

# A Study of Non-alternative Causative Verbs and Unaccusative Verbs

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The aim of this paper is to reexamine causative and unaccusative verb alternations on the basis of Levin and Rappaport Hovav (1994, 1995), to point out problems and to present an alternative theory. The outline of this paper is as follows ; section one will take up the structural and semantic differences between unergative verbs and unaccusative verbs, section two will give a summary of Levin and Rappaport Hovav's analysis of unaccusative verbs, section three will bring out problematic verb classes, and present a tentative alternative theory.\*

## 1. Unaccusative and Unergative Verbs

In this section we will introduce two subclasses of intransitive verbs, that is, unergative and unaccusative verbs. The diagnoses of these classes are not rigidly set within a language nor across languages. Section 1.1 will be a brief introduction of the two verb classes. Section 1.2 will be supporting arguments of the classes. Section 1.3 will be opposing arguments against the classes. Section 1.4 will argue about different syntactic structures of those verbs and defend the classification. We will give our conclusion of the section in section 1.5.

### 1.1 Unaccusative Verbs

It has been observed that intransitive verbs can be subcategorized into two subclasses. The verbs in one subclass seem to have

a subject in d-structure as its s-structure subject, while the verbs in the other class seem to have an object in d-structure as its s-structure subject. The former verbs like (1a) are called unergative verbs and the latter like (1b) unaccusative verbs.

- (1) a. John shouted.  
b. The lake froze.

This distinction is first described in Perlmutter (1978) and he proposes so-called Unaccusative Hypothesis, that is, intransitive verbs are composed of unaccusative and unergative verbs, the distinction of these two classes are semantically made, and verbs are realized into different syntactic configurations in d-structure according to distinctive semantic constructions.

Perlmutter sets a criterion to classify intransitive verbs. According to the criterion, unergative verbs are predicates describing willed or volitional acts (such as *work, play, walk, laugh*), manner-of-speaking verbs (such as *shout, grumble*), sounds emitted by animals (such as *bark, roar*) and certain involuntary bodily process (such as *cough, sneeze, burp*). Unaccusative verbs are classified as predicates expressed by adjectival participles in English, predicates whose main argument is assigned the semantic role PATIENT (such as *burn, fall, sink*), predicates of existing, happening (such as *occur, end up*), predicates describing nonvoluntary emission of stimuli that impinge on the senses (such as *shine, clink, stink*), aspectual predicates (such as *begin, continue*), and duratives (such as *remain, survive*).

## 1.2 Evidences for the Verb Classes

The existence of the two verb classes is supported by the fact that unaccusative diagnostics are prevailed in languages.

Firstly, in Dutch impersonal passivizations occur only with unergative verbs. An intransitive unergative verb *gedanst* 'dance'

can be passivized with an impersonal subject, but an unaccusative verb *gebleven* 'remain' cannot.

- (2) a. Er wordt hier door de jonge lui veel gedanst.  
'It is danced here a lot by the young people'  
b. \*Er werd door de kinderen in Amsterdam gebleven.  
'It was by the children remained in Amsterdam'

The same phenomenon is seen in German.

Secondly, when intransitive verbs are used with auxiliary verbs, unaccusative verbs take 'have', and unergative verbs 'be' in Italian as shown in (3).

- (3) a. Giovanni arriva./Giovanni e arrivato.  
'Giovanni arrives'/'Giovanni has arrived'  
b. Giovanni telefona./Giovanni ha telefonato.  
'Giovanni telephones'/'Giovanni has telephoned'

Thirdly, Italian clitic *ne* is cliticized to surface subjects from unaccusative verbs but not from unergative verbs.

- (4) a. Ne arrivano molti.  
'Of them arrive many'  
b. \*Ne telefonano molti.  
'Of them telephone many'

Fourthly, only unaccusative verbs may undergo the process of adjectival passivization in English.

- (5) a. wilted lettuce/a fallen leaf  
b. \*a run man/\* a coughed patient/\* a swum contestant

Fifthly, in Lakota, the morpheme that adds to unaccusative

verbs and indicates a subject is also used in transitive verbs to indicate an object. Moreover the morpheme that adds to transitive verbs and indicates a subject is used in unergative verbs to indicate a subject. *Phe* is a transitive verb which means ‘to hit’, *haske* is an unaccusative verb which means ‘to be tall’, and *cheye* is an unergative verb which means ‘to cry’.

