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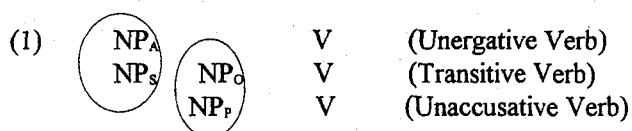
SEMANTIC PARAMETERS OF UNACCUSATIVITY*

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1. INTRODUCTION

In many languages, intransitive verbs are dividable into two classes in such a way that subjects of one class of verbs (i.e. unaccusative verbs) pattern with direct objects of transitive verbs, and that subjects of the other class (i.e. unergative verbs) pattern with subjects of transitive verbs, as shown schematically by (1).



The unaccusative hypothesis, originally proposed by Perlmutter (1978), attempts to account for the fact by positing two distinct syntactic representations for these two classes of verbs (see Burzio 1986, among others). Under the unaccusative hypothesis, while unergative verbs have non-derived subjects, unaccusative verbs have surface subjects which originate as direct objects.

- (2) a. Unergative verbs: [S NP [vp V]]
 b. Unaccusative verbs: [S [vp NP V]]

This is not the only view, however. Since there is a broad correlation between the unergative-unaccusative partition and the verbs' meanings, some researchers argue that the distinction is semantically motivated. If the unergative-unaccusative distinction is determined solely by way of the verbs' meanings, the syntactic representation is not necessitated. Recently, however, Levin and Rappaport Hovav (1995) advance the claim that unaccusativity is determined at a syntactic level (at D-structure in their framework), although the distinction is semantically motivated.¹ Their claim is, in a sense, an attempt to unify these two radically different views.

Levin and Rappaport Hovav have the assumption that the pattern of distribution typical of unaccusativity is syntactic in nature, but if this assumption is questioned, it turns out that their argument does not have a solid foundation. Even if we accept their assumption, there is a serious question we need to ask, that is, why does unaccusativity have a syntactic reflection if it is semantically determined? If the unergative-unaccusative distinction is solely determined by verbs' meanings, the syntactic representation is not necessary.

In this article, we would like to show, contrary to their claim, that positing syntactic representations for the unergative-unaccusative distinction is not only empirically unmotivated, but also make some false predictions. We will first show that there is good reason to believe that the English resultative construction, which Levin and Rappaport Hovav claim to support their view, does not support what they claim to show. We will also argue that the Japanese

deverbal nominal construction provides us with clearer evidence against the syntactic view for unaccusativity.

The main objective of the paper is to establish that the lexical meanings of verbs serve to distinguish between unergatives and unaccusatives. In this paper, we will demonstrate that the dividing line between the two types of intransitive verbs is drawn differently in the resultative construction and in the deverbal nominal construction. We will argue that the resultative phrase may be predicated of a direct internal argument which falls under the scope of BECOME in the lexical semantic representation of a verb, and that the deverbal nominal can target the lowest argument (to the exclusion of the agent), which does not fall inside the scope of DO in the lexical semantic representation of a verb.

2. THE LEXICAL NATURE OF THE RESULTATIVE PREDICATION

2.1. *English Resultatives*

Levin and Rappaport Hovav (1995) put forward the claim for the syntactic representation of unaccusativity, primarily in the light of the English resultative construction. The resultative construction at first blush behaves in a way that is expected in the syntactic analysis of unaccusativity. To begin with, resultative phrases may be predicated of the direct objects of transitive verbs as well as the sole arguments of unaccusative verbs.

- (3) a. John broke the vase into pieces.
- b. The vase broke into pieces.

Resultative phrases may also be predicated of surface subjects which originate as direct objects, as shown in (4).

- (4) The vase was broken into pieces.

By contrast, resultative phrases are unable to be predicated of the sole arguments of unergative verbs or the subjects of transitive verbs.

- (5) a. *John broke the vase tired.
- b. *John ran breathless.

With unergative verbs, it is possible to have fake reflexives or non-subcategorized NPs, by way of which resultative phrases may be predicated of their subjects.

- (6) a. Dora shouted herself hoarse.
- b. Sylvester cried his eyes out.

Fake reflexives or non-subcategorized NPs are not allowed for unaccusative verbs, so that the following sentence is ungrammatical.

- (7) *The snow melted the road slushy.

These are typical patterns expected in any unaccusative phenomenon, and Levin and Rappaport Hovav claim that the fact straightforwardly follows on the assumption that D-structure direct objects are the sole target for resultative predication.

Appealing though their claim is, there are a number of problems with this analysis. In fact, if the restriction on resultative predication is stated in terms of a D-structure configuration, the fact that not all underlying direct objects are subject to resultative predication cannot be explained unless some semantic conditions are added. First, consider the following.

- (8) a. *Willa arrived breathless.
b. *Sharon brought Willa breathless.

To account for the unexpected behavior of the resultative predication in (8), Levin and Rappaport Hovav claim, following Tenny (1994), that the verbs in (8) are verbs of inherent direction, and that since the verbs are lexically delimited, they cannot be further delimited by resultative phrases. Under their account, this semantic condition is necessary independently of a syntactic configuration.

Second, Levin and Rappaport Hovav's analysis cannot offer an account, again without adding some semantic condition, for the fact that resultative phrases cannot be predicated of the arguments of stative predicates.

- (9) a. *The appraisers felt the rug threadbare through their shoes.
b. *The Loch Ness monster appeared famous. [Rapoport 1993]

Levin and Rappaport Hovav suggest that the ontology of the eventualities encoded by stative verbs is incompatible with resultative phrases; that is, there is no such eventuality as a delimited state, and that is why the examples in (9) are unacceptable.

