A Cognitive Approach to English Resultative Constructions*
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1. Introduction

This paper examines the resultative construction in English, which is exemplified by sentences such as those in (1):

(1)   a.   John wiped the table *clean.*

     b.   He drank himself *silly.*

     c.   She sang her baby *to sleep.*

The italicized elements in (1) are called *resultative phrases*, which describe the state of the object NPs resulting from the action denoted by the verbs. For example, in (1a), the adjective *clean* describes the resultant state of the table caused by the action of wiping it. Resultative phrases may be adjectives, as in (1a, b), or prepositional phrases, as in (1c), but here I limit the discussion to adjectival resultatives.

The general point is that the resultative phrase is predicated of the postverbal NP, as in (2a), never the oblique and the subject, as in (2b) and (2c):

(2)   a.   The silversmith pounded *the metal flat.*

     b.   *John pounded on *the metal flat.*

     c.   **Polly* cooked the cookies *dirty.*

However, in the case of intransitive unaccusative verbs, resultative phrases are predicated of subjects, as in (3):

(3)   a.   *The river* froze *solid.*

     b.   *The door* slid *shut.*

     c.   *The bottle* broke *open.*

The predication relation between the postverbal NP and the resultative phrase is an important point in discussing the resultative construction, so we shall return to this point in section 4.

A considerable number of studies have been made on the resultative construction from a variety of viewpoints (Dowty (1979), Simpson (1983), Hoekstra (1989, 1992), Jackendoff (1990), Van Valin (1990), Rapoport (1993), Washio (1997), among others). Recently there appear two major interesting approaches to the resultative construction: Levin and Rappaport's (1995) Compositional Grammar Approach and Goldberg's (1995) Construction Grammar Approach. Here we will take Goldberg's (1995) Construction Grammar Approach, since our standpoint is closest to Goldberg's.

Goldberg posits that a construction exists independently of particular verbs that instantiate it, and views a construction as having its own semantics, i.e., a construction has its own semantic roles like *agent* and *patient*, which are different from the semantic roles that a given verb itself has. She calls the former *argument roles* and the latter *participant roles*. Under her analysis, a given verb retains its intrinsic semantic representation, and when it is incorporated into a "construction box," its semantic information is integrated with the semantic information directly associated with the construction. To see how the resultative construction and a given verb's arguments are combined to make a composite argument structure, let us consider, for example, the sentence *He wipe the table clean*. The verb *wipe* has *wiper* and *wiped* as its participant roles. On the other hand, the resultative construction has *agent, patient* and *result-goal* as its argument roles. According to Goldberg, for a verb to occur in a particular construction, the participant roles of the verb must fuse with the argument roles of the construction. The way how the fusion occurs is based on the view that roles which are semantically compatible with each other are linked to each other. Thus, the agent argument role fuses with *wiper* and the patient argument role fuses with *wiped*. However, the verb *wipe* does not have a participant role which can fuse with the result-goal argument of the construction. In this case, the result-goal argument itself appears in the syntax.

I agree with Goldberg's (1995) Construction Grammar Approach in assuming that a resultative construction exists independently of particular verbs that instantiate it, and in viewing a construction as having its own semantics. From this standpoint, I argue that there are some specific constraints on the resultative construction. The purpose of this paper is to make clear these constraints, and to explain those resultative sentences that have not adequately been accounted for by the existing systems.

The organization of this study is as follows: in section 2 we survey previous analyses, pointing out problems with them; section 3 proposes solutions to these problems on the basis of a cognitive approach; section 4 makes concluding remarks.

2. Previous Analyses

In this section, we will sketch some verbal aspectual approaches to the resultative construction and point out some problems with them. Before going into this main theme, we will first examine the bounded/unbounded distinction.