- (6) a. a +ma +ya +phe  
 loc +1PATIENT, obj +2AGENT, subj +hit  
 ‘You hit me’
- b. ma +haske/ ni +haske  
 1PATIENT, subj tall 2PATIENT, subj tall  
 ‘I am tall’ ‘You are tall’
- c. wa +cheya/ ya +cheye  
 1PGENT, subj cry 2 Agent, subj cry  
 ‘I cry’ ‘You cry’

Sixthly, if a verb has a null subject and agrees with a plural subject, it is interpreted as having an optional plural subject. In contrast, null subjects in unaccusative, middle and passivized verbs cannot be interpreted as optional plural subjects but only as specific subjects.

- (7) a. *pro* llegan cansados despues de un viaje tan largo.  
 pro arrive tired after of a trip so long  
 ‘They arrive tired after such a long trip’
- b. Aqui *pro* durmieron hace dos dias  
 here arb.slept ago two days  
 ‘Here arb. slept two days ago’

Seventhly, in French faire-par constructions, arguments in unergative verbs can be checked while arguments in unaccusative verbs cannot.

- ( 8 ) a. On le/lui laissera parler a son avocat.  
‘We will let him speak to his lawyer’  
b. On le/ \* lui fera parvenir a Jean.  
‘We will make it reach Jean’

Lastly, in English an unergative verb may not take a secondary resultative predicate which is predicated of its single argument, that is, its subject. While an unaccusative verb may take a secondary resultative predicate and it modifies the argument in its subject position.

- ( 9 ) a. \* We yelled hoarse.  
b. The bag broke open.

In contrast, so-called *X's way* constructions (explicitly described in Jackendoff (1990), Marantz (1992)) occur with unergative verbs but not with unaccusative verbs.

- (10) a. They worked their way to the top.  
b.??? The Arctic explores froze their way to fame.

### 1.3 Evidences against the Verb Classifications

Rosen (1984) argues against the dichotomy of intransitive verbs and Perlmutter's semantic criterion for the verb classification. She points out the line drawn between the classes changes from a language to another. In Italian a verb which means 'die' is unaccusative, though in Choctaw the same meaning is expressed by an unergative verb. A verb which means 'sweat' in Italian is an ergative, in Choctaw, however, is an unaccusative verb.

In addition to the cross-linguistic instability, some verbs do not behave as expected within a language. Bodily process verbs are to be unergative verbs according to Perlmutter's criterion. Rosen points out some Italian bodily process verbs do not choose the

auxiliary verb *avere* 'have' but *essere* 'be'.

- (11) a. *avere*: *ressare* 'snore', *sanuinare* 'bleed'  
 b. *essere*: *arrossire* 'blush', *zampillare* 'well up',  
*svenire* 'faint'

Moreover the Italian verb *continuare* 'continue' takes both 'have' and 'be' auxiliary verbs.

- (12) a. *Mario ha continuato.*  
 'Mario continued'  
 b. *Il dibattito e continuato.*  
 'The debate continued'

Williamson (1979) finds that in Lakhota some verbs which are expected to be unaccusative verbs take an agentive marker to indicate a subject. Some of those verbs are 'locative be', 'exist', 'dwell', 'live', and 'survive'.

#### 1.4 Syntactic Configuration of the Two Verb Classes

As Perlmutter defines an unaccusative verb as the verb which take a direct internal argument but not an external argument in argument structure, unaccusative and unergative verbs are supposed to have different argument structures. The evidences supporting the argument are found in the above mentioned secondary resultative predicates and *X's way* construction in English.

Secondary resultative predicates are assumed to follow the Direct Object Restriction, that is, a resultative predicate is predicated of only a direct object in the same sentence.

- (13) *John wiped the table clean.*

The resultative predicate 'clean' in (13) may only be interpreted

to modify the direct object 'the teable', not the subject 'John'.

When a resultative predicate appears in an intransitive verb sentence, the sentence is expected to be uninterpretable, since it has no object to be interpreted with the predicate. As we have shown in (9), only unergative verb sentences are unintelligible. However, unergative verbs may take a fake object of a reflexive pronoun, inalienable body parts, and the like and such a fake object is understood as identical with the subject.

(14) We yelled ourselves hoarse.

The secondary predicate is calculated to predicate the subject via the fake object or through coindexing with the fake object and the subject. Yet, unaccusative verbs take secondary predicates without fake objects and directly predicate their subject.

(15) The bag broke open.

In the above sentence 'open' predicates 'the bag'. This interpretation is secured if we assume the NP 'the bag' is located in the object position in d-structure, and then moved into the subject position in need of case assignment as Burzio postulates. Burzio generalizes an unaccusative verb as the verb which assigns no structural case to its object, assigns no  $\theta$ -role to its subject and which does not take an external argument.

In contrast to secondary resultative predicates, *X's way* constructions are only realized with unergative verbs.

(16) a. They worked their way to the top.

b. ??? The Arctic explores froze their way to fame.