Levin and Rappaport Hovav appeal to the semantic conditions to account for the deviance of the examples above. Since, in these cases, what is excluded from the resultative predication is considered to be an underlying direct object, it may be possible to state that these sentences are ruled out by independent semantic conditions, claiming that D-structure configurations simply provide us with a prerequisite, or a necessary condition, for resultative predication.

In their analysis, it is expected that only a subset of D-structure direct objects are subject to resultative predication. However, there are cases in which resultative phrases may be predicated of non-derived subjects.

- (10) a. pounded-flat metal
b. Metal pounds flat easily.

Fagan (1988) and Carrier and Randall (1992) and others argue that the adjectival passive and the middle constructions involve the externalization of direct internal arguments, and that the externalized arguments are mapped directly onto subjects. If this is correct, that means that the resultative phrases in (10) are predicated of non-derived subjects. But the examples are still acceptable, contrary to what Levin and Rappaport Hovav's analysis predicts.

If, as claimed by Levin and Rappaport Hovav, the D-structure configuration is held responsible for resultative predication, it is not clear why resultative predication of a subject is allowed in (10). The fact indicates instead that if the lexical rule of externalization is operative, a resultative phrase is capable of targeting a subject. The correct generalization, then, is that the target of resultative predication is restricted to direct internal arguments, rather than underlying direct objects.

Furthermore, in view of the fact that the target of a resultative phrase is limited to a subset of direct internal arguments, which are typically construed as undergoing some kind of

change of state, the distribution of the resultative predication may be captured more succinctly by saying that a 'patient' argument, which is understood to undergo a change of state, is the target. Since a patient argument is typically realized as a direct object, the apparent syntactic behavior of the resultative construction naturally follows from this analysis.

If the discussion thus far is correct, then it is clear that the syntax is not the appropriate place where the target of a regulative phrase can be characterized. In any case, since the behavior of the resultative construction cannot receive a principled explanation at a syntactic level, the fact is clearly at variance with Levin and Rappaport Hovav's analysis. (They note some problems inherent to their syntactic view very briefly, but no substantial solution is offered for the problems noted.)

In the resultative construction, since it is possible for a resultative phrase to be predicated of a non-derived subject when externalization takes place, it may, in fact, be safely stated that the regularities found in the resultative construction can be naturally accounted for in lexical-semantic terms rather than in syntactic terms, albeit Levin and Rappaport Hovav's (1995) claim to the contrary.

2.2. Italian Resultatives

Resultative constructions are found not only in English but also in many other languages. The resultative construction in a language like Italian displays properties different from the English resultative construction. In Italian, the grammatical environment in which a resultative phrase can appear is more restricted than the environment in which the English resultative is allowed. First of all, as noted by Napoli (1992), a resultative phrase can only be predicated of the direct object of an accomplishment verb or the single argument of an achievement verb.²

- (11) a. Gianni ha dipinto la macchina rosa.
 Gianni have painted the machine red
 'Gianni painted the car red.'
 b. La bresaola si taglia sottile.
 the bresaola cut thin
 'Bresaola is cut thin.'

Other classes of verbs are disallowed in the resultative construction. A resultative phrases is unable to be predicated of the direct object of an activity verb in Italian.

- (12) *Gianni ha martellato il metallo piatto.
 Gianni has hammered the metal flat
 'Gianni hammered the metal flat.'

The Italian resultative construction does not permit a non-subcategorized direct object, either.

- (13) *Samuele ha riso Renato fuori dalla stanza.
 Samuele have laughed Renato out of the room
 'Samuel laughed Renato out of the room.'

In contrast, English allows for the addition of a resultative phrase to an activity verb (as well as to an accomplishment verb). Activity verbs do not carry a delimited sense, so that the verbs are usually not consonant with a time adverbial like *in one hour*.

- (14) a. *Mary pounded the meal in one hour.
 b. *Mary shouted in one hour.

With the addition of resultative phrases, however, activity verbs are turned into accomplishments, as evidenced by the time adverbial test in (15).

- (15) a. Mary pounded the metal flat in one hour.
 b. Mary shouted herself hoarse in one hour.

The difference between English and Italian is, then, that whereas, in English, an accomplishment semantics can be created through the addition of a resultative phrase, Italian cannot create an accomplishment semantics by adding a resultative phrase.³ Notice that this typological difference is hard to explain under a syntactic view. The limited productivity of the Italian resultative construction suggests that some factors other than a syntactic configuration are relevant for the determination of the target for the resultative phrases.

2.3. *The Semantic Parameter of Resultative Predication*

As discussed in Section 2.1, the target of resultative predication is restricted to internal arguments which refer to entities undergoing a change of state (i.e. inchoativeness). Having reviewed some problems with the syntactic view for unaccusativity, we are now in a position to consider how the target for resultative predication is defined in lexical semantic terms.

In the type of decomposed lexical-semantic representation which Dowty (1979) and others countenance, since a change of state is encoded by the operator BECOME, we can state that the potential target for a resultative phrase is an internal argument which falls under the scope of the operator BECOME. The representative verbs which contain the operator BECOME in their lexical semantic representation include achievement and accomplishment verbs. For instance, the achievement verb *break* has a lexical semantic representation in (16).

- (16) BECOME **broken**' (x)

Since the single argument of the intransitive verb *break* resides within the scope of the operator BECOME, the argument qualifies as a legitimate target for resultative predication if the verb denotes a change of state. (The change-of-state meaning is retrievable from the nature of the constant combined with BECOME, and since the lexical representation BECOME **broken**' represents a change of state, the sole argument may be successfully modified by a resultative phrase.)

The lexical semantic representation for an accomplishment verb like *paint* is of a complex form, as represented by (17).

- (17) [DO(x) **do**' (x)] CAUSE [BECOME **painted**' (y)]

Since the operator BECOME is included in the second clause of the lexical semantic representation, a resultative phrase may be predicated of the argument y, which falls inside the scope of the operator BECOME.

