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THE COGNITIVE PROCESS OF ENGLISH RESULTATIVE CONSTRUCTIONS: FROM THE PERSPECTIVE OF FOCUS CHAIN *

1 INTRODUCTION

Resultative constructions express what sort of state comes about for the referent of a noun phrase (NP) as a result of the action denoted by a verb. The aim of this paper is to investigate the cognitive process related to the semantic interpretations of English resultative constructions like (1), where the NPs *the pub*, *the cupboard*, and *the pan* are licensed as constructional objects, though they are non-subcategorized objects of the verbs. I refer to this type of resultatives in (1) as Non-subcategorized Object Resultatives (NSORs).

(1) a. They drank the pub dry. (Rappaport Hovav and Levin 2001: 788)
b. Herman ate the cupboard bare. (Levin and Rapoport 1988: 276)
c. Bernie fried the pan black. (Boas 2003: 113)

The verbs such as *drink*, *eat*, and *fry* have both transitive and intransitive uses in the non-resultative sentences, as in *They drank beer* and *They drank*.[1] In (1), these verbs can take non-subcategorized objects by adding the resultative predicates like *dry*, *bare*, and *black*, or the secondary predicates describing the result states of the referents of the postverbal NPs.[2] Consequently, adjectives occurring as resultative predicates (result APs) are predicated of non-subcategorized objects.

Some studies of resultative constructions, such as Rappaport Hovav and Levin (2001), have presented a discussion of the grammaticality of NSOR in (1a). The

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[1] Broccias (2003) and Levin and Rappaport Hovav (1995) call the verbs like *drink* and *eat* "unspecified object verbs." To put it another way, an unspecified object verb is a transitive verb which allows the omission of a direct object.

[2] When result APs in (1) are omitted, NSORs are not maintained as in **They drank the pub*.

sentence *They drank the pub dry*, which is a kind of idiomatic expression, means that the alcohol in the pub was consumed as a result of their drinking it. In particular, Rappaport Hovav and Levin (2001) regard the pub as undergoing some change of state due to the pragmatic link between *drink* and *the pub*, and suggest that the predication relation holds between *the pub* and *dry*. However, neither the pub nor the alcohol becomes "dry." In this paper, I analyze how the events described by the resultative constructions including NSORs are cognitively understood, and claim that the meaning of NSOR in (1a) can be interpreted properly by considering its cognitive process based on Langacker's (1999) focus chain.

This paper is organized as follows. Section 2 presents an outline of Rappaport Hovav and Levin (2001) as a previous study and points out the problems with it. Section 3 proposes a focus-chain based analysis of the cognitive process of resultative constructions, thereby attempting to investigate the cognitive process involved in the semantic interpretations of NSORs. Section 4 applies the proposed analysis to other types of resultative constructions. Section 5 concludes with a summary of discussions.

2 A Previous Study: Rappaport Hovav and Levin (2001)

2.1 The Interpretation of They drank the pub dry

Rappaport Hovav and Levin (2001) first introduce Croft's (1991) causal chain in discussing the possibility of the predication relation between a resultative predicate and a postverbal NP in a transitive-based resultative construction. The basic properties of events conceptualized in a causal chain are listed in (2).

(2) a. a simple event is a (not necessarily atomic) segment of the causal network;
b. simple events are nonbranching causal chains;
c. a simple event involves transmission of force;
d. transmission of force is asymmetric, with distinct participants as initiator and endpoint

(Rappaport Hovav and Levin 2001: 787)

According to Rappaport Hovav and Levin's explanation, the events described by a verb may be represented through a causal chain, and the notion of a causal chain has its roots in the view of 'force-dynamic' relations by Talmy (1976, 1985, 1988). Force-dynamic relations describe the interactions between two participants in the event with respect to force. Essentially, the causal chain representation of an event is regarded as a series of force-dynamic relations.

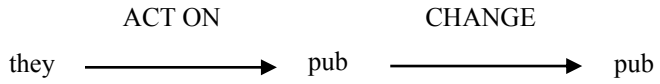
Drawing on such a causal chain, Rappaport Hovav and Levin discuss the grammaticality of NSOR in (3), and the detailed explanation is given in (4).