(17) \* They worked their way. / \* They worked the tree.

The *X's way* construction (16a) is roughly interpreted as 'They

went to the top working.’ or ‘They got to the top by working.’ Its conceptual structure is assumed to be (18) according to Jackendoff (1990).

$$(18) \left[ \begin{array}{l} \text{GO} ([\text{THEY}], [\text{TO} [\text{TOP}]]) \\ [\text{WITH WORK} ([\text{THEY}])] \end{array} \right]$$

The verb in (16a) is of course an intransitive verb as shown in (17). The NP ‘their way’ is also a fake object and used in order to be predicated by the PP which expresses GOAL. An unaccusative verb, however, may not coexist with X’s way construction, nor it may take pseudo-object NP so that its subject may be predicated by a GOAL argument. This phenomena can also be explained by the assumption that unaccusative verbs have an argument in the postverbal position in d-structure. Since only a single argument is assigned in that position, the NP ‘one’s way’ cannot be allotted to the same position. But the post-verbal position in unergative verbs are not filled with any arguments either in conceptual structures or argument structures as shown in the secondary resultative sentences, so those positions can be filled with ‘one’s way’ and predicated by GOAL arguments.

### 1.5 Conclusion

Though they are a little peripheral in English constructions, both secondary resultative predicates and *X’s way* constructions present strong evidence for existence of unergative and unaccusative verb classifications. Some counterexamples are, indeed, shown in the section 1.2, but the variability of the borderline between the verb classes are soluble from semantic characteristics of individual verbs or verb classes. On the contrary, the class distinction seems to exist crosslinguistically and the distinctions lead intransitive verbs in many languages to behave differently

according to the respective classes. The above-mentioned variable behavior are best described by their distinctive argument structures.

## **2. Preceding Studies on the Analysis of Unaccusative Verbs**

In this section we will generalize semantic explanation and analysis of the distinction between unaccusative and unergative verb classes based on the latest and most elaborate theory presented in Levin and Rappaport Hovav (1994, 1995).

### **2.1 Internal and External Causation**

Levin and Rappaport Hovav analyze verbs into two types, externally caused event types and internally caused event types. The analysis is based on Smith (1970). According to Smith, verbs like *break* and *open* describe eventualities that are under the control of some external cause that makes such an eventuality happen. Verbs like *laugh* and *shudder* are, however, not to be externally controlled. These eventualities are caused by internal control of the arguments. Levin and Rappaport Hovav have changed slightly the notion of internal and external control. The term 'internal control' is rather awkward when it is used to describe non-agentive argument, which is sometimes called AUTHOR, of verbs like *blush* and *tremble*, or inanimate argument of verbs like *flash* and *buzz*. They lack the characteristics of control or volition, so the notion of internal causation seems more appropriate.

### **2.2 Causative and Unaccusative Verbs**

The distinction of internal and external causation reflects the fact that internally caused eventualities are realized as intransitive forms, though externally caused eventualities are generally realized as transitive verbs. Levin and Rappaport Hovav set the hypothesis that unaccusative verbs are basically causative transi-

tive verbs that have two arguments and describe externally caused eventualities. We can see the similarities in the constructions of the two verb classes in (19) and (20).

- (19) a. Antonia broke the vase/ the window/ the bowl/ the radio/ the toaster.  
 b. The vase/ The window/ The bowl/ The radio/ The toaster broke.
- (20) a. \*Antonia broke the cloth/ the paper/ the innocence.  
 b. \*The cloth/ The paper/ The innocence broke.

The transitive causative verb in (19a) selects the same NPs for its object as the intransitive unaccusative verb in (19b) selects for its subject, and (20) shows the NPs that are not selected for the objects of the causative form also cannot be selected for the subjects of the intransitive verb. The causative verb has the identical selectional restriction on its object to the unaccusative to its subject.

This relationship has been long noticed, and many postulate intransitive as basic verbs so that unaccusative verbs that are fewer in numbers are alternate into causative constructions and no constraints are required to restrict the outnumbered causative verbs that have no correspondent unaccusative verbs. Levin and Rappaport Hovav, however, following Chierchia (1989) and Reinhart (1991), argue the alternation does not arise from the process of causativization but from that of detransitivization under certain circumstances.

A causative verb is analyzed as a CAUSE predicate which has two subevents in its conceptual structure as exemplified in (21).

- (21) break : [[*x* DO-SOMETHING] CAUSE [*y* BECOME *BROKEN*]]

The first brackets within the outer brackets describes a causing subevent and the second brackets a central subevent which describes a resultative event. Each of the argument of causative verbs is associated with a distinct subevent. The causer argument is linked with the causing subevent and the passive participant, or, PATIENT or THEME, with the central subevent.

