A Study on the Causative Alternation from a Non-derivational Perspective

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Abstract. The previous studies on the causative alternation can be divided into the derivational and non-derivational approaches. The cross-linguistic facts show that the former fails to provide an adequate account of the relationship between the causative and unaccusative alternates. However, the latter approach also faces some problems. In this paper we abandon the former and make a revision to the latter based on the theory proposed by Huang *et al.*(2009). We argue that the causative and unaccusative variants share one and the same root which conceptualizes different types of events and selects different eventive light verbs, resulting in two lexical items with different ways of argument realization.

Keywords: The causative alternation · Non-derivational perspective · Eventive light verbs

1 Introduction

Verbs with flexible ways of argument realization are called "variable behavior verbs"(Borer 1994). A typical example of them is the so-called "change-of-state verbs", which can be used either transitively or intransitively, as shown in (1):

(1) a. Pat broke the window.
b. The window broke.

In (1a), *break* in its causative use takes an external argument and an internal one. In (1b), the external argument disappears and the internal one moves to the subject position, resulting in the ergative(or unaccusative) use of *break*. These alternating ways of argument realization displayed by verbs like *break* is called "the causative alternation".[1]

The causative alternation has been the subject of much discussion in linguistic theory. The focus of debate is on the relationship between the causative and unaccusative alternates. Most of the previous studies take on a derivational approach, assuming a direct derivational relationship between the two variants. In recent years, however, some scholars adopt a non-derivational approach, which argues against any direct

[1] *break* in (1b) is also called "the inchoative verb" or "the anticausative verb", thus the causative alternation is also termed as "the causative/inchoative alternation" or "the anticausative alternation"(Levin and Rappaport Hovav 1995).

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derivational relationship and posits a common base for the two alternates. This paper is in favor of the latter approach based on the cross-linguistic facts. However, there are still some problems for the previous non-derivational studies and we will put forward a new analysis from the non-derivational perspective built on the theory proposed by Huang *et al.*(2009).

2 Literature Review

In this section, we will present the main ideas and the major drawbacks of the derivational and non-derivational approaches respectively.

2.1 The Derivational Approach and Its Problems

Proponents of the derivational approach hold that in the causative alternation, one alternate is derived from the other in the Lexicon by certain lexical rules. But they differ in which alternate is basic and which one is derived. Dowty(1979), Williams(1981) and Pesetsky(1995), among others, claim that the causative alternate is derived from the unaccusative one in that the former denotes an accomplishment which is composed of an achievement denoted by the latter. Dowty(1979: 206) proposes that the unaccusative *break* in (2) undergoes a causativization process, i.e. the addition of an eventive predicate CAUSE to the semantic decomposition.

(2) $break_{unacc}$: λx[BECOME broken(x)]
+CAUSE ↓
$break_{caus}$: λxλy[(y) CAUSE [BECOME broken(x)]]

With regard to linguistic facts, some unaccusative verbs in English have no causative counterparts, which seems to prove they are basically monadic. Example (3) is from Gu (1996: 7):

(3) a. The guests arrived.
b. *The party arrived many guests.

If the unaccusative *arrive* in (3a) is assumed to derive from its causative counterpart, at least (3b) should be a legitimate structure, which is, however, contrary to the fact. It follows that the direction of derivation should be from the unaccusative alternate to the causative one and the latter is not always licit.

In contrast to the causativization analysis, many studies claim that verbs showing causative alternation are inherently dyadic predicates which undergo a detransitivization process, deriving the unaccusative variant (Chierchia 1989; Levin and Rappaport Hovav(hereinafter L&R)1995, 2005; Reinhart 2002). L&R(1995: 83) propose a bi-eventive analysis of causative verbs whereby their lexical semantic representations(LSR) consist of a causing subevent and a central subevent connected by CAUSE. The argument "causer" is associated with the causing subevent and the theme with the central one. When the causative verb changes into the unaccusative variant, the causer is lexically bound in the mapping from LSR to argument structure(AS) and cannot be projected into the syntax. This is illustrated in (4):

(4) the unaccusative *break*

LSR: [[x DO-SOMETHING] CAUSE [y BECOME BROKEN]]

Lexical binding ↓ Linking rules ↓

AS: Ø <y>

L&R(1995: 85-86) observe some restrictions for English change-of-state verbs in their intransitive uses, which seems to prove the detransitivization analysis is on the right track. For example, *cut* in (5) only has a transitive use and lacks an unaccusative variant and *break* in (6) can be used intransitively only for certain choices of internal arguments.