(3) They drank the pub dry. (= 1a)
(4) "In [(3)], the transitive verb *drink* describes an event with a force-dynamic relation between the drinkers and what's drunk (e.g. *They drank the beer*), but it also involves a change of state in the pub, its becoming empty of drink."

(Rappaport Hovav and Levin 2001: 788)

(3) is a type of resultative based on a transitive verb whose object is not subcategorized. For this type of resultative, Rappaport Hovav and Levin propose the idea that transmission of force to an unspecified object (corresponding to what's drunk in (3)) is not represented in the causal chain. Here, let us look at the causal chain for *They drank the pub dry* as specified below.

(5) Causal chain for *They drank the pub dry*



(Rappaport Hovav and Levin 2001: 789)

In (5), where each arrow represents a segment of the causal chain, there are two force-dynamic relations: a transmission of force (indicated by the label ACT ON) and a change of state (indicated by the label CHANGE). The first segment represents a transmission of force from the drinkers (*they*) to the pub. More specifically, the transmission of force originates in the drinkers, and it is directed towards the pub realized as an object rather than towards the drink unexpressed as an argument. The second segment represents the change of state in the pub. This change of state is brought about by the action of drinking, and the pub is established as a force recipient.

In addition, Rappaport Hovav and Levin suggest that the pub, as a location to drink at, is associated with the drinkers' action of drinking by inference, and thus the change of state in the pub is licensed as a segment in the causal chain. Consequently, as described in (4), the change of state in the pub is identified as becoming empty of drink.

2.2 Problems

In Section 2.1, I have presented the outline of the discussion in Rappaport Hovav and Levin (2001). From the views mentioned therein, we may imagine the situation where the pub or the liquid drunk becomes "dry" as a result of drinking in the pub. However, such a semantic interpretation cannot be obtained as in (6).

(6) (As a result of drinking alcohol in the pub)
a. *The pub was/became dry.
b. *The alcohol was/became dry.

The problem with the discussion presented by Rappaport Hovav and Levin (2001) is that they do not state directly what entity is regarded as becoming "dry" in *They drank the pub dry*. The examples in (6) show that the result AP *dry* does not denote the properties of the pub or the alcohol. In contrast, it is possible to get the semantic interpretation that the containers like bottles become "dry" as a result of the action of drinking, as shown in (7). This means the result AP *dry* could be predicated of the containers unexpressed as an argument in (3).

(7) (As a result of drinking alcohol in the pub)
The bottles were/became dry.

In order to get a proper interpretation of (3), some cognitive process unique to the English resultative constructions will be required. In what follows, I will investigate the cognitive process related to the semantic interpretation of the resultative constructions.

3 INVESTIGATIONS OF NSORS

3.1 The Semantic Property of a Result AP

In this subsection, I illustrate the possibility of the predication relation between an unexpressed entity and the result AP in (3), that is, the relation of the containers and *dry* denoting its properties. As already mentioned, *They drank the pub dry* has the meaning that the alcohol in the pub was consumed as a result of their drinking it. This sentence consists of two events, a causing event denoted by the verb *drink* and a result event denoted by the result AP *dry*. More specifically, the causing event (e_1) and the result event (e_2) in (3) can be interpreted as follows.

(8) The interpretation of *They drank the pub dry*:
e_1: They drank **the alcohol** in the bottles served at the pub.
e_2: **The bottles** located in the pub were dry.

In the causing event, the alcohol receives the action of drinking, and its volume is gradually consumed. In the result event, the bottles are in a state of being dry, but the pub or the alcohol is not. Though the entities of "the alcohol" and "the bottles" do not

surface as linguistic expressions, they participate in events described by the NSOR in (3). Furthermore, the result AP *dry* can be regarded as describing the result state of containers' being empty of the liquid inside, based on the dictionary meaning of (9).