Note that in Italian, these two types of verbs constitute the class of verbs to which resultative phrases can be appended. Italian resultative phrases may be predicated of internal arguments only when the verbs denote a change of state, and the resultative phrases here are taken to provide a further specification of the end state which is specified by the meaning of the verb. (Interestingly, in English, just like Italian, when a resultative phrase is added to verbs

denoting a change of state, the resultative phrase only provides a further specification of the state denoted by the verbs, as pointed out by Levin and Rappaport Hovav (1995).)

In English, it is possible to add a resultative phrase to an activity verb. This is because a complex lexical semantic representation can be created with the addition of a resultative phrase. For instance, in unmarked cases, the activity verb *shout* in (18a) has a lexical representation like (18b).

- (18) a. Dora shouted.
b. DO(x) **shout'** (x)

When a resultative phrase like *hoarse*, which specifies the end state of the activity, is combined with the verb by way of a fake reflexive (or a non-subcategorized NP), as in (19a), the verbal complex comes to have a lexical semantic representation like (19b).

- (19) a. Dora shouted herself hoarse.
b. [DO(x) **shout'** (x)] CAUSE [BECOME **hoarse'** (x)]

This way of creating a new lexical semantic representation with the addition of a resultative phrase is a 'language-specific' strategy available for English, but not for Italian. Italian allows neither a fake reflexive nor a non-subcategorized NP, and consequently, it is not possible to add a resultative phrase to an activity verb.

It should be noted that the argument which a resultative phrase may be predicated of must be an internal argument. If it is an external argument, a resultative phrase cannot be added, which can clearly be envisaged by the example in (20).⁴

- (20) *John died honorable.

The example in (20) cannot mean that John died and as a result, he became honorable. The absence of a resultative interpretation is due to the fact that the NP *John* is realized as an external argument even if the verb denotes a change of state, as evidenced by (21).

- (21) John died a miserable death.

As reported by Levin and Rappaport Hovav (1995), verbs taking cognate objects are unergative verbs, i.e. verbs taking external arguments. The verb *die* takes a cognate object, and it is an unergative verb. Therefore, the subject nominal *John* must be an external argument.

Schwartz (1993) suggests that an attributive predicate could function as a theme in the lexical semantic representation. If the suggestion made by Schwartz applies to the verb *die*, and if the cognate object is indicative of the fact that *die* has a theme in its lexical semantic representation, the unacceptability of (20) can be accounted for straightforwardly on the basis of the following lexical semantic representation.⁵

- (22) BECOME **be'** (John, dead)

In this representation, the argument *John* is not an internal argument. Even if this argument falls within the scope of BECOME, the argument, therefore, cannot be a licit target for the resultative predication. By contrast, pure intransitive verbs which denote a change of state can take internal arguments, as in (23).

(23) John blushed red

In (23), the verb *blush* has a lexical semantic representations like BECOME **blushed'**(x), and since the verb has an internal argument, a resultative phrase can be added.

This type of analysis also provides a principled explanation of why it is not possible to add a resultative phrase to a stative predicate.

(24) *Carla remained in the country bored.

The unavailability of a resultative interpretation is straightforward. Since the lexical semantic representation for *remain* is **remain'**(x,y) (or **be-at'**(x,y)), the theme argument *Carla* does not fall under the scope of BECOME. In this case, the resultative predication is not possible.

Finally, note that for the resultative predication to be successful, the verb must express a change-of-state meaning. That entails that even if the operator BECOME takes scope over a direct internal argument, it does not automatically follow that a resultative phrase may be predicated of the argument. For instance, the sole arguments of verbs like *arrive*, as discussed above, cannot be targeted by resultative phrases.

(25) *John arrived breathless.

Here, although *John* may be a direct internal argument which falls under the scope of BECOME, it is not possible to obtain a resultative reading, since the verb *arrive* does not denote a change of state, but expresses a change of location. It is also not possible to create a relevant lexical representation with the addition of a resultative phrase, because the verb is not an activity verb.

The crucial point here is that we can account for the distribution of the resultative construction without appealing to the notion of D-structure. Although Levin and Rappaport Hovav (1995) argue that the distribution of the resultative construction provides evidence for their syntactic claim for unaccusativity, its distribution is more appropriately described at the level of the lexicon (or more precisely, by the lexical semantic representation of a verb).

To sum up, what we have shown in this section is that a resultative phrase can only target a direct internal argument which is understood to undergo a change of state. Since, in the lexical semantic representation, this type of argument falls under the scope of the operator BECOME, we can readily see that the lexical meaning of a verb, but not the syntactic configuration, provides a basis for accounting for the distribution of the resultative predication.

3. DEVERBAL NOMINALS

The foregoing section has seen that the behavior of the resultative construction cannot be explained in syntactic terms with full generality, albeit Levin and Rappaport Hovav's claim. In this section, we will look at another type of unaccusative construction, namely, the deverbal nominal construction, and present clearer evidence for the view that unaccusativity can be readily explained by the lexical semantic representation of a verb, rather than a D-structure configuration.⁶

3.1. Basic Patterns

The type of construction we will look at is what Kishimoto (1996) calls 'deverbal nominal construction'.⁷ It is relatively easy to show that this construction can be an unaccusative diagnostic.⁸ First, for a transitive verb, the deverbal nominal head must be a direct object.⁹

- (26) a. *yomi-kake-no* *sinbun*
 read-KAKE-GEN newspaper
 'a newspaper, halfway read'
 b. **yomi-kake-no* *Masao*
 read-KAKE-GEN Masao
 'Masao, halfway read'

In (26), where the transitive verb *yomu* 'read' is used, the head of the deverbal nominal construction must be read as the direct object, but not the subject, of the verb.¹⁰ Further, with a ditransitive verb, the head can only be a direct object, and not an indirect object.¹¹

- (27) a. *atae-kake-no* *miruku*
 give-KAKE-GEN milk
 'milk, almost given'
 b. **atae-kake-no* *akatyān*
 give-KAKE-GEN baby
 'the baby, almost given'

The deverbal nominal can check 'deep unaccusativity' in the sense of Levin and Rappaport Hovav (1995), since the class of arguments which can be picked out by the deverbal nominal construction are considered to originate from direct objects.