The selectional restrictions on subjects of intransitive verbs and objects of their basic causative verbs do not always correspond. One case of incompatibility is figurative expressions.

- (22) a. He broke his promise/ the contract/ the world record.  
b. \*His promise/ The contract/ The world record broke.

Transitive causative verbs allow wider range of NPs for their passive participants. These looser restrictions are the one of the evidence for deciding basic verbs, since the basic use of the verb will impose less strict restrictions on its arguments. Moreover, they point out the morphological evidence presented in Nedjalkov (1969). In sixty languages surveyed by Nedjalkov, 19 languages employ the same morphological form for causative transitive verbs and intransitive verbs, and 22 languages use causative verbs which are morphologically less complex form.

### **2.3 A Condition of Causative-Unaccusative Alternations**

In the process of causative-unaccusative alternations, the causing subevents are prevented from being expressed in some way and are alternated into unaccusative monadic verbs. Conditions of the detransitivisation of causative verbs follow from observations of the sentences like below.

- (23) a. The wind cleared the sky.  
b. The sky cleared.  
(24) a. The waiter cleared the table.

- b.\* The table cleared.

Not all of the externally caused event can be omitted. The human AGENT role argument is not deletable in (24). The verb *break*, however, can be detransitivized when it has an external human causer.

- (25) a. John broke the window.  
b. The window broke.

In addition to the human causer, the verb *break* can occur with an instrument, natural force, or circumstance as an external causer.

- (26) a. The stone broke the window.  
b. The storm broke the window.  
c. The window broke.

Causative verbs vary with their available external causer arguments.

- (27) a. John cut the tree.  
b. That axe cut the tree.  
c.\* The lightning cut the tree.  
(28) a. John shot the man.  
b.\* The rifle shot the man.  
c.\* A hailstone shot the man.

There seems to be an interesting grading scale and inclusive relationship in the selectional restriction. If a verb can take natural force as its external causing event, then it can take both an instrument and a human agent for its external causing event. A verb which can take a human agent argument but not an

instrument as its external causer cannot take natural force as its external causer, either. The causative verbs that take only a human argument as an external causer, such as *assassinate* and *murder*, cannot be detransitivized.

- (29) a. A young man assassinated the president.  
b. \*A gun assassinated the president.  
c. \*Political instability assassinated the president.  
d. \*The president assassinated.

Also, the causative verbs that take either an instrument or a human argument but does not take natural force as an external causer like *cut* and *clip*, cannot be detransitivized.

- (30) a. John cut the bread.  
b. That knife cut the bread.  
c. \*The rushing wind cut the bread.  
d. \*The bread cut.

The above observation leads them to the conclusion that only causative verbs that allow natural force to be an argument of externally caused eventuality can be detransitivized. This natural force condition is exemplified in (31).

- (31) a. The cook caramelized the suger.  
b. The hot weather caramerized the suger.  
c. The suger caramerized.

### 3. Problematic Causative Verbs

According to Levin and Rappaport Hovav (1994, 1995), many of the unaccusative verbs are originated from the process of detransitivization on causative verbs under natural cause condition. However, there are some causative verbs that meet the qualifica-

tion but do not alternate into unaccusative verbs like the verbs in (32) and (33).

- (32) a. The villain killed Bill.  
 b. That car killed Bill.  
 c. The virus killed Bill.  
 d. \*Bill killed.
- (33) a. The troops destroyed the city.  
 b. The bomb destroyed the city.  
 c. The earthquake destroyed the city.  
 d. \*The city destroyed.

Section 3.1 will list and classify non-alternative causative verbs, section 3.2 will point out a paradox of unaccusative analysis, and in section 3.3 we will present our alternative analysis of causative-unaccusative alternation.

### 3.1 The Classes of Non-alternative Causative Verbs

Levin (1993) gathers and classifies English verbs according to alternation types. In the section of Object of Transitive=Subject of Intransitive Alternations in Transitivity Alternations, she lists many causative/inchoative verbs that are expected to alternate into intransitive verbs. But quite a few verbs are marked as non-alternating causative verbs. The following verbs are non-alternating causative verbs. The classification and the names of the classes are Levin's.