(9) The meaning of the adjective *dry*:
Not yielding water (or other liquid); exhausted of its supply of liquid
(*OED*)

The fact that the pub and the alcohol are not in a "dry" state after the end of the drinking event is also confirmed by the unacceptability of (6): the adjective *dry* cannot be predicated of the NPs *the pub* and *the alcohol*. It follows from these observations that the result AP *dry* in (3) refers to the result state of "the containers."

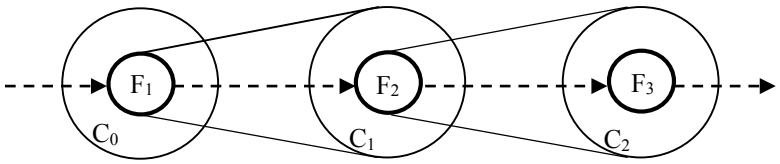
3.2 Proposal

As I have mentioned earlier, it is assumed that some cognitive process will be needed for properly interpreting the meanings of the resultative constructions. In order to investigate how we understand the course of events described by the NSOR in (3), I adopt the notion of Langacker's (1999) focus chain.

Langacker (1999) defines a focus chain as in (10), and the basic model of a focus chain is illustrated in (11), which shows the dynamic cognitive process involving a shift in focus from one accessible entity to the next.

(10) … a *focus chain*, i.e. a series of successive foci of attention, each occurring in some context. Directing attention to a particular focus, in a given context, changes the circumstances and thereby creates or evokes a new context, within which the next focus may be found.
(Langacker 1999: 365)

(11) Focus chain



(Langacker 1999: 365)

In (11), F represents a focus of attention, C represents a context (equivalent to a dominion in reference-point constructions), and the dashed arrows indicate the shift in focus. Based on the diagram in (11), the cognitive process involving a focus chain is

explained in the following way. First, F_1 functions as the initial point of access, evoking a new context C_1, that is, the context of F_1. Then, within C_1, F_2 is conceptualized as the next focus. Next, F_2 evokes a new context C_2, that is, the context of F_2. Finally, within C_2, F_3 is conceptualized as the next focus. These foci of attention form a chain-like course, and the shift from one focus to another is detected along the dashed arrows.

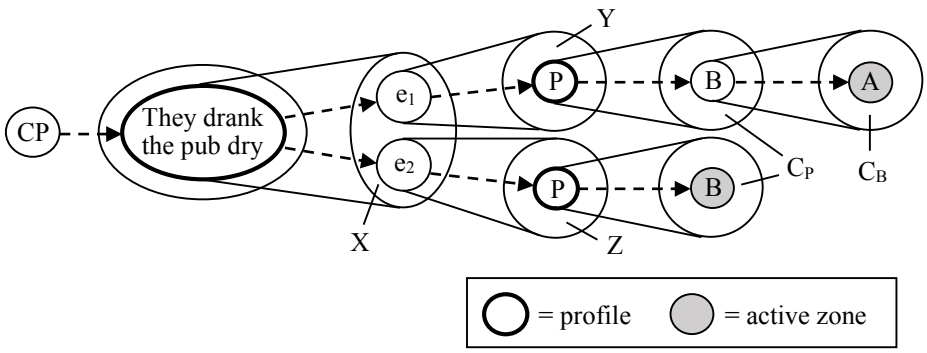
Thus, one focus evokes a particular conceptual region in which the shift to the next focus is allowed (i.e., its context), and the next focus can be found in the evoked context. This account of a focus chain will be useful for examining what entity actually receives the action denoted by a verb and what entity undergoes the state denoted by a result AP.

As for (3), viewed from Langacker's (1993) active-zone/profile discrepancy, *the pub* realized as an object is the profiled participant (i.e., the one explicitly coded by the NP). In addition, entities like the alcohol and the bottles are the active zones (i.e., the ones representing the portions of the entity participating most directly in a relation designated by a predicate). Here, these active zones are merely related to the pub in that they participate most directly in the process of drinking or in the state of being dry. Thus, the idea of an active-zone/profile discrepancy will also be taken into account in making an analysis of the cognitive process involved in the semantic interpretations of NSORs based on a focus chain.

