient is contributed by construction solely and it is mapped into object position. The causer 一首歌 yishou-ge (a song) contributed by construction is combined with the theme 一首歌 yishou-ge (a song) designated by verb 唱 chang (sing).

According to the Semantic Coherence Principle and Full Argument Realization, a shared argument has the same argument role in the two subevents: It is either agent of both or patient of both. All the acceptable English resultatives observe the conditions of FAR and the Semantic Coherence Principle. A causer argument is not allowed to combine with a theme argument. Therefore, if we want to express the combination of two events, i.e., Mom washed clothes and Mom was tired, it is impossible in English: *Clothes washed mom tired. It can
only be expressed bicausally: Mom was tired by washing clothes. But for Chinese resultative construction, construction’s causer can either fuse with verb’s agent in agentive causative resultatives, or combine with verb’s theme in inverted resultatives.

Realization of Causer Argument

The constructional meaning of causative resultatives is X causes Z to become Y by doing something, and X is an entity which has the power to change the state of another entity. For non-agentive resultatives, the verbs that enter into V position needs to be non-volitional verb which only assign patient argument, and for inverted resultatives, the verbs that insert into V position should be transitive volitional verbs which can assign theme and agent.

For causative resultatives, there are three arguments in constructional subevent: a causer, a patient, and a predicate. When the verbs are transitive volitional ones, they assign both agent and theme. If the causer is fused with verb’s agent argument and they share the subject position, it is an instance of agentive causative resultatives; while if the causer is combined with verb’s theme and share the subject position, it is an instance of inverted resultatives. In non-agentive causative resultatives, the verb only has patient argument which fuses with construction’s patient, and construction’s causer cannot be associated with any argument of the verb. Therefore, the causer in this subconstruction is contributed by the construction solely. The argument integration between verbal subevent and constructional subevent proves that the Semantic Coherence Principle is not applicable to Chinese causative resultatives. The causer argument can combine with theme argument of verb although they are not semantically compatible. Therefore, there is a much looser interaction between verbal subevent and constructional subevent for realization of causer argument in Chinese causative resultatives:

Realization of causer argument: In Chinese causative resultative construction, construction’s causer can be fused with verb’s agent, combined with verb’s theme or contributed solely by construction. As long as an entity has the ability to change the state of another entity, it can be causer in causative resultatives.

Although the argument integration between causer and theme in inverted resultatives is against Semantic Coherence Principle, it is grounded in cognition. The detailed constructional meaning of inverted resultatives is the theme causes agent to undergo a change of state, which is available to account for the distinction of this subconstruction. It is cognitively plausible in reality that the entity that undergoes action is able to change the state of the instigator. For example, the wine a person drank can make him drunk. The cause of the change is the entity undergoes the action, i.e., theme rather than the entity that does the action, i.e., agent. Therefore, it is not odd that the verb’s theme can be combined with construction’s causer.

In causative resultative construction, causer needs to be prominent in syntax. Subject is more salient than object in psychology (Zhang & Fang, 1996, p. 114). So for causative resultative construction, the causer in subject position is more prominent than other argument roles and what is emphasized is the reason which causes the change of state rather than the action or the result. The causer in prominent position should be noun phrase with complex modifiers or high degree of definiteness. And noun phrases with high degree of definiteness are those modified by quantifier 这 or 那, possessive attribute or proper noun (Zhang & Fang, 1996, p. 115). Consequently, resulative sentences with concrete, complex, and definite noun phrase are easily acceptable. Compare the three pairs of sentences:

(39) a. 买卖叫喊声吵醒了他。

The sound made by street pedlar was so noisy that he woke up.
Conclusion

Arguments are realized by integration between argument roles assigned by verbs and constructions. Causer argument in Chinese causative resultatives is realized by fusing with verb’s agent, combining with verb’s theme or being contributed by construction solely. As long as an entity has the ability to affect another entity and makes it change state, no matter what kind of argument relation it has to the verb in V position, or whether they have argument relation, it can be expressed as causer in Chinese causative resultatives.

References