(5) a. The baker cut the bread.

b. *The bread cut.

(6) a. He broke his legs/the contract/ the world record.

b. His legs/*The contract/ *The world record broke.

In recent years, the rationale of the derivational approach has been questioned by many based on the cross-linguistic facts(Haspelmath1993; Alexiadou *et al.* 2006; Schäfer 2009). The first problem concerns the morphological form of the alternation. Generally speaking, derived forms are supposed to be morphologically marked. So if the unaccusative form is basic, as the causativization view claims, the causative form is expected to be morphologically marked, and vice versa. However, both patterns can be found cross-linguistically (Haspelmath1993).

(7) a. causative marking:

Georgian: *duy-s* 'cook(unaccusative)'

a-duy-ebs 'cook (causative)'

b. unaccusative marking:

Russian: *katat'-sja* 'roll(unaccusative)'

katat' 'roll(causative)'

Furthermore, there are some languages in which both variants are morphologically marked, forming non-directed alternations. The Japanese example (8) can illustrates this:

(8) *atum-aru* 'gather(unaccusative)'

atum-eru 'gather(causative)'

The second problem concerns cross-linguistic differences in verbal and selectional restrictions. On the one hand, it is true that English unaccusative verbs such as *arrive* and *exist* have no causative variants, but their counterparts in such languages as Japanese allow the alternation. The example below is from Matsumoto(2000).

(9) a. Takushi-ga genkan-ni tsui-ta.

taxi-NOM front door-GOAL arrive-PAST

The taxi arrived at the front door.

b.Untenshû-ga takushi-o genkan-ni tsuke-ta.

driver-NOM taxi-ACC front door-GOAL arrive-PAST

The taxi driver brought (his) taxi to the front door.

On the other hand, although English verbs like *break* can only select certain types of subjects and verbs like *cut* and *kill* have no unaccusative variants, there are no such restrictions for their counterparts in such languages as Greek. Example (10) is from Alexiadou *et al.*(2006).

(10) a. O Petros/o sismos skotose ti Maria
Peter/the earthquake killed the Mary
Peter/the earthquake killed Mary.
b. I Maria skotothike (apo/ me ton sismo)
the Mary killed by/with the earthquake
Mary killed (by/with the earthquake).

These facts show both the causativization and detransitivization views do not fare satisfactorily with respect to the issue of verbal/selectional restrictions. The evidence for the directional approach is far from convincing.

2.2 The Present Non-derivational Studies and Their Problems

In view of the problems facing the derivational approach, some scholars argue for a non-derivational analysis, assuming a common base for the alternating verbs.(Piñón 2001; Alexiadou *et al.* 2006; Schäfer 2009, 2010). If the LSR of causative verbs involves three predicates CAUSE, BECOME and STATE, the sentence 'John opened the door again.' is supposed to have three readings. However, von Stechow(1995) observes that it only has restitutive and repetitive readings just as their unaccusative counterparts. Given this fact, Kratzer(2005) and the subsequent works (Alexiadou *et al.* 2006; Schäfer 2010) argue for the same event composition for both causatives and unaccusatives and they differ only in the presence vs. absence of *Voice*.

(11) a. The door opens
[CAUSE [the door √OPEN]]
b. John opens the door
[John [*Voice* [CAUSE [the door √OPEN]]]]

As shown in (11), the causative and unaccusative variants of *open* have and only have the CAUSE predicate in their event composition and the causative alternation is in essence a *Voice* alternation.

Since the two variants come from a common base, there is no need to distinguish the basic form from the derived one and the cross-linguistic differences in morphological marking and verbal/selectional restrictions do not pose a threat to the non-derivational approach. However, the previous non-derivational studies still face some problems. First, the *Voice* projection seems to have only syntactic function of introducing external arguments and no concrete eventive semantics. To integrate it into the event composition of causative verbs may result in a blending of syntactic units and event predicates. Second, if the two variants have one and the same CAUSE predicate in their event composition, then how can we determine the events denoted by them are externally or internally caused? In addition, the previous studies claim CAUSE can take part in the syntactic operations by introducing internal arguments, but this function has been questioned by many other scholars(Lin 2004; Ramchand 2008 among others).