2.1. The Bounded/Unbounded Distinction

Eventualities are divided into two aspectual classes: telic eventualities—those that are bounded in time—and atelic eventualities—those with no specific temporal delimitation (Declerck (1979), Dowty (1979), among others). According to Tenny (1987) *telic* eventualities are called *delimited* eventualities, and *atelic* ones *unbounded* ones. Here I will refer to the distinction as bounded and unbounded eventualities. A bounded eventuality can be differentiated from a unbounded one by a variety of tests. For instance, an unbounded, but not bounded, eventuality can occur with *for*-phrases, as in (4):

(4) a. John *pushed* the cart for/*in an hour.   [unbounded]

John *destroyed* the cart in/*for an hour .   [bounded]

b. John *ran toward* the station for/*in an hour. [unbounded]

John *ran to* the station in/*for an hour.   [bounded]

c. John ate *peanuts* for/*in an hour.   [unbounded]

John ate *three peanuts* in/*for an hour.   [bounded]

As we can see above, the bounded/unbounded distinction (temporally delimited/nondelimited distinction) can be syntactically expressed through the difference in the choice of verbs in (4a), prepositions in (4b), and determiners in objects in (4c). That is, as pointed out in the literature on the verbal aspect (Declerck (1979), Dowty (1979), among others), there are various syntactic processes that serve to produce delimited eventualities involving verbs that are inherently activity verbs and would otherwise name nondelimited eventualities. With this in mind, we will move to an examination of aspectual approaches to the resultative construction.

2.2 Aspectual Approaches

Though there has been some disagreement about which aspectual classes can occur with resultative phrases, it is generally agreed that stative verbs like *love* cannot enter into the resultative construction, as shown in (5):

(5) a. *Tom loved her happy.

b. *He believed the idea powerful.

c. *The teacher hated the pupils angry.

(6) summarizes the general consensus among aspectual approaches:

(6)   verb(s)

*stative   non-stative
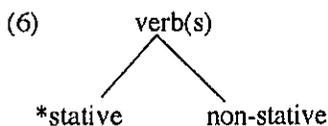
That is, disagreement arises in the issue of which non-stative predicates can appear in the resultative construction. Dowty (1979), Jackendoff (1990), and Rapoport (1993) agree substantially that resultative phrases can only occur with activity, or *unbounded* predicates. Their arguments are based on the following facts:

(7) a. John wiped the table clean.

      a'. John wiped the table for/*in an hour. [unbounded]

      b. Liora walked her feet sore.

      b'. Liora walked for/*in an hour. [unbounded]

      c. The dog barked the baby awake.

      c'. The dog barked (at the baby) for/*in an hour. [unbounded]

The predicate *wiped the table* in (7a) is an *unbounded* predicate, since it can occur with a *for*-phrase, as shown in (7a'). The same observation applies to (7b) and (7c). Moreover, their analyses are evidenced by the fact that *bounded* predicates cannot occur with resultative phrases, as in (8):

(8) a. *Midas touched the tree gold.

      a'. Midas touched the tree in/*for five seconds. [bounded]

      b. *Tom entered the house dirty.

      b'. Tom enter the house in/*for ten minutes. [bounded]

      c. *I lit the match smoky.

      c'. I lit the match in/*five minutes. [bounded]

The predicate *touched the tree* in (8a) expresses a bounded eventuality, because it can occur with a *for*-phrase, as (8a') shows. The same is true of (8b) and (8c). From this observation in (8), Rapoport (1993) further suggests that achievement (in the sense of Vendler (1967)), or *bounded* predicates, cannot appear in the resultative construction. There is further evidence in support of his claim. Observe:

(9) a. *Bill broke the vase worthless.

      a'. Bill broke the vase in/*for one minutes. [bounded]

      b.(*) He built the house splended.[1]

      b'. He built the house in/*for one month. [bounded]

As the sentences in (9) show, *bounded* predicates cannot appear in the resultative construction. From these observations, we might say that his suggestion that *bounded* predicates cannot occur with resultative phrases is right. However, I will argue that it is not always true. For as

Goldberg (1995: 194)) points out, some *bounded* predicates can appear in the resultative construction, as shown in (10):

(10) a. Harry shot Sam dead. (Goldberg (1995: 194))

    a'. Harry shot Sam in/*for an hour. [bounded] (except on repeating reading)

    b. The river froze solid.

    b'. The river froze in/*for ten minutes. [bounded]

    c. The door slid open.

    c'. The door slid open in/*for five minutes. [bounded]

The predicate *shot Sam*, for example, is a *bounded* predicate, as shown in (10a'), but it can appear in the resultative construction, as (10a) shows. The same observation applies to (10b) and (10c). These sentences go against his claim. Thus, it is not always true that *bounded* predicates cannot occur with resultative phrases.