3.3 Analysis

Under the accounts mentioned in Section 3.2, I present the cognitive process related to the semantic interpretation of *They drank the pub dry* as in (12).

(12) Cognitive process of *They drank the pub dry*



Based on this model, the cognitive process of focusing is explained as follows. First, the conceptualizer (CP) directs his/her attention to the expression *They drank the pub dry*, and this NSOR, as an initial focus, evokes its own context (X). The

conceptualizer here is regarded as a person who understands linguistic expressions rather than as a speaker. X represents the conceptual region involved in *They drank the pub dry*, and within X, the causing event (e_1) and the result event (e_2) are conceptualized as individual foci simultaneously. Here, the foci e_1 and e_2 are not indicated by circles written in boldface, because they are not expressed as arguments.

Second, e_1 evokes the context of e_1 (Y), and within Y, the NP *the pub* (P) is focused, and similarly, e_2 evokes the context of e_2 (Z), and within Z, *the pub* (P) is focused. Y represents a set of arguments [They drank the pub], and Z represents a set of arguments [the pub dry]. In the case of *They drank the pub dry*, the drinking event and the event of becoming dry share *the pub*, which is an important element required for the integration of the two events into a single event.[3] Therefore, *the pub* which serves as a profile is conceptualized as a focus in both the contexts Y and Z.

Third, the shift in focus from *the pub* to an active zone varies in accordance with the nature of each event. For the causing event, the focus P found in Y evokes the context of *the pub* (C_P), and within C_P, the bottles (B) are focused. The focus B evokes the context of the bottles (C_B), and within C_B, the alcohol (A) is focused as the actual object of drinking. For the result event, the focus P found in Z evokes the context of *the pub* (C_P), and within C_P, the bottles (B) are focused as the actual object of becoming dry. Whether in the causing event or in the result event, the focus shift from one entity to another can be judged by the relationship between entities in conceptual size. That is, the focused entities shift in the order of size from a larger concept to a smaller one, like the shifts "*the pub* → the bottles → the alcohol" in the drinking event and "*the pub* → the bottles" in the event of becoming dry.

Thus, in interpreting the meaning of *They drank the pub dry*, we narrow down the focused entities gradually and come to an understanding of what entity receives the action of drinking and what entity undergoes the result state of being dry. The focus-chain based model proposed here is the one which shows how we construe the events described by the resultative constructions, but not the one which shows how their meanings are produced. This model invoked for construing events allows us to get the natural interpretation that the alcohol was consumed as a result of their drinking in the pub.

Furthermore, consider other examples of NSORs. The sentence in (13a) means that the cupboard underwent the change of state of being bare as a result of Herman's eating some food inside it, and the sentence in (13b) means that the pan was burned as a result of Bernie's frying the food in the pan.

(13) a. Herman ate the cupboard bare. (= 1b)
b. Bernie fried the pan black. (= 1c)

In the case of (13a), the causing event (e_1) and the result event (e_2) can be interpreted as in (14).

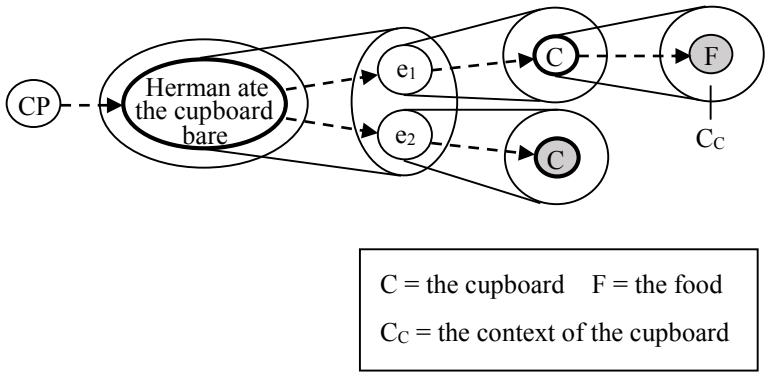
[3] My claim that *the pub* is a shared argument between two events is based on the view of (i) presented by Givón (2001: 50).