- (28) a. *sime-kake-no* *doa*
 close-KAKE-GEN door
 'the door, almost closed'
 b. *simari-kake-no* *doa*
 close-KAKE-GEN door
 'the door, almost closing'

In (28a), the direct object of the transitive verb *simeru* 'close' is preceded by the deverbal nominal expression, and in (28b), the head is the subject of the intransitive counterpart *simaru* 'close'. Notice that the subject of the transitive verb *simeru* 'close' does not fit for the head of the deverbal nominal construction.

- (29) **sime-kake-no* *Taroo*
 close-KAKE-GEN Taroo
 'Taroo, almost closing'

A comparison between (28) and (29) shows that the arguments bearing the same thematic relations are selected as the targets for deverbal nominal modification. It is easy to see, then, that surface grammatical relations have no bearing on the determination of the target. This view can further be confirmed by (30).

- (30) a. *tate-kake-no* *biru*
 build-KAKE-GEN building
 'the building, halfway building'
 b. *tate-rare-kake-no* *biru*
 build-PASS-KAKE-GEN building
 'the building, almost being built'

Example (30b) is a passive version of (30a), and is still acceptable, indicating that the target for deverbal nominal modification is not fixed by surface grammatical relations.

Intransitive verbs are divided into two classes. One class of verbs, i.e. unaccusative verbs, allow their single arguments to be preceded by deverbal nominal expressions, but the other class of verbs, i.e. unergative verbs, do not. First, consider (31).

- (31) a. *sini-kake-no kontyuu*
 die-KAKE-GEN insect
 ‘an insect, almost dying’
 b. *kare-kake-no hana*
 wither-KAKE-GEN flower
 ‘a flower, almost withering’

In (31), the verbs *sinu* ‘die’ and *kareru* ‘wither’ allow their single arguments to be modified by the deverbal nominal expressions. Since their single arguments pattern with direct objects of transitive verbs, they are unaccusative verbs.

By contrast, verbs like *asobu* ‘play’ and *hataraku* ‘work’ are not consonant with the deverbal nominal construction (even though the deverbal nominals have perfectly sensible meanings).

- (32) a. **asobi-kake-no Masao*
 play-KAKE-GEN Masao
 ‘Masao, almost playing’
 b. **hataraki-kake-no roodoosya*
 work-KAKE-GEN worker
 ‘the worker, almost working’

The sole arguments of these verbs may not be modified by the deverbal expressions, and behave like subjects of transitive verbs, and thereby they are unergative verbs. Intransitive verbs are partitioned into two classes in the deverbal nominal construction.

Given the discussion thus far, it is fairly clear that the deverbal nominal construction can pick out three classes of arguments, (1) direct objects of transitive verbs, (2) surface subjects of passivized transitive verbs, and (3) single arguments of unaccusative verbs.¹² Since this is the pattern expected in any unaccusative diagnostic, we can say safely that the deverbal nominal construction is an unaccusative diagnostic.

3.2. Semantic Parameters

In the light of the distribution of the deverbal nominal construction, we are tempted to claim that the fact can be explained by way of underlying syntactic configurations. But this claim would not have much force, and there are at least three types of empirical evidence against this view, which we will discuss one by one below.

A first argument may be deduced from the fact that the deverbal nominal construction does not consistently pick out an optional direct object. First, consider the following examples.

- (33) a. **warai-kake-no otoko*
 laugh-KAKE-GEN man
 ‘a man, almost laughing’

- b. naki-kake-no otoko
cry-KAKE-GEN man
'a man, almost crying'

Both *warau* 'laugh' and *naku* 'cry' are verbs of bodily motion (cf. Rosen 1984), but these verbs fall into different classes; *warau* is unergative and *naku* is unaccusative. Here, the difference is due to the fact that while the verb *warau* allows for an optional direct object, the verb *naku* does not, as in (34).

- (34) a. Otoko-wa (Hanako-no koto-o) waratta.
man-TOP Hanako-GEN fact-ACC laughed
'The man laughed at Hanako.'
b. Otoko-wa (*Hanako-no koto-o) naita.
man-TOP Hanako-GEN fact-ACC cried
'The man cried at Hanako.'

This constraint is not semantic by nature, because a similar meaning can be expressed by making use of a PP.

- (35) a. Otoko-wa Hanako-no koto-de waratta.
man-TOP Hanako-GEN fact-with laughed
'The man laughed because of Hanako.'
b. Otoko-wa Hanako-no koto-de naita.
man-TOP Hanako-GEN fact-with cried
'The man cried because of Hanako.'

The examples in (35) suggest that the availability or unavailability of accusative-marked nominal in (34) does not come from the meaning of the verbs *per se*, but that it is a matter of argument selection.

If an optional object always serves as a direct object underlyingly, then it is predicted that all the optional objects are subject to modification by deverbal nominal expressions. But this prediction is false.

- (36) a. nagare-kake-no gomi
flow-KAKE-GEN garbage
'garbage, almost flowing'
b. *nagare-kake-no kawa
flow-KAKE-GEN river
'the river, almost flowing'

In (36), the subject of the verb *nagareru* 'flow' is successfully modified by the deverbal nominal expression, and the accusative nominal does not count as a target for deverbal nominal modification.

- (37) gomi-ga (kawa-o) nagareta.
garbage-NOM river-ACC flowed
'Garbage flowed in the river.'