Moreover, contrary to the claims made by Dowty (1979), Jackendoff (1990), and Rapoport (1993), there are some *unbounded* predicates that do not take resultative phrases, as in (11):

(11) a. *He loved her happy .

    a'. He loved her for/*in two years. [unbounded]

    b. *Tom watched Mary fearful.

    b'. Tom watched Mary for/*in an hour. [unbounded]

Their analyses wrongly predict that the sentences in (11a) and (11b) would be acceptable as resultative constructions, since these predicates *loved her* and *watched Mary* are *unbounded* predicates, as shown in (11a') and (11b').

Taking the above matters into consideration, we can say that the distinction between *bounded* and *unbounded* predicates is not essential to resultative formation. Notice that there are some other cases which show that the aspectual account plays no role in the formation of resultative constructions. Consider the following:

(12) a. Bill broke the door open.

    b. *Bill broke the vase worthless.

(13) a. John wiped the table clean.

    b. *John wiped the table dirty.

(14) a. I caught his collar awry.

    b. *I caught the dog unhappy.

Take (12), for example. In this case, both VPs are headed by *break*, and the two uses of the verb belong to the same aspectual class. Nevertheless, only (12a) is acceptable. The same observation applies to (13) and (14). The aspectual approach cannot, therefore, account for the fact that the choice of resultative phrases affects the grammaticality of the resultative construction. There is a set of examples which aspectual approaches cannot give a sufficient explanation of:

(15) a. *Midas touched the tree gold.

b. *Tom entered the house dirty.

c. (*)He dug the hole deep.

d.(*)He built the house beautiful.

e. *The Loch Ness monster appeared famous.

In the following section, we will propose from a cognitive point of view an alternative approach to the problems that the previous analyses cannot solve. My cognitive approach will give a natural and sufficient account of the data in (12)-(15).

3. Analysis

3.1 The Concept of "Construction"

Before proposing some specific constraints on the resultative construction, I would like to briefly consider the concept of "construction." According to Construction Grammar (cf. Fillmore (1985), Goldberg (1995) among others), constructions are taken to be a basic unit of language and are associated directly with semantic structures which reflect scenes basic to human experience. That is, from Construction Grammar's viewpoint, a construction expresses the event which we human beings frequently experience.

In my opinion, this idea applies to the resultative construction. In the case of the English resultative construction, the event schema described by this construction is also "entrenched" (that is, well-established and readily activated) through repeated experiences, and people acquire the resultative construction through exposure to actually occurring expressions related to the resultative scene. I will argue that resultative constructions can be understood to form a kind of conventionally-established pattern in English. My basic claim is that the situation described by the resultative construction must instantiate a type of scene conventionalized from our daily experience.

I give some examples which support this claim. Let us first consider the following

sentences:

> (16) a.   The guests drank the teapot dry.
>
> a'. *The guests drank the teapot.
>
> b.   John drank himself silly.
>
> b'. *John drank himself.

As (16a') and (16b') show, the nominal expression *the teapot* and *himself* cannot appear in the direct object position of a transitive sentence with *drink*. Nevertheless, why can such entities as *teapot* or *himself* appear in the direct object position in resultative constructions, as shown in (16a) and (16b)? Here I would like to consider the situations described by the resultative construction in (16a) and (16b). Reflecting on the situations expressed by (16a) and (16b), we notice that these situations where "the teapot became dry as the result of drinking" or "he became silly as the result of drinking" can be perceived experientially. From this reflection, we can say that the situation expressed by the resultative construction instantiates a type of scene conventionalized from our daily experience. Similar remarks hold for the following sentences:

> (17) a.(*)Mary drank the milk hot.[2]
>
> b.   Mary drank the milk.