- (34) VERBS OF CONTACT BY IMPACT :
- a. HIT VERBS: bang, bash, batter, beat, bump, butt, dash, drum, hammer, hit, kick, knock, lash, pound, rap, slap, smack, smash, strike, tamp, tap, thump, thwack, whack

- b. SWAT VERBS : bite, claw, paw, peck, punch, scratch, shoot, slug, stab, swat, swipe
  - c. SPANK VERBS : belt, birch, bludgeon, bonk, brain, cane, clobber, club, conk, cosh, cudgel, cuff, flog, knife, paddle, paddywhack, pummel, sock, spank, strap, thrash, truncheon, wallop, whip, whisk
- (35) TOUCH VERBS : caress, graze, kiss, lick, nudge, pat, peck, pinch, prod, sting, stroke, tickle, touch
- (36) DESTROY VERBS : annihilate, blitz, decimate, demolish, destroy, devastate, exterminate, extirpate, obliterate, ravage, raze, ruin, waste, wreck
- (37) VERBS OF KILLING :
- a. MURDER VERBS : assassinate, butcher, dispatch, eliminate, execute, immolate, kill, liquidate, massacre, murder, slaughter, slay
  - b. POISON VERBS (most) : crucify, electrocute, garrote, hang, knife, poison, shoot, smother, stab, strangle
- (38) VERBS OF CUTTING :
- a. CUT VERBS : chip, clip, cut, hack, hew, saw, scrape, scratch, slash, snip
  - b. CARVE VERBS : bore, bruise, carve, chip, chop, crop, crush, cube, dent, dice, drill, file, fillet, gash, gouge, grate, grind, mangle, mash, mince, mow, nick, notch, perforate, pulverize, punch, prune, shred, slice, slit, spear, squash, squish

We will describe the conceptual structure of DESTROY and MURDER VERBS and present a tentative explanation of their inability to detransitivize. Verbs in DESTROY and MURDER verb classes seem to be typical causative verbs, while those in other classes to be a little off-centered.

A verb in the classes of VERBS OF CONTACT BY IMPACT and TOUCH VERBS has, indeed, CAUSE predicate which takes

two subevents. One describes an externally causing subevent, and the other a resultative subevent. The resultative subevent, however, does not consist of an argument which is typically characterized as PATIENT.

- (39) a. John banged the door.  
 b. A stranger's fist banged the door.  
 c. The falling stone banged the door.  
 d. \*The door banged.
- (40) a. Bill broke the window.  
 b. The window broke.

The *door* in (39) certainly undergoes the event of knocking caused by human, instrument and natural force but the *door* is not necessarily changed or directly affected by the event. The notion of affectedness plays an important role in comprising resultative subevent as mentioned in Anderson (1977). On the other hand, *the window* in (40) undergoes the event of breaking and is changed into not an identical form as before.

As for verbs of CUTTING and POISON verb classes, they have interesting conceptual structures necessarily involving third argument, INSTRUMENT. It is likely that this argument triggers instrument subject alternation and conative alternation. The probe into causative verbs with INSTRUMENT will be discussed in the next research paper.

### 3.2 A Paradox of Causer Arguments

According to Levin and Rappaport Hovav, transitive causative verbs alternate into unaccusative verbs under their natural force condition at the level of conceptual structure. Arguments of externally causing subevent are supposed to be checked so that the arguments are not linked to the external position of predicates in argument structures.

To see causative verbs and their alternations from information structural view, transitive causative verbs set external causers in TOPIC positions and passives and unaccusative verbs recipients of actions there. Both mechanisms of passive and unaccusative alternation background external causers and foreground recipients.

- (41) a. John broke the expensive vase.  
b. The expensive vase was broken by John.  
c. The expensive vase broke.

The difference between the two lies in that passives somehow retain their external causers and take purpose clauses that have *pro* which needs to be coindexed with an argument that can control it. Unaccusative verbs, however, cannot appear with a purpose clause.

- (42) a. The expensive vase was broken to collect insurance.  
b. \*The expensive vase broke to collect insurance.

Passives are supposed to have their external arguments in their argument structures, but as mentioned above, unaccusative verbs do not.

Levin and Rappaport Hovav (1995), following Chierchia (1989), take up PP 'by oneself' to prove the structural difference between unergative and unaccusatives. Chierchia points out that the Italian counterpart *da se* modifies only unaccusative verbs. The English counterpart has two meanings, 'alone' and 'without outside help'. They claim that the prepositional phrase with 'without outside help' interpretation occurs only with unaccusative verbs just as Italian when it is found with an intransitive verbs. They made this claim because the interpretation of the adverbial modifier 'without outside help' supports the presence of a causing

subevent in a causative predicate. They go on to give their observation that “It is striking that the intransitive verbs that do not participate regularly in the causative alternation do not appear with the adverbial.” If it is found with a non-unaccusative intransitive verb as in (43), the most natural interpretation of the adverbial phrase is not ‘without outside help’ but ‘alone’.

(43) Molly laughed by herself.

(Levin and Rappaport Hovav 1995)

There are, however, counterexamples to the claim.

(44) a. The baby boy walked by himself.

b. My son swam on his back by himself today.