It might be argued that since the *o*-marked nominal in (36) is a locative argument, the deverbal nominal expression is not able to modify the argument.¹³ But this claim is readily counter-exemplified by the existence of an example like (38).

- (38) *aruki-kake-no haikingu-koosu*
 walk-KAKE-GEN hiking.trail
 'a hiking trail, halfway walking'

In (38), what the deverbal nominal expression modifies is the locative argument, showing that a locative argument is sometimes susceptible to deverbal nominal modification.¹⁴

Crucially, these locative arguments under consideration are marked with accusative, and therefore they must be present in direct object positions in syntax. But the locative arguments sometimes count as the target for deverbal nominal modification, but they are sometimes invisible to the determination of the target. In light of this fact, it is fairly clear that the target of deverbal nominals cannot be defined in syntactic terms.

A second argument in support of our view comes from the fact that deverbal nominal expressions do not always pick out direct internal arguments. As argued by Jackendoff (1990), pseudo-clefting may be a test for distinguishing between external and internal arguments, as in (39).¹⁵

- (39) a. What John did was cry/babble.
 b. What the ball did was bounce/spin/roll.
 c. ??What the window did was break/crack.

When pseudo-clefting applies to intransitive verbs in English, as shown in (39), only verbs taking external arguments are allowed. In Japanese, a comparable test is a VP fronting test, where a VP constituent is moved to the front of the sentence, as in (40).

- (40) a. *Odori/Sakebi/Naki-sae_i kodomo-ga t_i sita.*
 dance/shout/cry-even child-NOM did
 'The child even danced.'
 b. *?*Korobi/Obore-sae_i kodomo-ga t_i sita.*
 fall/drown-even child-NOM did
 'The child even fell/was drowned.'

On the VP fronting test, the intransitive verbs *odori* 'dance', *sakebu* 'shout', and *naku* 'cry' are allowed, so that these can be assumed to verbs taking external arguments. On the other hand, the intransitive verbs *korobi* 'fell' and *oboreru* 'drown' are excluded on the VP fronting test, suggesting that they take internal arguments.¹⁶

Turning to the question of what verbs are consonant with the deverbal nominal construction, we find a different pattern of distribution.

- (41) a. **hasiri/sakebi-kake-no kodomo*
 run/shout-KAKE-GEN child
 'the child, almost running/shouting'
 b. *naki/korobi/obore-kake-no kodomo*
 cry/fall/ drwon-KAKE-GEN child
 'the child, almost crying/falling down/drowned'

The deverbal nominal test shows that while the verbs *hasiru* and *sakebu* are unergative, the verbs *naku*, *korobu*, and *oboreru* are unaccusative. A comparison of these two tests in Japanese shows that external arguments include not only agent arguments but also effector arguments, whereas the only arguments excluded from the deverbal nominal test are agents. This fact clearly shows that the arguments which can be picked out by deverbal nominal expressions cannot be properly characterized in terms of the division between internal and external arguments. Since the distinction of external and internal arguments closely correlates with the notion of subject and direct object, it follows that the target for deverbal nominal modification cannot be defined in terms of underlying grammatical relations.

A third argument for our claim can be adduced from the fact that there is a wide range of cross-linguistic variation in the parameter of unaccusativity (though its variation is not entirely random). In Japanese, the prime parameter for unaccusativity is the agent/non-agent contrast.

- (42) a. **hasiri-kake-no rannaa*
 run-KAKE-GEN runner
 'the runner, almost running'
 b. *taore-kake-no rannaa*
 fall-KAKE-GEN runner
 'the runner, almost falling down'

In Italian, the dividing line, which can be diagnosed by auxiliary selection (or by *ne*-cliticization), is drawn based on the activity/non-activity contrast (see Van Valin 1990).

- (43) a. *La locomotiva ha fischiato.*
 the locomotive has whistled
 'The locomotive whistled.'
 b. *Mario ha fischiato.*
 Mario has whistled
 'Mario whistled.'

Notably, in Italian, motion verbs including *viaggiare* 'travel' and *rotare* 'rotate' are unergative irrespective of whether they take agent or non-agent arguments. The relevant distinction in Italian clearly has no bearing on the notion of agency, and instead the notion of the activity/non-activity contrast is relevant here.

The divergence of parameters for unaccusativity may also be envisaged by looking at the classification of individual verbs in different languages as well. Let us illustrate this point, based on Italian, Choctaw, English, and Japanese verbs carrying the meanings of 'die' and 'sleep'. First, in Italian, the verb meaning 'die' is unaccusative, while the verb whose meaning is equivalent to 'sleep' is unergative (Rosen 1984).

- (44) a. *Non sono morto*
 not am died
 'I did not die.'
 b. *Mario ha dormito*
 Mario has slept
 'Mario slept'

In Choctaw, the verb meaning 'die' is unergative, as evidenced by the presence of nominative marker (see Davis 1986).¹⁷

- (45) Illi-li-tok kiyo
 die-1-NOM-PST not
 'I did not die.'

In English, both types of verbs are found to be unergative, in that the former allows for the a non-subcategorized NP (when a resultative phrase is added), while the latter allows for a cognate object.

- (46) a. Sleep your wrinkles away. [Levin and Rappaport Hovav (1995)]
 b. John died a miserable death.

In Japanese, however, both types of the verbs are found to be unaccusative.

- (47) a. sini-kake-no musu
 die-KAKE-GEN insect
 'an insect, almost dying'
 b. nemuri-kake-no kodomo
 sleep-KAKE-GEN child
 'a child, halfway sleeping'

The question is why a wide range of divergence arises here. One possibility is that the components of meanings expressed by the verbs are not the same cross-linguistically. Another possibility is that the dividing line that distinguishes between unergatives and unaccusatives differs from one language to another.