That is, the reason why the nominal expression *the milk* which can appear in the direct object position of a transitive sentence with *drink* cannot appear in that of the resultative construction is that the situation where "the milk became hot as the result of the action of drinking it" cannot be actually experienced or understood.

The same account carries over the contrast between (18a) and (18b):

> (18) a.   The insect ate the peach hollow.
>
> b.   *The man ate the peach hollow.

Interestingly, as shown in (18b), where an nominal expression like *the man* appears in the subject position of the resultative construction, the sentence is semantically anomalous. Why cannot *man* appear in the subject position in the resultative construction in this context? We are now in a position to say that the difference in acceptability between (18a) and (18b) stems from the difference in the manner of eating between men and insects. In the case of an insect, we can easily understand that the peach becomes hollow after the insect eats it, because we can experience repeatedly a situation in which an insect ate the peach and it became hollow, viewing it as a normal situation. On the other hand, in the case of a man, we do not generally understand that the peach becomes hollow as the result of the man eating it, except for some

cases where a man deliberately eats a peach in such a way that it becomes hollow. Recall that the situation expressed by the resultative construction must instantiate a type of scene conventionalized from our daily experience. (18b) is not acceptable on the resultative interpretation, because the resultant state of the peach being hollow does not meet what we naturally expect from the situation where a man eats a peach (See section 3.2). In this sense, a situation in which a man eats the peach and it becomes hollow is understood to be a special situation.

It follows from the above observations that the situation described by the resultative construction must instantiate a type of scene conventionalized from our daily experience. In the following subsection, I will propose some specific constraints on the resultative construction which are derived from this idea.

3.2 Direct Change Constraint

Let us first consider the contrast in (12), repeated as (19), which cannot be explained in terms of verbal aspect:

(19)   a.   John wiped the table clean.

b. *John wiped the table dirty.

(19a) is acceptable on the resultative reading, while (19b) is not, even if the napkin for wiping is dirty. What gives rise to this difference in grammaticality? Here I would like to pay attention to the action denoted by the verb. *COBUILD* (p. 1674) says that "if you wipe something, you rub its surface lightly, for example, with a cloth or your hand, in order to remove dirt or liquid from it." It is clear from this definition of *wipe* that the resultant state of being clean denoted by the resultative phrase should be directly caused by the action of wiping itself, and it can be naturally inferred from the wiping action. By contrast, the resultant state specified by *dirty* was caused by the napkin covered in dirt, not the act of wiping. Based on this observation, I propose a constraint on the resultative construction as stated in (20):

(20) Direct Change Constraint:

A change of state described by the resultative construction must be understood to be directly caused by the action denoted by a verb, and the resultant state denoted by the resultative phrase must be naturally inferred from the action of verb.

That is, what directly causes the resultant state in (19a) is attributed to the wiping action itself. On the other hand, what directly causes the resultant state in (19b) is attributed not to the wiping action but to the napkin being dirty.

The Direct Change Constraint can also explain the difference in grammaticality between the following sentences:

(21) a. He hammered the metal flat.

b. *He hammered the metal shiny.

LDCE (p. 823) defines the verb *hammer* as follows: "to hit something with a hammer *in order to force it into a particular position or shape*" (italics are mine). The italicized part in this definition reflects what we naturally expect from the action of hammering. This being the case, we can say that the resultant state of being flat can be naturally inferred from the hammering action, while the resultant state specified by *shiny* cannot. Thus, since (21b) does not meet the Direct Change Constraint in (20), it is unacceptable as a resultative construction.

A similar explanation applies to the following contrast:

(22) a. *Midas touched the tree gold. (=(15a))

b. The fairy charmed the prince free.