(i) Referential cohesion and event integration
The more two events share their referents, the more likely they are to be construed as a single event.

(14) e_1: Herman ate **the food** in the cupboard.
e_2: **The cupboard** was bare.

According to the *OED*, the adjective *bare* has the meaning of "without contents, empty," and therefore, the result AP *bare* can be predicated of the object *the cupboard*. Given these observations, the cognitive process involved in the semantic interpretation of (13a) is illustrated as in (15).

(15) Cognitive process of *Herman ate the cupboard bare*



For the causing event, *the cupboard* evokes its own context (C_C), and within C_C, the food is focused as the actual object of eating. Consequently, the focus shift from *the cupboard* to the food is detected in line with the ordering in conceptual size. On the other hand, for the result event, *the cupboard* stands out as the focused entity in the event of becoming bare. Then, the focus shift from *the cupboard* to another entity does not occur, because *the cupboard* functions not only as an argument realized (i.e., a profile) but also as an actual referent which undergoes the result state of being bare (i.e., an active zone).

The same analysis is true of (13b). In the frying event, the food accessible through *the pan* is conceptualized as a final focus, and the focus shift from *the pan* to the food is detected. In the event of becoming black, *the pan* is conceptualized as a focused entity, and the focus shift from *the pan* to another entity does not obtain.

Thus, it is possible to get the natural interpretation of (13a) and (13b) as well, though the cognitive processes of NSORs in (13) are different from that of *They drank the pub dry*. Assuming that the focus shift from one smaller entity to another larger entity should not be maintained between two contingent events, we may be able to explain why (16a) is acceptable but (16b) is not.

(16) a. They drank the bottles dry.
b. *They drank the alcohol dry.

The intended meaning common to (16a) and (16b) is that the bottles became dry as a result of their drinking the alcohol in the bottles. In (16a), the alcohol accessible through *the bottles* is regarded as an actual referent of drinking, and the bottles are salient as the object of being dry. In the drinking event, the focus shift from *the bottles* (profile) to the alcohol (active zone) can be found, but there is no such shift in the event of becoming dry. Since the focused entities related to the causing event are identified in line with the order of conceptual size, the sentence in (16a) is acceptable. In contrast, when *the alcohol* is taken as a constructional object as in (16b), the focus shift from *the alcohol* (profile) to the bottles (active zone) is detected in the event of becoming dry. Then, *the alcohol* is a conceptually smaller entity in comparison to the bottles since they are in a container-content relation. In the result event of (16b), these focused entities are not aligned in accordance with the order of conceptual size, and thus the sentence in (16b) is not acceptable. By analyzing the cognitive process involved in the semantic interpretations of NSORs based on a focus chain, the (un)acceptability of the sentences like (16) can also be explained.

4 Other Types of Resultative Constructions

As for other resultatives besides NSORs, how do we understand complex events consisting of a causing event and a result event? Can the focus-chain based analysis proposed in Section 3 be applied to the description of the intended meaning of their resultative expressions? In this section, I investigate the cognitive process involved in the semantic interpretations of typical examples of resultatives with subcategorized objects.

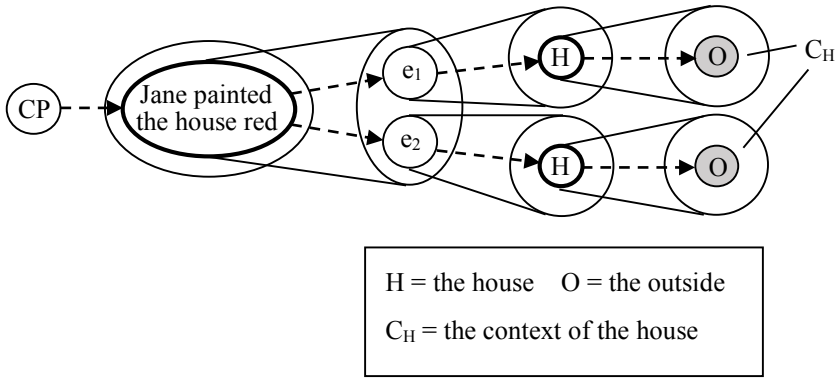
First, consider the example in (17), which means that the house became red as a result of Jane's painting the house.