The sentence (44a) means ‘the baby boy walked unaided’ and the sentence (44b) ‘my son swam on his back without any help’. The adverbial seems to require a causer argument irrespective of internal or external. As unergative verbs have internal causer, the adverbials are interpretable.

(45) a. \*It rained by itself.

b. \*There is a bank on this street by itself.

The sentences in (45) do not have a causer argument in their predicate, so it is impossible to interpret them with the adverbial in question. What is crucial to the interpretation of ‘by oneself’ is that a predicate must have a causer argument that has capacity to instigate the event described by the predicate whether it is external or internal. The adverbial is a modifier which intensifies or puts a focus on a causer argument. The two interpretations of ‘alone’ and ‘without outside help’ are not so different. ‘Alone’ means ‘without any other causer’. ‘Alone’ focuses on the number

of causers and 'without outside help' focuses on the capacity of the causer in question. The choice between the two interpretation depends on its context. We could imagine a few contexts where we can interpret the adverbial modifiers in (46) have either reading.

- (46) a. John broke all the chinaware by himself.  
b. John washed every window by himself.

The adverbial 'by himself' in (46) is assumed its interpretation by the existence of causer argument 'John'. The adverbial requires a causer argument at some level of representation. Unaccusative verbs have an externally caused eventuality at the level of conceptual structures but not at the level of argument structures as it is clarified by the test of purpose clause. While passives of causative verbs have an external causation at the both levels of conceptual structure and argument structure. These causer arguments need not to be in subject positions in s-structure.

- (47) a. ? All the chinaware was broken by John by himself.  
b. All the chinaware was broken by John himself.

While positions of causer arguments are irrespective to the interpretation and grammaticality of sentences, the causer arguments must be realized in s-structure.

- (48) \* The vase was broken by himself.

The passive sentence of (48) has an external causer argument in its conceptual and argument structure, but when it is not realized as NP in s-structure, the sentence is, of course, ungrammatical. Reflexive pronouns are anaphors and Binding principle (A)

requires them to be A-bound in their governing category. The adverbial need their modifying predicates to have a causer argument realized as an NP in s-structure, so the causer argument is in d-structure, argument structure and conceptual structure.

Unaccusative verbs can be modified by the adverbial expression in question, so that the sentence (49a) has a causer argument in its s-structure. However unaccusative verbs cannot be modified by other adverbials specifying causer as shown in (49c), since more than one argument assigned the same semantic roles cannot coexist in one predicate.

- (49) a. The vase broke.  
 b. The vase broke by itself.  
 c. \*The vase broke by John/ the stone/ the wind.

If we follow the line of argument presented in Levin and Rappaport Hovav (1995), (49c) is unacceptable since the external argument has already been checked in its conceptual structure, cannot be linked to the argument structure, and not be realized in its d-structure and s-structure.

Though the sentences of (49a,b) are assumed not to have its causer argument in the s-structure, (49b) is interpretable. The compatibility of the adverbial and the predicate of (49b) shows the sentence has a causer argument. The paradox is that unaccusative verbs have one causer argument in s-structure and the other one, though checked, in conceptual structure.

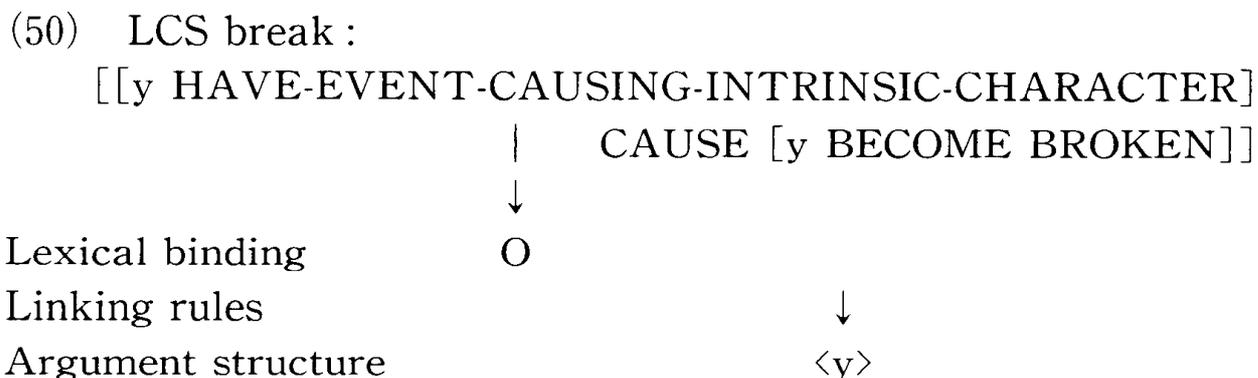
### 3.3 An Alternative Theory

Certain kinds of externally caused eventualities of some causative predicates are possible to happen in our ordinary lives without our noticing those causes. Though we know those events are brought about by some unknown events, when we cannot or need not specify the causes, those external causes are brought out

of the center of our consciousness. Our focus are brought into the other participant in the predicate, that is, the recipient of the event. When we see the event of which we did not notice the external causation, we seek its reason in other things. In the case of events described by causative verbs, the only participant where we could seek reason is the recipient. Causation tends to be attributed to the entity itself.