(22a) is unacceptable as a resultative construction, even if an appropriate situation is set up; for example, Midas is a myth and he has the power of turning anything he touches into gold; on the other hand, (22b) is acceptable as a resultative construction, although both of the situations described by (22a) and (22b) are alike. Why is it that only (22b) is acceptable? The reason is that, in the case of (22a), the change of state such that the tree turned into gold could not be directly caused by the touching action itself; but rather the resultant state the speaker intended to describe would be caused by Midas' ability. Thus, (22a) does not meet the constraint in (20) and is judged as unacceptable on the resultative reading. On the other hand, in the case of (22b), the change of state such that the prince became free was directly caused by the charming action itself, because the verb *charm* implies *casting a spell on a person*. (22b) meets the constraint in (20), and so it is acceptable on the resultative interpretation.

The sentence in (15b), repeated as (23), is not acceptable as a resultative construction for the same reason:

(23) *Tom entered the house dirty.

In (23) the change of state such that the house became dirty cannot be attributed to the action of entering itself; such a change of state is caused by, say, Tom's dirty shoes or Tom being dirty, but not by the action of entering itself.

Moreover, the Direct Change Constraint can also account for the reason why stative verbs fail to appear in the resultative construction, as in (5), repeated as (24):

(24) a. *Tom loved her happy.

    b. *He believed the idea powerful.

    c. *The teacher hated the pupils angry.

The stative verb is incompatible with the resultative construction because the situation described by the verb does not involve any change of state.

3.3 Objectivity Constraint

In this subsection, we will consider the factor which is responsible for the following difference in acceptability, as in (13), repeated as (25):

(25) a. Bill broke the door open.

    b. *Bill broke the vase worthless.

Why is it that only (25b) is unacceptable as a resultative construction? It is to be noted that none of the aspectual analyses can explain the contrast between (25a) and (25b). Here I would like to pay attention to the resultant state denoted by the resultative phrase. The adjective *open* in (25a) literally describes the resultant state of the door caused by the breaking action, and we can take it as an objective fact, because everyone can recognize the same fact. On the other hand, *worthless* in (25b) is an evaluative adjective, and it does describe the subjective judgement or the personal feeling about a vase, not an objective fact: one's emotions sometimes bias one's judgement. From this observation, I propose another constraint on the resultative construction, as stated in (26):

(26) Objectivity Constraint:

       A resultant state denoted by the resultative phrase must express an objective fact. "Objective" is intended to means here "existing outside the mind; real or not influenced by personal feelings or opinions."

This constraint can explain the following contrast between (27a) and (27b):

(27) a. I caught his collar awry.

    b. *I caught the dog unhappy.

The adjective *awry* in (27a) describes the resultant state of the collar caused by the action of catching, and we can understand the situation where the collar became awry as an objective fact. Thus, (27a) meets the constraint in (26). By contrast, the resultant state specified by *unhappy* expresses the speaker's personal feeling, and we cannot regard it as an objective fact; we do not understand in reality whether the dog was unhappy or not. Thus, (27b) does not meet the constraint in (26). This is why (27b) is unacceptable on the resultative reading. The

difference in meaning between *awry* and *unhappy* is relevant to the difference in acceptability in (27), but at present it is not unclear to me whether similar arguments can be made to other contrasts such as between (27b) and (28):

(28) I ate myself sick.

A full discussion of this topic will have to be made in my future research.

Note in passing that such situations as (25b) and (27b) can be expressed by *make*-causative constructions, as shown in (29). Though I do not detail the *make*-causative construction, it is interesting to note that the constraints in (20) and (26) do not apply to the *make*-causative. This means that they are peculiar to the resultative construction.

(29) a. Bill made the vase worthless by breaking it.

b. I made the dog unhappy by catching it.

As (29a) and (29b) show, the *make*-causative construction can describes the evaluation that the resultative construction cannot express. Recall that verbs like *touch* and *enter* cannot appear in resultative constructions, even if appropriate situations are set up, in (15a), repeated as (30):

(30) a. *Midas touched the tree gold.

b. *Tom entered the house dirty.