If the D-structure representation serves as the basis for the unergative-unaccusative distinction, we do not expect such a wide range of variation. D-structure is a level where thematic relations are represented universally, and this level should be fairly constant across languages. If we hold a syntactic view on unaccusativity, the observed cross-linguistic variation in the memberships of each class of verbs is not expected. The fact provides us with a piece of suggestive evidence against the syntactic claim.

3.3. The Semantic Basis of Unaccusativity

The prime semantic parameter for unaccusativity in Japanese is the agent/non-agent contrast, as suggested above, but one might suspect that this claim may be falsified by looking at the inventory of unaccusative verbs in (48).

- (48) Unaccusative verbs:
 sinu 'die', oboreru 'drown', umareru 'be born', nemuru 'sleep' tissoku-suru
 'smother', furueru 'tremble', kuruu 'go wrong', komu 'be crowded', moeru 'burn',
 yowaru 'weaken', katamuku 'lean', naku 'cry', korobu 'fall down', naoru 'cure'

The list of verbs here includes verbs like *naku* 'cry', *nemuru* 'sleep', and *oboreru* 'drown', whose act can be done willfully.

- (49) a. Taroo-wa nemur-ooto-sita.
 Taroo-TOP sleep-tried
 'Taroo tried to sleep.'

- b. Taroo-wa nak-ooto-sita.
 Taroo-TOP cry-tryed
 'Taroo tried to sleep.'
- c. Taroo-wa obore-yooto-sita.
 Taroo-TOP drown-tryed
 'Taroo tried to get drowned.'

Other unaccusative verbs in the list such as *kusaru* 'rot' cannot be used in an agentive sense at all, and are in no way combined with (y)ooto suru.

- (50) *Tabemono-ga kusar-ooto-sita.
 food-NOM rot-tryed
 'Food tried to rot.'

Likewise, unergative verbs, which typically have agentive meanings, may sometimes be used non-agentively. Consider the following list of verbs.

- (51) Unergative verbs:
sakebu 'shout', *hasiru* 'run', *odori* 'dance', *okiru* 'get up', *noboru* 'climb', *asobu* 'play',
tatiagaru 'stand up', *oyogu* 'swim', *hataraku* 'work', *hanasu* 'talk', *hoeru* 'bark',
tatakau 'battle', *tobi-komu* 'dive', *haneru* 'leap'

For instance, the act expressed by the verb *sakebu* 'shout' can be carried out non-agentively, for the sentence can accompany an adverb like *omowazu* 'unintentionally'.

- (52) Taroo-wa omowazu sakende ita.
 Taroo-TOP unintentionally shouting was.
 'Taroo was shouting unintentionally.'

In the list of unergative verbs, we can also find verbs which are not consonant with the adverb *omowazu* 'unintentionally'.

- (53) ?*Taroo-wa omowazu hataraita ita.
 Taroo-TOP unintentionally working was.
 'Taroo was working unintentionally.'

For the sentence in (53) to make sense, we need to imagine a bizarre or unusual situation, thereby suggesting that an unergative verb does not always void its agentive meaning.

In the light of this fact, it might be suspected that agentiveness is not the precise parameter characterizing the division of the two types of verbs. However, the important point is that the unergative-unaccusative distinction is not directly correlated with the possible meanings of the verbs, but with their proto-type meanings. The verbs listed in (48) are prototypically non-agentive and those in (51) are prototypically agentive. Since these verbs may have some extended senses due to the nature of verbs (which may be a consequence of pragmatic implicature, as suggested by Holisky 1987), we cannot detect the precise factor relevant for the distinction simply by looking at the possible meanings of verbs.

One interesting confirmation for our claim that unaccusativity is determined on the basis of the verbs' proto-type meanings is obtained by looking at the meanings expressed by the following deverbal nominals.

- (54) a. *nemuri-kake-no onnanoko*
 sleep-KAKE-GEN girl
 ‘a girl, almost sleeping’
 b. *naki-kake-no onnanoko*
 cry-KAKE-GEN girl
 ‘a girl, almost sleeping’
 c. *obore-kake-no hito*
 drown-KAKE-GEN person
 ‘a person, almost drowning’

Interestingly, verbs like *nemuru* ‘sleep’, *naku* ‘cry’, and *oboreru* ‘drown’ are used as deverbal nominal modifiers, the verbs do not express agentive meanings (although they can carry agentive meanings in other contexts). This fact clearly shows that the unergative-unaccusative distinction is contingent upon the prototype meanings of the verbs.¹⁸

The discussion shows that the prime semantic parameter for the unergative-unaccusative division is fixed based on the notion of agency.¹⁹ The correct generalization, thus, is that with intransitive verbs, the ‘agent’ argument is excluded from deverbal nominal modification, while others are not.

In the decomposed lexical-semantic representation, the distinction can be readily characterized by appealing to the operator DO. For instance, the unergative verb *hasiru* ‘run’ has (55a) as its lexical representation, and the unaccusative verb *nemuru* ‘sleep’ has (55b).

- (55) a. $DO(x)[run'(x)]$
 b. $sleep'(x)$

The single argument of the verb *hasiru*, which falls under the scope of the operator DO, is an agent, but the single argument of the verb *nemuru* is an effector. Thus, the sole argument of the verb *hasiru* cannot be preceded by a deverbal nominal, but the sole argument of *nemuru* can.

In the case of the motion verb *aruku* ‘walk’, which may take an optional locative argument, the locative argument behaves like an adjunct semantically when it does not delimit the event, and is not encoded in the lexical semantic representation.²⁰

- (56) $DO(x)[walk'(x)]$

In such a case, since the locative argument is not represented in the lexical semantic representation, a deverbal nominal is unable to modify the locative argument. By contrast, if the verb is used as an accomplishment verb, its direct object serves as a delimiter, and the verb has (57) as its lexical semantic representation.