Most of the external causes that are unnoticed or unconceivable seem to be natural phenomena that we can not see nor understand. The natural cause condition correspondes to this part of our conceptual system. But in our conception, we have trouble in perceiving and stating events that happen without any causes. Vases broke because vases are fragile and made of breakable material, so the vases themselves contain the cause of breaking.

The conceptual structure (LCS) and the argument structure of the sentence (49a) are as follows.



Transitive causative verbs have two distinct participants as in (21), but unaccusative verbs have identical participants in their two subevents. The binding of the argument of the first subevent is due to the fact that it is no longer perceived as an externally caused subevent, but a state, or a characteristic of the causer which leads to the happening of the whole event.

The adverbial phrases 'by oneself' are interpretable in unaccusative constructions since the NPs identical as the causers in

conceptual structures exist also in s-structure.

- (51) a. The troops destroyed the city. (= (33))  
 b. The bomb destroyed the city.  
 c. The earthquake destroyed the city.  
 d. \*The city destroyed.

The sentence in (51d) is unacceptable because it is difficult to perceive cities themselves as the cause of the destruction, or to be destructed by their inherent characters. The unaccusative alternation needs another condition in addition to the natural cause condition, or unconceivable cause condition. It must be possible for us to conceive that recipient entities independently become causation of the event described by predicates.

DESTROY and MURDER verbs do not describe the events that have recipient participants which are easy to construed as the cause of the event.

#### 4. Conclusion

Unaccusative verbs are based on transitive causative verbs. Some causative verbs alternate into unaccusative verbs, if they meet the two conditions that (i) we cannot perceive external causation of the event described by a causative verb, and (ii) the event and the recipient participant of a causative verb are able to be construed as a self-causing event. The causative verbs that meet the conditions do not have typical lexical semantic representations of causative verbs but have LSR like (50). This reanalysis better explains why there are some nonalternative causative verbs and why the modifier 'by oneself' occurs with unaccusative verbs.

#### Notes

- \* I would like to thank Scott Ree for providing native-speaker judgement.

The responsibility for any remaining inadequacies is, of course, my own.

### References

- Anderson, M. "NP Preposing in Noun Phrases." in M. J. Stein, ed., *Proceedings of the Eighth Annual Meeting of the North Eastern Linguistics Society* (1997), Graduate Linguistics Student Association, University of Massachusetts at Amherst, 12-21.
- Bellettie, S., and L. Rizzi. "The syntax of *Ne*: Some Theoretical Implications." *The Linguistic Review* 1 (1981) : 117-54.
- Bresnan, Joan. ed. The Mental Representation of Grammatical Relations. Cambridge, Mass. : MIT Press, 1982.
- Burzio, Luigi. Italian Syntax : A Government-Binding Approach. Dordrecht : Reidel, 1986.
- Carrier, J., and J. H. Randall. "The Argument Structure and Syntactic Structure of Resultatives." *Linguistic Inquiry* 23 (1992) : 173-234.
- Chierchia, G. "A Semantics for Unaccusatives and Its Syntactic Consequences." Ms., Cornell University, Ithaca, N.Y. 1989.
- Comrie, Bernard. Aspect. Cambridge : Cambridge University Press, 1976.
- Declerck, R. 1979. "Aspect and the Bounded/Unbounded (Telic/ Atelic) Distinction." *Linguistics* 17 (1979) : 761-94
- Dixon, R. M. W. *Where Have All the Adjectives Gone? and Other Essays in Semantics and Syntax*. Berlin : Mouton, 1982.
- Dowty, D. R. Word Meaning and Montague Grammar. Dordrecht : Reidel, 1979.
- Dowty, D. R. "Thematic Proto-Roles and Argument Selection." *Language* 67 (1991) : 547-619.
- Fillmore, C. J. "The Case for Case." In Universals in Linguistic Theory, ed. E. Bach and R. T. Harms, 1-88. New York : Holt, Rinehart and Winston, 1968.
- Fillmore, C. J. "The Grammar of Hitting and Breaking." In Jacobs and Rosenbaum 1970, 120-33.
- Grimshaw, Jane. "Unaccusatives-An Overview." In *Proceedings of NELS 17* (1987), 244-59. GLSA, University of Massachusetts, Amherst.
- Grimshaw, Jane. Argument Structure. Cambridge, Mass. : MIT Press, 1990.
- Gropen, J., S. Pinker, M. Hollander, and R. Goldberg. "Affectedness and