3 A New Analysis Based on Huang *et al.*(2009)'s Theory

In this section, we will put forward a new non-derivational analysis of the causative alternation based on Huang *et al.*(2009), which can make some improvement on the previous studies. First we briefly introduce Huang *et al.*'s theory and then present our analysis.

3.1 An Brief Account of Huang *et al.*'s Theory

Huang *et al.*(2009) put forwards a new theory of argument realization based on the theory of Hale and Keyser(1993) and the Light Verb Syntax of Lin(2001). According to Huang *et al.*, a lexical verb is composed of a lexical root √ which conceptualizes a set of events *e* and a few light verbs(Lv) which indicate the event type of *e* by sifting the information on the participants of *e*, which directly determines the nature of the event type. The theory is presented in detail as follows:

(12) V ∈ {(√), [Lv1 √], [Lv2 √], [Lv2 [Lv1 √]] } , √ stands for a verb root.

(13) a. Lv1 manifests the type of event without an external cause and is approximately described as "enter S(state)" or "enter R(esult)". The participant that enters the state or relation is interpreted as Theme.

b. Lv2 manifests the type of event with an external cause which is approximately described as "bring about a dynamic E(event)" or bring about R". The external cause, interpreted as Agent or Originator, is implicated by Lv2 but not conceptualized as part of the event.

c. Other intrinsic participants of E, S and R are manifested as optional or obligatory theta-roles, as determined by √.

d. The choice of an Lv must not conflict with the type of event already coded in √.

e. Participant-information resulting from above must satisfy the theta-criterion.

According to this theory, the root √ contains information about participants and other relevant factors for the event. An Lv does not add any meaning to √ but only spells out the event type conceptualized in √. Likewise, a theta-role like Theme is not provided by Lv1 but is simply selected by Lv1 because it is the participant in the Lv1-types of event. That is to say, the theta-roles a given V must have are fundamentally determined by the type of event already encoded in √. For example, in English conceptualization, events of laughing and crying necessarily have an originator, so √*laugh* and √*cry* only are only compatible with Lv2 which implicates an external Agent role. In contrast, Chinese consider those events as either ones with an originator or involuntary outbursts of emotions, hence √*xiao*'laugh' and √*ku*'cry' in Chinese are compatible with either Lv1 or Lv2. The lexical semantic structures(LSSs) of these verbs are given below:

(14) a. laugh: [Lv2 √*laugh*]

b. cry: [Lv2 √*cry*]

(15) a. xiao 'laugh': [Lv2 √*xiao*] or [Lv1 √*xiao*]

b. ku 'cry' : [Lv2 √*ku*] or [Lv1 √*ku*]

3.2 A New Non-derivational Analysis of the Causative Alternation

From Huang *et al.*'s theory, we can see that variable-behavior verbs arise from the ambiguity of the event types that a verb root encodes and the compatibility of the root with different Lvs. If a root conceptualizes more than one type of events, it has the options of combining with Lv1 or Lv2, or both, resulting in different configuration in the LSS of the verb. We argue that the verbs undergoing the causative alteration are formed by the roots of this type. The causative and unaccusative variants share a common verb root, which conceptualizes different types of events and thus combines with different Lvs, resulting in two lexical verbs with different argument realization.

Let's take the verb *open* as an example to illustrate our point. In human conceptualization, the event of opening may be indentified as an event that simply comes about without emphasizing any external factor. In this regard, √*open* can conceptualize the type of event which happens without an external cause and is compatible only with Lv1, which implicates an internal Theme role. On the other hand, the event of opening can also be brought about by an external cause. That means √*open* can also conceptualize the type of event with an external cause, resulting in both Lv1 and Lv2 inside the verb's LSS. In brief, the same root √*open* can combine with Lv1 or both Lv1 and Lv2 to form different LSSs, which in turn determines the different argument structures for the verb. This is illustrated as below:

(16) a. open_1 LSS: [Lv1√*open*]
AS: V <Theme>
e.g. The door opened.
b. open_2 LSS: [Lv2 [Lv1√*break*]]
AS: V <Agent, Theme>
e.g. Bill broke the vase.