(17) Jane painted the house red. (Rothstein 2006: 210)

More specifically, "the outside" of the house receives the action of painting, and it finally changes into a state of being red, as shown in (18). The outside, accessed through the NP *the house*, is an active zone which participates directly in both the process of painting and the state of being red. Based on this, the cognitive process of (17) can be represented as in (19).

(18) e_1: Jane painted **the outside** of the house.
e_2: **The outside** of the house was red.

(19) Cognitive process of *Jane painted the house red*

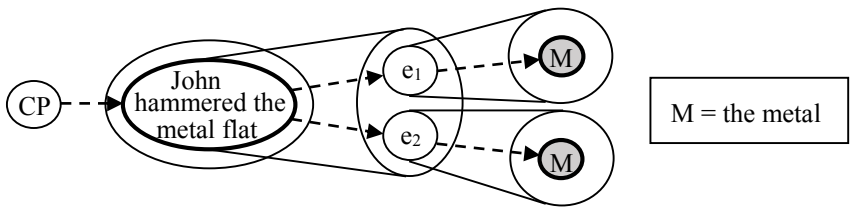


The diagram in (19) differs from that of NSORs in that the actual referent affected by painting is identical to the one undergoing a change of state. For the causing event, *the house* evokes the context C_H, within which the outside is conceptualized as a focus. Similarly, for the result event, *the house* also evokes C_H and the outside is focused as becoming red. The semantic discrepancy exists between a profile and an active zone in both events, and the focus shift from *the house* to the outside occurs. As expected, these referents functioning as focused entities are aligned in the order of conceptual size.

Next, the resultative sentence in (20) means the following: John hammered the metal, and as a result, the metal became flat. As in (21), it is the metal itself that is affected by hammering and is also in a result state of being flat. The model of the cognitive process naturally invoked for getting this interpretation is given in (22), where the metal functions as both the profile and the active zone.

(20) John hammered the metal flat. (Washio 1997: 5)
(21) e_1: John hammered **the metal**.
e_2: **The metal** was flat.

(22) Cognitive process of *John hammered the metal flat*



However, in fact, the semantic interpretation of (20) seems to be ambiguous. One of

the possible interpretations, which is the case with (21), is that "the metal" itself has the flat property as a result of John's hammering it, in terms of, for instance, the change in the shape of the metal. Another is that "the surface" of the metal becomes smooth and even by hammering it. This interpretation is concerned with the problem of whether "the surface" is even or not.

If one chooses the former interpretation as in (21), the metal could be focused as an entity participating in the hammering event and the event of becoming flat, as illustrated in (22). Then, we will assume that there is no focus shift from one entity to another. On the other hand, if one picks up the latter interpretation, *the metal* is regarded as an argument realized and its surface could be identified as a focus within the context evoked by *the metal*. That is, the latter interpretation can obtain through the same type of cognitive model as in (19), and it is assumed that the focused entities of "the metal" and "the surface" are aligned in the order of conceptual size.

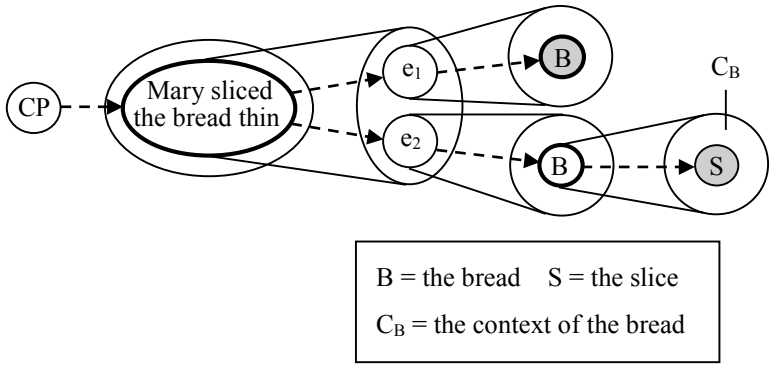
Finally, let us turn our attention to the example in (23).[4] This type of resultative exhibits the semantic interpretation slightly different from the sentences such as (17) and (20). The interpretation of (23) is shown in (24).