- (57) $[DO(x)[walk'(x)]] CAUSE [BECOME be-via'(x,y)]$

Here, the lowest argument is the locative argument, so that the locative argument can be preceded by the deverbal nominal modifier. In this case, the locative argument may be a legitimate target for deverbal nominalization.

In essence, the pattern of distribution observed in the deverbal nominal construction comes from the fact that the target for the deverbal nominal is the lowest argument (to the exclusion of the agent) in the lexical semantic representation of the verb. The agent nominal, which is construed as falling under the scope of the DO operator, is not a legitimate target even

if it is the lowest argument. Other types of nominals are allowed to be preceded by a deverbal nominal (if they count as the lowest argument). The prime semantic parameter for the deverbal nominal in Japanese is therefore agency.

The semantic parameter relevant for deverbal nominal modification in Japanese is different from the semantic parameter pertinent to the resultative construction in English. In view of the fact that the unergative-unaccusative division which is demarcated by the deverbal nominal construction cannot be characterized even by the distinction of external versus internal arguments, the Japanese deverbal nominalization shows, more robustly than the English resultative construction, that unaccusativity cannot be explained by an underlying syntactic representation. Since the distinction directly mirrors the aktionsart class of verbs, i.e. lexical aspects of verbs, the fact instead receives a principled explanation at the level of lexicon.

4. CONCLUDING REMARKS

In the present paper, we have examined two types of constructions, the resultative construction in English (as well as in Italian) and the deverbal nominal construction in Japanese, both of which are considered to serve as unaccusative diagnostics. At first sight, these two types of constructions look as though they provide evidence for a syntactic claim for unaccusativity, but a closer inspection of data shows that syntax is not the place where the behavior of these unaccusative constructions is properly characterized.

We have seen that the two constructions differ in the choice of the semantic parameter. In the resultative construction, the target for resultative predication is restricted to direct internal arguments which fall under the scope of BECOME. In the deverbal nominal construction, the argument which is bound by the operator DO is excluded from deverbal nominal modification, and other arguments are permissible as a target for deverbal nominal modification insofar as they count as the lowest argument in the lexical semantic representation of the verb.

NOTES

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1 In the Minimalist program, the problem is restated as the question of whether or not the single argument of an unaccusative verb is merged in 'direct object' position.

2. As noted by Napoli (1982), many of the intransitive verbs that have transitive counterparts require the presence of the clitic *si*. Under Napoli's view, the clitic is used to signify the presence of an underspecified human argument.

3. Japanese patterns with Italian in that a resultative phrase cannot occur with an activity verb.

- (i) *Taroo-wa kinzoku-o tairani tataita.
Taroo-TOP metal-ACC flat pound
'Taroo pounded the metal flat.'

It is, however, possible to say (ii).

- (ii) Taroo-wa kinzoku-o tataite tairani sita.
Taroo-TOP metal-ACC pound flat made
'Taroo made the metal flat by pounding.'

4. It is worth noting here that the verb *die*, which falls into an unergative class in English, constitutes an exception to Levin and Rappaport Hovav's (1995) linking rules.

5. I conjecture that a language generally has the option of selecting either BECOME *be'*(x,dead) or BECOME *dead'*(x) as the lexical semantic representation for the verb 'die', the former presumably being a marked choice. In English, the former is chosen, but in a language where the sole argument of the verb 'die' is an internal argument, its lexical semantic representation should be the latter. The fact seems to suggest that the constant *dead'* can be formed as a result of merging the theme argument and the predicate *be'* in the lexicon. In English the merger does not occur, while in other languages, it can. In any case, the point here is that the choice of the argument cannot be determined by looking only at what argument falls into the scope of BECOME.

6. Part of the material in this section is from Kishimoto (1996), but the analysis presented here is somewhat different.

7. In Japanese, there are several other affixes that can form deverbal nominal expressions, so that a number of varieties are found in the deverbal nominal construction.

- (i) a. *taki-kake-no gohan*
cook-KAKE-GEN rice
'the rice, halfway cooked'
- b. *yaki-tate-no pan*
bake-TATE-GEN bread
'bread, fresh from the oven'
- c. *kiri-gaji-no daikon*
cut-SASI-GEN raddish
'radish, halfway cut'
- d. *tabe-goro-no nasi*
eat-GORO-GEN pear
'the pear, good for eating'

The varieties of the deverbal nominal expressions here display patterns similar to the deverbal nominal affixed with *kake*, but they have some severe constraints on the combinations of verbs. The *kake* form is freest from idiosyncratic constraints among various variants, so that our discussion will center on the type with the affix *kake*.

8. The affixation of *kake* to a verb yields a nominalized form of the verb. The deverbal nominal construction can be used either predicatively or attributively.

- (i) a. *nomi-kake-no biiru*
drink-KAKE-GEN beer
'the half-drunk beer' (attributive)
- b. *kono-biiru-wa nomi-kake da.*
this-beer-TOP drink-KAKE COP
'This beer is half drunk.' (predicative)

As both types of the deverbal construction, to my knowledge, have exactly the same behavior with regard to the choice of arguments, we will make exclusive use of the attributive type in the ensuing discussions.

9. There are examples in which the head nominal bears an appositive relation with the verb, rather than a predicative relation, as in (i).

- (i) *warai-kake-no hyoojyoo*
laugh-KAKE-GEN facial.expression
'the facial expression of almost laughing'

We will not discuss this type of deverbal nominal expression.

10. When a case-marked NP occurs inside the verbal complex, we do not observe a contrast in grammaticality, as exemplified by (i).