Such situations as those in (30) can be expressed by using *make*-causative constructions.

(31) a. Midas made the tree gold by touching it

b. Tom made the house dirty by entering it.

As is well known, the resultative construction is classified as a kind of causative. As we have seen in section 3.2, in the case of the resultative construction, the direct cause of the change of state must be necessarily attributed to the action denoted by the verb. On the other hand, as shown in (31), in the case of *make*-causative constructions, the cause of a change of state can be attributed to not only the action denoted by the verb, but also the ability or property of the subject. That is, in the *make*-causative construction, the direct cause is not necessarily attributed to the action denoted by the verb. *Make*-causative constructions are distinguished from resultative constructions in this respect. Hence, the stative verb can occur with the *make*-causative constructions, as in (5), repeated as (32):

(32) a. He made Mary happy by loving her.

b. He made the idea powerful by believing it.

c. The teacher made the pupils angry by hating them.

It is concluded that the Direct Change Constraint in (20) as well as the Objectivity Constraint in

(26) are peculiar to the resultative construction.

3.4 Pre-existence Constraint

In this subsection, we will consider another constraint on the postverbal NP in the resultative construction, and claim that what can appear as the object of resultative constructions must be the entity which is already in existence prior to the action described by verbs.

In this connection, it is important to refer to what Fillmore (1968) calls "affectum objects" and "effectum objects." Fillmore divides objects into two types, namely "affectum objects" and "effectum objects". Let us observe the examples below:

    (33) a.   John ruined *the table*.

         b.   John built *the table*.   (Fillmore (1968: 4), italics mine)

He observes that in (33a) the object is understood as existing prior to John's activity of ruining, while in (33b) its existence is considered to emerge as a result of John's activity of building. He calls the object in (33a) an affectum object and the object in (33b) an effectum object. To put it another way, the objects which belong to the affectum object class are understood as being already in existence prior to the action described by verbs, whereas the objects which belong to the effectum object class are understood as coming into existence after the action described by verbs.

This classification is of much relevant to our discussion:

    (34) a.   (*)He built the house splendid.[3] (=(15c))

         b.   (*)She made the chair beautiful.

(34a) and (34b) do not receive a resultative interpretation. Considering the property of the object NPs, we notice that such objects as *the house* and *the chair* cannot be recognized as existing prior to the actions described by the verbs: *the house* and *the chair* are effectum objects. I propose, then, the following constraint:

    (35) Pre-existence Constraint:

         An entity which can appear in the object position of the resultative construction must

         be the entity which is already in existence prior to the action described by a verb.

The constraint in (35) can account for (36):

    (36) a.   He rebuilt the house splendid.

         b.   She remade the chair beautiful.

Unlike the sentences in (34), (36a) and (36b) receive not only an adverbial interpretation but also a resultative interpretation. More specifically, (36a) means that he rebuilt the house

splendidly and it also means that he caused the house to become splendid by rebuilding it. The same applies to (36b). I will return to the adverbial modification in the next subsection. The point that we should notice here is that in (36), in contrast with (34), the noun phrases *the house* and *the chair* are taken to be the objects existing prior to the actions described by the verbs. This is because the prefix *re-*, which means 'again', is attached to the verb to imply that the entity which is denoted by the object exists prior to the action of the verb. Thus, (36a) and (36b) meet the Pre-existence Constraint in (35), so they are acceptable as resultative constructions.

We will also account for resultative constructions with unaccusative verbs in terms of the Pre-existence Constraint in (35). Consider the sentences in (3), repeated as (37):

    (37) a.   The river froze solid.

         b.   The door slid shut.

         c.   The bottle broke open.