(23) Mary sliced the bread thin. (Levinson 2010: 137)
(24) e_1: Mary sliced **the bread**.
e_2: **The slice of bread** was thin.

As in (24), "the slice of bread," created by slicing the bread, undergoes the result state of being thin, but the bread itself does not. In fact, the adjective *thin* has the following meaning: "Having relatively little extension between opposite surfaces; of little thickness or depth." According to this definition of *thin* listed in the *OED*, the result AP *thin* refers to the property of "the slice of bread" newly created rather than the property of "the loaf of bread" existing before the cutting. Unlike (17) and (20), the example in (23) implies that the referent which receives the action denoted by *slice* is not identical to the one which is in a result state denoted by *thin*. Based on these views, the notion of a focus chain is also applied to the analysis of the cognitive process of (23) as follows.

[4] The type of resultative in (23) is called a "spurious resultative" in Washio's (1997) terminology. Here, I treat a spurious resultative as a kind of resultative construction.

(25) Cognitive process of *Mary sliced the bread thin*



In (25), *the bread* is focused as an actual object of slicing, while the slice which is created after the cutting is focused as undergoing the result state of being thin. For the causing event, *the bread* serves as both the profile and the active zone, and therefore, the focus shift from *the bread* to another entity does not occur here. For the result event, the semantic discrepancy is found between *the bread* (profile) and the slice (active zone). The focus shift from *the bread* to the slice is detected, and formed in the order of conceptual size.

Thus, the focus-chain based analysis also covers the examples of resultatives with subcategorized objects, in exploring the cognitive process that leads to the actual referent participating directly in the two events described. Although the models of the cognitive process invoked vary according to the types of resultatives, we can get the proper interpretations of typical resultatives and spurious resultatives as well as NSORs. The representations behind all of these occurrences conform to the restriction on the order of conceptual size of the evoked entities.

5 CONCLUSION

In this paper, I investigated the cognitive process involved in the semantic interpretations of English resultative constructions from the perspective of Langacker's (1999) focus chain.

After discussing the traditional view of the interpretation of *They drank the pub dry* presented by Rappaport Hovav and Levin (2001), I proposed a focus-chain based analysis of the cognitive processes invoked for interpreting the meanings of NSORs and demonstrated which entity receives the action denoted by a verb and which entity undergoes the state denoted by a result AP. Moreover, I also explored the cognitive processes of other types of resultatives like *Jane painted the house red* and *Mary sliced the bread thin* and showed that this cognitive analysis can be applied to the examples of resultatives with subcategorized objects as well as NSORs. Additionally, regardless of the types of resultatives, I found the focused entities appear in the order

of conceptual size if a focus shift from one entity to another is detected in either or both of the causing and result events.

The major purpose of this paper was to discuss how we get the semantic interpretation of *They drank the pub dry*, which is a kind of NSOR. This sentence implies that "the alcohol" receives the action of drinking and "the containers" are in a result state of being dry, and we can account for this proper interpretation through the analysis of the relevant cognitive process based on a focus chain. As already mentioned, the model of the cognitive process of resultatives so far presented shows how we understand the events described by resultative constructions, but not how their meanings are produced.

However, there still remain some fundamental problems. Can the focus-chain based analysis be truly extended to all types of resultatives? If there is a focus shift from one entity to another, do the focused entities within the shift always appear in the order of conceptual size? Furthermore, I have not fully studied the actual variation of resultatives attested in corpora, and therefore, further research will be needed.

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DICTIONARY

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