- Direct Objects : The Role of Lexical Semantics in the Acquisition of Verb Argument Structure." *Cognition* 41 (1991) : 153-95.
- Gruber, J. S. "Studies in Lexical Relations" Doctoral Dissertation, MIT, Cambridge, Mass., 1965.
- Hoekstra, T. Transitivity : Grammatical Relations in Government-Binding Theory. Dordrecht, : Foris, 1984.
- Jackendoff, R. S. Semantic Interpretation in Generative Grammar. Cambridge, Mass. : MIT Press, 1972.
- . Semantics and Cognition. Cambridge, Mass. : MIT Press, 1983.
- . "The Status of Thematic Relations in Linguistic Theory." *Linguistic Inquiry* 18 (1987) : 369-411.
- . Semantic Structures. Cambridge, Mass. : MIT Press, 1990
- Jaeggli, O. A. "Passive." *Linguistic Inquiry* 17 (1986) : 587-622.
- Levin, Beth. English Verb Classes and Alternations : A Preliminary Investigation. Chicago, Ill. : University of Chicago Press, 1993.
- Levin, Beth, and Steven. Pinker, eds. Lexical and Conceptual Semantics. (Reprint) Oxford : Blackwell, 1992.
- Levin, B., and M. Rappaport. "The Formation of Adjectival Passives." *Linguistic Inquiry* 17 (1986) : 623-61.
- Levin, B., and M. Rappaport. "An Approach to Unaccusative Mismatches." In *Proceedings of NELS 19* (1989) : 314-28. GLSA, University of Massachusetts, Amherst.
- Levin, B., and M. Rappaport Hovav. "Wiping the Slate Clean : A Lexical Semantic Exploration." *Cognition* 41 (1991) : 123-51.
- . "The Lexical Semantics of verbs of Motion : The Perspective from Unaccusativity." Ed. Roca. 1992. 247-69.
- . "A Preliminary Analysis of Causative Verbs in English." *Lingua* 92 (1994) : 35-77.
- . Unaccusativity : At the Syntax-Lexical Semantics Interface. Cambridge, Mass. : MIT Press, 1995.
- Marantz, A. P. "The Way Construction and the Semantics of Direct Arguments in English." In *Stowell and Wehrli* 1992, 179-88.
- Moorcroft, R. "The Role of Semantic Restrictions in German Passive Formation." in *Germanic Linguistics : Papers from a Symposium at the University of Chicago*, J. T. Faarlund (ed.), 157-70. Bloomington, Ind. : Indiana

- University Linguistic Club, 1985.
- Nedjalkov, V. P., and G. G. Silnitsky "The Typology of Morpho logical and Lexical Causatives." In Trends in Soviet Theoretical Linguistics, R. Kiefer (ed.), 1-32. Dordrecht : Reidel, 1973.
- McClure, W. "A Lexical Semantic Explanation for Unaccusative Mismatches." Eds. Dziwirek, Farrell, and Mejias-Bikandi. 1990. 305-18.
- Perlmutter, D. M. Deep and Surface Structure Constraints in Syntax. New York : Holt, Rinehart and Winston, 1971.
- . "Impersonal Passives and the Unaccusative Hypothesis." Proceedings of the Fourth Annual Meeting of the Berkeley Linguistics Society, (1978) 157-89. Berkeley Linguistics Society, university of California, Berkeley.
- Reinhart, Tania. "Lexical Properties of Ergativity." paper presented at the Workshop on Lexical Specification and Lexical Insertion, (1991) Research Institute for Language and Speech, University of Utrecht.
- Rizzi, L. "Null Objects in Italian and the Thory of pro." Linguistic Inquiry 17 (1986) : 501-557.
- Rosen, C. "The Interface between Semantic Roles and Initial Grammatical Relations." In D. M. Perlmutter and C. Rosen, eds. (1984) : 38-77.
- Smith, C. S. "Jespersen's 'Move and Change' Class and Causative Verbs in English." In Linguistic and Literary Studies in Honor of Archibald A. Hill. Vol. 2 : Descriptive Linguistics, M. A. Jazayery, E. C. Polome, and W. Winter (eds.), 101-9. The Hague, : Mouton, 1970.
- Zubizarreta, M. L. "The Relation between Morphophonology and Morphosyntax : The Case of Romance Causatives." Linguistic Inquiry 16 (1985) : 247-289.