Recall that, as we have seen in section 1, in the case of unaccuastive verbs, resultative phrases are predicated of subject NPs. In this case, the Pre-existence Constraint applies to the subject NPs. With this in mind, let us observe the subject NPs in (37). *The river*, *the door* and *the bottle* in (37) must exist prior to the processes of freezing, sliding and breaking. Therefore, we can say that the subject NP in the resultative construction with an unaccusative verb must refer to the entity which is recognized as existing prior to the action of the verb. However, not all unaccusative verbs occur with a resultative phrase. For example, *appear* does not appear in this construction:

    (38) *The Loch Ness monster appeared famous.   (=(15e))

Why is (38) unacceptable as a resultative construction? Seemingly (38) meets the Pre-existence Constraint. However, observing carefully the subject NP *the Loch Ness monster*, we will notice that it can be understood as coming into existence after the action of appearing. That is, the perceiver regards the monster to be nonexistent until it shows up. Therefore, (38) violates the Pre-existence Constraint in (35). This is why (38) is unacceptable.[4]

A similar explanation applies to the following sentence:

    (39) (*)Willa arrived breathless.   (Levin and Rappaport (1995: 56))

The speaker does not understand the subject NP *Willa* to be existent until she arrives. (39) does not meet the Pre-existence Constraint, and so it is not acceptable on the resultative reading.

Taking the above matters into consideration, we can say that, in virtue of the Pre-existence

Constraints, an NP which appears in the object position (or in the subject position in the case of unaccusative verbs) of the resultative construction is limited either to an entity which is already in existence prior to the action denoted by a verb or to an entity which can be seen as coming into awareness after the action denoted by a verb.

3.5 Predication Relation

From the observation in section 3.4, we can say that the Pre-existence Constraint in (35) is imposed on resultative constructions. However, even if the noun which appears in the object position of resultative constructions is understood as existing prior to the action of verbs, some sentences are not acceptable as resultative constructions, as in (40):

(40)   *He dug the ground deep.

Why (40) is unacceptable as a resultative construction although the noun *ground* is taken to be already in existence prior to the action of digging? I will argue that it is necessary to take into consideration the predication relation between the object NP and the resultative phrase.

Washio (1997) argues that the grammaticality judgement of the resultative construction is partially based on whether or not the adjective which appears as the resultative phrases can alternate with an adverb without producing a difference in meaning. If the adjective can be replaced with the corresponding adverb with virtually no difference in meaning, the sentence is not acceptable as a resultative construction; on the other hand, if the adjective cannot be replaced with the corresponding adverb with virtually no difference in meaning, the sentence is acceptable as resultatives. Washio calls the former "spurious resultatives," while the latter "strong resultatives." Let us consider the examples below:

(41)   a. (*)He tied his shoelaces tight/loose.

         b.   He pulled his tie tight/loose.   (Washio (1997: 17))

Washio claims that (41a) is a spurious resultative: in this case, the adjectives *tight* and *loose* can be regarded as describing the way the subject entity tied his shoelaces, that is, he did it with or without much force, so that the adjectives can alternate with adverbs with virtually no difference in meaning. Therefore, (41a) is not acceptable as a resultative construction. On the other hand, (41b) is acceptable, since the verb *pull* does not imply any specific state that the tie might be in as the result of being pulled, so that the adjectives *tight* and *loose* are completely independent of the verb. (41b) is an example of a strong resultative. Given that (41b) is not a spurious resultative, it is also understandable that the adjective there cannot be replaced with an corresponding adverb, as in (42b), which contrasts with (42a):

(42) a. He tied his shoelaces tightly/loosely.

     b. *He pulled his tie tightly/loosely.   (Washio (1997: 17))

However, there are some examples to which his analysis cannot apply.

(43) a. He rebuilt the house splendid.

     b. She remade the chair beautiful.

(44) a. He rebuilt the house splendidly.

     b. She remade the chair beautifully.

The sentences in (43) receive both resultative and adverbial readings. In (43a), the adjective *splendid* can be replaced with the corresponding adverb of manner (*splendidly*) with virtually no difference in meaning, as in (44a). (43a) also receives a resultative reading (*He caused the house to become splendid by rebuilding it*). The same applies to (43b): while the adjective *beautiful* can be replaced with the corresponding adverb of manner (*beautifully*) with virtually no difference in meaning, as in (44b), the resultative phrase *beautiful* can be regarded as receiving a resultative interpretation (*She caused the chair to become beautiful by remaking it*).