The above two verbs differ only in the presence vs. absence of Lv2 in their LSSs, but there is no direct derivational relationship between them. To be more exact, open_2 is not derived by adding an Lv2 to the LSS of open_1; neither is open_1 derived by taking Lv2 away from the LSS of open_2. According to our analysis, neither Lv1 nor Lv2 can be separated from the LSS of a verb since they are only a linguistic "spell-out" of the event type coded in √, not something that is totally independent of the semantics of √. In this sense, our analysis is also carried out from a non-derivational perspective as we take the two variants to come from one source, i.e. the root √, which, combined with different Lvs, constitutes two independent lexical verbs with different argument realization.

However, our analysis has some important differences from the previous non-derivational studies. First, although Lv2 is similar to CAUSE in terms of event semantics, their distinction is clear-cut in that the former adds no extra meaning to the root, nor does it participate in any syntactic operations as the latter does. The LSS of a verb only contains eventive light verbs and excludes the components such as *Voice* which make no contribution to the semantic composition of the verb. In this sense, there will no mixing of syntactic and semantic components.

Second, the previous studies stipulate the same event composition for both variants, but in our view, the two variants stem from one root which conceptualizes different

types of event. Whether the event encoded by a root is internally caused or externally caused can be clearly seen from the Lvs that the root is combined with.

Our analysis not only solves the problems faced by the previous non-derivational studies, but also gives a satisfactory explanation of the cross-linguistic differences in morphological marking. We assume that a lexical word is morphologically made up of a root and functional morphemes. The functional morphemes are often realized as affixes in languages, serving as a marker indicating the event types of verbs. The same verb root can be inflected with different affixes, forming different lexical items. For instance, the Georgian verb root √*duy* can take on different affixes, forming a causative verb and an unaccusative one respectively. See example (7a), repeated in (17):

(17) *a-duy-ebs* 'cook (causative)'
duy-s 'cook(unaccusative)'

In (17), the causative alternate is morphologically more complex than the unaccusative one, but they have no direct derivational relationship whatsoever because the suffix *–eb* is by no means a functional morpheme in itself. In our view, the two alternates are derived from one source, i.e. the verb root √*duy*. The causative variant is formed by adding both a prefix *a-* and a suffix *–ebs* to the root while the unaccusative variant is formed by adding a suffix *–s*. Neither of the two variants is derived from the other.

The Japanese example (8)(repeated in (18)) can be explained in a similar vein.

(18) *atum-aru* 'gather(unaccusative)'
atum-eru 'gather(causative)'

Both of the variants are morphologically marked and there is no telling which one is the basic. In our view, they both stem from a common root √*atum* which is inflected with different morphemes, forming two independent lexical items.

As for those languages with impoverished inflections such as English and Chinese, since they have no overt functional morphemes to mark verbs of various event types, we may sometimes get confused between the lexical verbs and their roots(e.g. *break* and √*break*) and between the variants of a verb(e.g. the causative and the unaccusative variants of *break*). If our analysis for the fully-inflected languages is on the right track, the two variants of the same form in English or Chinese can be regarded as a single root which takes on different covert functional morphemes, as shown in (19) and (20). Ø1 and Ø2 stand for the covert affixes marking the unaccusative and causative verbs.

(19) a. the accusative *break*=√*break*+Ø1
b. the causative *break*=√*break*+Ø2
(20) a. the accusative *chen* 'sink'=√*chen*+Ø1
b. the causative *chen* 'sink'=√*chen*+Ø2

4 Summary

In this paper, we adopt a non-derivational perspective for the analysis of the causative alternation. However, in view of the problems in the previous non-derivational

studies, we argue that the causative and unaccusative variants share a common verb root, which conceptualizes different types of events and thus combines with different Lvs, forming two lexical verbs with different argument realization. The cross-linguistic differences in morphological marking are due to the diversified forms(overt vs. covert) of functional morphemes combined with a root across languages. In this sense, our analysis is consistent with Chomsky's assumption that languages are universal in lexical roots and the computational system but differ only in the visible elements such as functional morphemes.

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