- (i) a. *hon-o yomi-kake-no Masao*
book-ACC read-KAKE-GEN Masao
'Taroo, who is about to read the book'
- b. *Masao-ga yomi-kake-no hon*
Masao-NOM read-KAKE-GEN book
'a book, which Taroo is about to read'

This type of construction does not distinguish between unergative and unaccusative verbs, which means that it does not serve as a diagnostic for unaccusativity.

11. The 'direct object' constraint becomes more prominent if we look at locative verbs, which allow alternation between direct object and oblique nominals. For an alternating verb like *nuru* 'paint', it is possible to target either a theme or a location, as in (i).

- (i) a. *nuri-kake-no penki*
 paint-KAKE-GEN paint
 'paint, halfway spread'
 b. *nuri-kake-no kabe*
 paint-KAKE-GEN wall
 'the wall, halfway painted'

This is obviously correlated with the fact that the alternating verb allows either the theme or the location as its direct object.

- (ii) a. *Otoosan-wa kabe-ni penki-o nutta.*
 father-TOP wall-on paint-ACC painted
 'Father smeared paint on the wall'
 b. *Otoosan-wa kabe-o penki-de nutta.*
 father-TOP wall-ACC paint-with painted
 'Father painted the wall with paint.'

In the case of a non-alternating verb like *maku* 'splash', the possibility of deverbal nominal modification is more restricted.

- (iii) a. *maki-kake-no penki*
 splash-KAKE-GEN paint
 'paint, halfway splashed'
 b. **maki-kake-no kabe*
 splash-KAKE-GEN wall
 'the wall, halfway splashed'

This is due to the fact that the locative alternation is not permitted for *maku*.

- (iv) a. *Otoosan-wa kabe-ni penki-o maita.*
 father-TOP wall-on paint-ACC splashed
 'Father splashed paint on the wall.'
 b. **Otoosan-wa kabe-o penki-de maita.*
 father-TOP wall-ACC paint-with splashed
 'Father splashed the wall with paint.'

12. When we furnish a context rich enough to recover what we are talking about, a clear contrast in acceptability pertaining to the 'direct object' constraint tends to fade away.

- (i) *Sono toki, zisin-ga okotta. Tabe-kake-no hito-wa tyawan-o motta-mama,*
 that time, earthquake occurred eat-KAKE-GEN person-TOP rice.bowl-ACC hold-while
 kigae-kake-no hito-wa fuku-o motta-mama uti-kara tobidasita.
 change-KAKE-GEN person-TOP dress-ACC hold-while home-from rushed
 'At that time, an earthquake occurred. A person, halfway eating, rushed out of the house, holding a rice bowl, and a person, about to change, rushed out of the house, holding a dress.'

13. In this connection, note that the verb *nagareru* 'flow' has a transitive counterpart *nagasu* 'flow', where a theme argument appears as a direct object. In this case, the theme argument may be modified by the deverbal nominal expression.

- (i) *nagasi-kake-no gomi*
 flow-KAKE-GEN garbage
 'garbage, almost flowing'

14. An interesting question arises as to what distinguishes between (36b) and (38) in the modifiability of the deverbal nominal expressions. The following examples suggest that the difference lies in the meaning of the verbs.

- (i) a. *Kono gomi-wa kawa-o mikka-kan/??mikka-de nagareta.*
 this garbage-TOP river-ACC three.days-for/three.days-in flowed
 'This garbage flowed along the river for three days/in three days'

- b. Taroo-ga haikingu-koosu-o mikka-kan/mikka-de aruita.
 Taroo-NOM hiking-path-ACC three.days-for/three.days-in walked
 'Taroo walked a hiking path for three days/in three days.'

As shown by the behavior of the time adverbials, while the verb in (ia) is an activity verb, the verb in (ib) is an accomplishment verb. The direct object in (ia) does not delimit the event denoted by the verb, and in such a case, the direct object is invisible to deverbal nominal modification. See Section 3.3.

15. This argument using pseudo-clefting was suggested by Robert Van Valin.

16. If the VP constituent is not moved to the front, we observe no contrast in acceptability between verbs taking external arguments and verbs taking internal arguments, as shown below.

- (i) a. Kodomo-ga odori/sakebi/naki-sae sita.
 child-NOM dance/shout/cry-even did
 'The child even danced/shouted/cried.'
 b. Kodomo-ga korobi/obore-sae sita.
 child-NOM fall/drown-even did
 'The child even fell/was drowned.'

See Tateishi (1994).

17. In Choctaw, no data is available for the verb meaning 'sleep'.

18. The presence or absence of an agentive meaning in the deverbal nominal construction is less obvious with verbs like *kaeru* 'return'.

- (i) kaeri-kake-no kodomo
 return-KAKE-GEN child
 'a child, almost going back'

The reason seems to be that a verb like *kaeru* is neutral with respect to agentivity, but that it can often acquire an agentive meaning as part of meaning extension.

- (ii) kodomo-ga kaetta.
 child-NOM returned
 'The child returned.'

By contrast, verbs like *naku* 'cry', *sinu* 'die' are prototypically non-agentive, so that they are understood to be non-agentive in the deverbal nominal modification. In both cases, since the DO operator is not encoded in the lexical semantic representation, deverbal nominal modification should be successful. This stands in marked contrast with an unergative verb like *sakebu* 'shout', which encodes the operator DO in the lexical semantic representation.

19. It must be noted that an agentive meaning expressed by a verb is pertinent only to the division of intransitive verbs.

- (i) a. kiri-kake-no daikon
 cut-KAKE-GEN radish
 'the radish, almost cut'
 b. nakusi-kake-no sinyoo
 lose-KAKE-GEN credit
 'the credit, almost lost'

For a transitive verb, since the agent is always ranked higher than the other argument, the presence or absence of an agentive meaning does not affect the choice of the target of a deverbal nominal expression.

20. See Tenny (1994) for a justification of this claim.

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