From the above observation, Washio's analysis is not entirely correct. Then why is the sentence in (41a) unacceptable as a resultative construction? As we have seen in section 1, in the resultative construction the resultative phrase is predicated of the postverbal NP. In other words, a predication relation holds between the resultative phrase and the postverbal NP in the resultative construction. I will test the predication relation by linking the postverbal NP to the resultant state with *be*. The predication relation between the postverbal NPs and the resultative phrases in (41) is shown in (45):

(45) a. *His shoelaces are tight/loose.

     b. His tie is tight/loose.

As (45a) shows, there is no predication relation between the object *his shoelaces* and the resultative phrase *tight* or *loose*, thus (41a) is not acceptable as a resultative construction. In (41b), there is a predication relation between the object *his tie* and the resultative phrase *tight* or *loose*, as (45b) shows. Therefore (41b) is acceptable as a resultative construction. For the same reason, the sentence in (46a) is unacceptable on the resultative reading:

(46) a. (*)He opened the window wide.

     b. *The window is wide.

As (46b) shows, there is no predication relation between the object NP *the window* and the resultative phrase *wide*, thus (46a) is unacceptable.

Now, let us return to the question of why (40), repeated as (47), is not acceptable as a resultative construction. In this case also, we can account for its grammaticality in terms of predication relation, for there is no predication relation between *the ground* and *deep*, as in (47b):

(47) a. *He dug the ground deep.

b. *The ground is deep.

To sum up, it is important to stress that resultative phrases are predicated of objects.

3.6 Summary

In this subsection I summarize briefly the main points that have been made in section 3. I have proposed three constraints on the resultative construction, as shown in (48):

(48) a. Direct Change Constraint

b. Objectivity Constraint

c. Pre-existence Constraint

Each of these three constraints captures a different facet of the resultative construction in English. The Direct Change Constraint describes the relation between the action denoted by the verb and the resultant state of the object NP resulting from the action of verb: a change of state described by the resultative construction must be understood to be directly caused by the action denoted by a verb, and the resultant state denoted by the resultative phrase must be naturally inferred from the action of verb. The Objectivity Constraint describes the characteristic of the resultant state of the object NP caused by the action denoted by the verb: a resultant state denoted by the resultative phrase must express an objective fact. The Pre-existence Constraint describes the characteristic of the object NP in the resultative construction: an entity which can appear in the object of the resultative construction must be the entity which is already in existence prior to the action of verb.

4. Concluding Remarks

In this paper, I have provided my own solution to the problems with the previous analyses on the standpoint that a resultative construction exists independently of particular verbs that instantiate it, and it has its own semantics. From this standpoint, I have shown that the situation described by the resultative construction must illustrate a type of scene conventionalized from our daily experience. Based on this viewpoint, I have proposed three constraints on the resultative construction: Direct Change Constraint, Objectivity Constraint and

Pre-existence Constraint. In addition, we have seen that the predication relation between the postverbal NP and the resultant phrase are important as well as the above three constraints.

Notes

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[1]Parenthesized asterisk (*) means that a sentence with this mark does not receive a resultative interpretation but receives other interpretations.

[2]As for (17a), although *hot* may be predicated of the object of the verb *drink*, it does not receive a resultative interpretation, but a *depictive* interpretation (the term depictive is originally due to Halliday (1967)). That is, the sentence cannot mean that the milk became hot as a result of drinking the milk, but that she drank the hot milk.

[3](34a) receives an adverbial interpretation, while (34b) receives a causative reading. More specifically, (34a) means that he built the house splendidly, while (34b) means that she caused the chair to be beautiful.

[4](38) can also be excluded by the Objectivity Constraint in (26). This is not problematic, because the Pre-existence Constraint and the Objectivity Constraint characterizes different aspects of the resultative construction.

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